

The Effect of Baby Friendly Hospital Initiative and Postnatal Support on Breastfeeding Rates – Croatian Experience

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ABSTRACT

The effects of implementation WHO/UNICEF Breastfeeding Hospital Initiative (BFHI) and community postnatal support on breastfeeding rates were examined during and after the breastfeeding promotion campaign in one county of Croatia. Comparison with a control group indicated increase of breastfeeding prevalence in a period of BFHI implementation (1994–1998) – 68% vs. 87% at infant age 1 mo., 30% vs. 54% at 3 mo., 11.5% vs. 28% at 6 mo., and 2% vs. 3.5% at infant age 11–12 mo. (chi-square test, $p < 0.05$). More considerable increase has been noticed in period 1999–2000 which is characterized by breastfeeding support groups activity: 68% vs. 87% at infant age 1 mo., 30% vs. 66% at 3 mo., 11.5% vs. 49% at 6 mo., and 2% vs. 23% at infant age 11–12 mo. (chi-square test, $p < 0.05$). Our conclusion is that activities aiming to promote breastfeeding in maternity hospitals have had limited success. They have resulted in satisfactory increase of breastfeeding prevalence in early infant's period, but for far-reaching effect postnatal support is also required.

Key words: breastfeeding, BFHI, postnatal support, breastfeeding support groups, Croatia

Introduction

There is some evidence that the implementation of the »Ten steps to successful breastfeeding« of the Baby Friendly Hospital Initiative (BFHI) can increase breastfeeding^{1,2}. Although implementing each step by itself has some effect, implementing all of them together can be expected to have a greater effect. To achieve successful initiation and maintenance of breastfeeding, community-based support is also needed³.

According to previous data, the rates of breastfeeding in Croatia were low, remarkably below the recommended levels⁴. During 1993–1998 UNICEF organized the breastfeeding promotion campaign in Croatia. The aims of the campaign were education of health professionals in primary health care and maternity wards, implementation of the »Baby Friendly Hospital Initiative«, establishment of breastfeeding support groups in community, and drawing public attention to the issue of breastfeeding. In 1995 one maternity ward was assigned as »Baby-Friendly Hospital« and by the end of 1998 followed another 14 out of 32 maternity wards in Croatia⁵. Community breastfeeding support was not established, except in one county and the International Code of Marketing Breastmilk Substitutes (the Code) was not implemented in our legislative. The results of the study from 1996 suggest that UNICEF breastfeeding promotion campaign proved to be effective⁶.

We have examined the effects of implementation WHO/UNICEF BFHI and community postnatal support during and after the breastfeeding promotion campaign on breastfeeding rates in one county of Croatia.

Material and Methods

Outline of the problem

In 1990 in Medimurje County 55% of newborns were breastfed, and 20% of 3-

months old infants⁷, because of that the County was among the counties with the lowest breastfeeding rate in Croatia. In that county, implementation of WHO/UNICEF BFHI was carried out from 1994 to 1997 and was successfully completed in July 1998, afterwards it was continued with support for breastfeeding in the community. The aim of our study was to explore the influence of hospital practice and postnatal support on breastfeeding rates.

Location

Medimurje County is one of 21 counties in the Republic of Croatia. According to 1991 census, the county had 119,866 inhabitants in 730 km² area. Majority of mothers (around 90%) deliver in maternity ward of County Hospital, which is the only one in the County, with yearly average of 1,371 deliveries in the period 1990–2000. There are five primary care pediatric offices, general practitioners who take care on infants in smaller villages without a pediatrician and altogether 17 visiting nurses in the County.

Study design

We studied two periods, with and without intervention according to breastfeeding promotion, and additionally we separated intervention period into two phases: the first phase with implementing BFHI and the second one with BFHI and postnatal support.

Period without intervention (control group), span 1990–1993, when breastfeeding promotion program did not exist.

The first phase of the intervention period characterized by implementing BFHI, span 1994–1998, when the implementation of UNICEF's breastfeeding promotion campaign has begun with informing, deepening sensitivity and education of health professionals and the public about breastfeeding. Printed and audiovisual materials promoting breastfeeding (post-

ers, videotapes, booklets, manuals, bulletins) were distributed to mothers (in maternity wards and primary care offices) and to health professionals who took care of mothers and children. During 1995–1996 pilot breastfeeding support group was in function and maternity ward's personnel has been trained to implement »Ten steps to successful breastfeeding« in accordance with UNICEF's 18-hour-course designed for maternity wards' staff, what has resulted in implementation of rooming-in. In May 1998, after two-day course for visiting nurses about community-based breastfeeding support management, breastfeeding support groups' establishment has been restored and the maternity ward has become Baby-Friendly Hospital.

The second phase of the intervention period, characterized by BFHI and post-natal support, span 1999–2000, when activities became oriented toward community. With well-established implementation of »10 steps« in maternity ward, emphasis was on breastfeeding support group's activity, in fact on establishing local groups' network. Videotape »Breastfeeding Support Groups« was presented at maternity ward. It is necessary to mention that all mothers of the newborns in maternity ward were given hospital discharge pack called »Happy Baby«, with promotional materials and infant necessities, which were not completely in harmony with the Code. After discharge mothers have joined the groups. Group members met on regular basis, every 4 weeks, in the house of a member, exchanged experiences and facts about breastfeeding, and between meetings kept in touch with the group leader by telephone. Mothers averagely attended group meetings six times. Groups were organized accordingly to the new, original model in which the visiting nurse and the mother-group leader had equally important roles. This model represents link be-

tween community-based lay support and professional support. The visiting nurse was the initiator of group establishment, and later was the professional coordinator and the supervisor of the group work. The mother-group leader was a volunteer who helped other mothers with her own breastfeeding experience. Her advices were based on facts from manual »Breastfeeding Support Groups – a Manual for Group Leaders«⁸. If the mother-group leader did not have sufficient knowledge and experience for adequate counseling of mothers regarding some breastfeeding problems, the visiting nurse would take over that task. In 2000, 17 visiting nurses were coordinating work of 32 breastfeeding support groups with 326 group members, and according to the number of deliveries, it represented around 30% of child-bearing women. Romanise mothers that traditionally breastfed their children for a long period of time did not join the groups (around 200 children per year).

Data collection and analysis

Data of a total of 7,414 infants from the area of Međimurje County during a period from 01/01/1990 to 12/31/2000 was analyzed in the study.

Data about breastfeeding prevalence in the period 1990–1998 was collected retrospectively, from primary health care doctors' medical records. Data of all infants from 14 primary care offices all over the County (pediatric or general practitioners' who take care of infants) was analyzed as a quota (around 50% county's urban and rural areas). The sample consisted of 5,075 infants: in the period 1990–1993 (period without intervention) the sample consisted of 2,818 infants which was 45.83% of newborns, and in the years 1994, 1995 and 1997/98 (the first phase of the intervention period – implementing BFHI) the sample consisted of 2,257 infants, which was 43.27% of newborns in that time period. Infant

feeding information was obtained from medical records completed for every child by doctors and collected by research assistant.

Data about breastfeeding prevalence in the period 1999–2000 (the second phase of the intervention period – BFHI and postnatal support) was collected by Child Health Card. The card was designed to register the data about child's development and health condition, which was taken from regular examinations during child's preschool age: at maternity discharge, at 1, 3, 6, 9 and 12 months completed age, and at 2, 4, and 6 years completed age. Among parameters there was also type of feeding (full breastfeeding, partial breastfeeding, formula feeding and cow's milk). Data was recorded by doctors educated for completing the Card. The sample consisted of 2,339 infants, which was 90.34% of newborns. During the infancy number of examinations has

been decreased because certain percentage of mothers does not bring child to the doctor's examination.

Regarding expression *breastfeeding*, it wasn't possible to apply standard WHO definitions (exclusive, predominant, full breastfeeding), because in the research period without intervention and the first phase of the intervention period these definitions were not in use. Therefore a term breastfeeding means any breastfeeding – child was considered breastfed if it had received at least one meal of human milk per day. In the second phase of the intervention period we summarized categories full breastfeeding and partial breastfeeding (breastfeeding and formula/other milk) into any breastfeeding to make possible comparison between study periods.

Descriptive statistics and chi-square test were used for the data analysis.

TABLE 1
PREVALENCE OF BREASTFED INFANTS BY AGE (PER MONTH) IN THE MEDIMURJE COUNTY, IN THREE TIME PERIODS: 1990–93 WITHOUT INTERVENTION, 1994–98 IMPLEMENTING BFHI AND 1999–2000 BFHI AND POSTNATAL SUPPORT

Year	Infant age in months									
	1 mo.		3 mo.		6 mo.		9 mo.		11/12 mo.	
	N_{BF}/N_{total}	%	N_{BF}/N_{total}	%	N_{BF}/N_{total}	%	N_{BF}/N_{total}	%	N_{BF}/N_{total}	%
1990	387/704	55	155/704	22	56/704	8	35/704	5	14/704	2
1991	548/750	73.1	233/750	31.1	113/750	15.1	68/750	9.1	15/750	2
1992	535/743	72	275/743	37	67/743	9	45/743	6	22/743	3
1993	447/621	72	193/621	31.1	87/621	14	25/621	4	12/621	2
1994	448/574	78	258/574	45	132/574	23	34/574	6.4	17/574	3
1995	484/605	80	296/605	49	163/605	27	61/605	10.1	24/605	4
1997/98	1035/1078	96	658/1078	61	345/1078	32	237/1078	22	/	/
1999	936/1060	88.3	700/1029	68	453/959	47.2	257/722	35.6	145/614	23.6
2000	918/1073	85.6	669/1035	64.6	438/846	51.8	166/492	33.7	65/307	21.2

Age 1, 3, 6, 9 mo. means month of completed age; 11/12 mo. means 11 completed months for period 1990–1997/98 and 12 completed months for the third study period (1999–2000)

N_{BF}/N_{total} – numerator indicates number of breastfed infants and denominator number of infants included in the study

Results

In the study interval, during these years, steady increase in breastfeeding prevalence is noticed among particular infants' age groups: 1, 3, 6, 9 and 11–12 months of infant's age (Table 1). In 1990 only 55% of 1-month-old infants were breastfed, compared to 96% during 1997/98. In the infant age of 3 months in 1990, 22% of infants were breastfed, compared to 68% in 1999, and in the infant age of 6 months in 1990, 8% of infants were breastfed, in comparison with 51.8% in 2000. The increase was particularly clearly marked in infants' age groups 9 and 11–12 months (5% and 2% in 1990 vs. 33.7% and 21.2% in 2000).

Comparison of the mean breastfeeding prevalence between two intervention phases (phase I – 1994–1998, implementing BFHI; phase II – 1999–2000, BFHI and community-based postnatal breastfeeding support), with control group (period before intervention – 1990–1993), in particular infants' age groups are shown in Table 2.

Among three time periods, statistically significant difference was found in breastfeeding prevalence for infants age 6, 9 and 11–12 months (analyzed by chi-square test, $p < 0.05$).

Compared to control group (period before intervention), during the first intervention 1994–1998 (phase I), on average double increase in breastfeeding prevalence was noticed at infants age 3, 6 and 9 months. Mild increase in breastfeeding prevalence is noticed in infant age 11–12 months (2.2% vs. 3.5%). But, breastfeeding rates are still inadequately low, particularly in infant age 6 and 9 months (28.4% and 14.7%).

During the second intervention 1999–2000 (phase II), compared to control group, increase in breastfeeding prevalence is noticed in all infants' age groups – the most prominent in the age 6, 9 and 11–12 months (11.5% vs. 49.4%; 6.1% vs. 34.8%; 2.2% vs. 22.8%).

Comparing phase I and phase II of the intervention period with the period before intervention shows steady increase

TABLE 2
MEAN PREVALENCE OF BREASTFED INFANT BY AGE (PER MONTH) IN MEDIMURJE COUNTY, IN THREE TIME PERIODS: 1990–93 WITHOUT INTERVENTION, 1994–98 IMPLEMENTING BFHI AND 1999–2000 BFHI AND POSTNATAL SUPPORT

Period	Infant age in months									
	1 mo.		3 mo.		6 mo.		9 mo.		11/12 mo.	
	mean N_{BF}/N_{total}	%	mean N_{BF}/N_{total}	%	mean N_{BF}/N_{total}	%	mean N_{BF}/N_{total}	%	mean N_{BF}/N_{total}	%
1990–93	1917/2818	68.03	856/2818	30.38	323/2818	11.46	173/2818	6.14	63/2818	2.24
1994–98	1967/2257	87.15	1212/2257	53.70	640/2257	28.36	332/2257	14.71	41/1179	3.48
1999–00	1854/2133	86.92	1369/2064	66.33	891/1805	49.36	423/1214	34.84	210/921	22.80

Age 1, 3, 6, 9 mo. means month of completed age; 11/12 mo. means 11 completed months for period 1990–1997/98 and 12 completed months for the third study period (1999–2000)

N_{BF}/N_{total} – numerator indicates number of breastfed infants and denominator number of infants included in the study

$p < 0.05$ for tested differences between three time periods in the infants' age of 6, 9 and 11–12 months

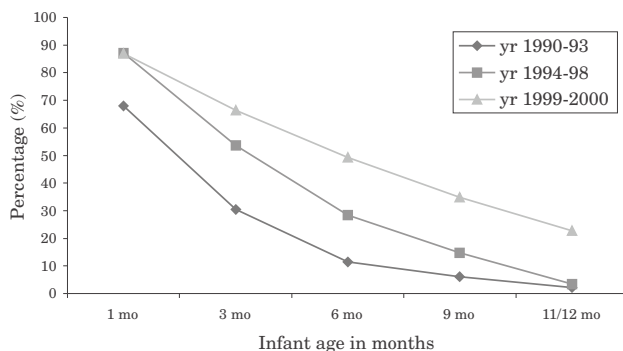


Fig. 1. Mean breastfeeding prevalence in Medimurje County at three time periods. Age 1, 3, 6, 9 mo. means month of completed age; 11/12 mo. means 11 completed months for period 1990–1997/98 and 12 completed months for the third study period (1999–2000).

in breastfeeding prevalence in infant age 3 to 12 months (Figure 1).

Discussion

The paper deals with the effects of Baby Friendly Hospital Initiative and community-based postnatal breastfeeding support on breastfeeding rates. Results of this study indicate positive effect of combined intervention in maternity ward and postnatal support. During the period of BFHI implementation, from 1994–1998 (I phase of the intervention period), breastfeeding prevalence has increased in all infants' age groups. But breastfeeding rates are still low especially in age group 6–12 months, which indicates that activities with the aim of breastfeeding promotion in maternity ward can only go so far, because satisfying increase in breastfeeding prevalence was noticed during 1–3 months of infant's age. Kersting and Dulong⁹ concluded similarly when they performed a research of breastfeeding prevalence in Germany, although 170 maternity wards included in the study had implemented only a few of »10 steps«. Also, the results of other researches indicate increase of breastfeeding initiation rates after BFHI implementation^{10–12}. In

general, there is a small quantity of papers evaluating implementation effect of all 10 steps on breastfeeding rates, specially in Europe, where is still a little number of maternity hospitals with BFHI, excluding Scandinavian countries. The papers evaluating the effect of combination of several steps on increase in breastfeeding prevalence indicate positive effect of the campaign, but most of them were limited to breastfeeding rates observed during short period after discharge from maternity hospital¹. The other reason why adequate data comparison cannot be done is terminology – presence of different breastfeeding definitions in the studies. As our study spans 10 years (1990–2000), in that period recommended WHO breastfeeding definitions were not in use.

Our results indicate increase of breastfeeding rates after the program was completely implemented, when the program activities have settled into routine. Breastfeeding support groups, although get only 30% of mothers into supportive activities, probably contribute to increase of breastfeeding rates in a high degree. It is noticeable especially in age groups 6–12 months. According to previous researches of mother support group's effects in envi-

ronments where this campaign was very successful (Guatemala), after three years of groups' activities, mothers' coverage was 25%¹³.

Available research findings evaluating the effects of combined intervention of BFHI and community-based support are very rare. The only possible comparison of our study can be done with the study of Kramer et al.³ in Byelorussia, which indicates positive effect of BFHI implementation and postnatal breastfeeding support on any breastfeeding rates, and increase in exclusive breastfeeding rate in the infant age of 3 months. But a term *postnatal breastfeeding support* in that study is related to a certain type of counseling by a pediatrician, not to breastfeeding support groups in our sense. So, we cannot completely compare our study with that of Kramer et al.'s, although they have implemented all other 9 steps.

Breastfeeding support groups in Croatia are specific regarding organizational model, and by work methods are almost identical to La Leche League (LLL) groups¹⁴. Although LLL and similar groups are active all over the world, researches evaluating their activity are rare. In our opinion that is because of: 1. self-selection of mothers-group members, and because of that, experimental research method is complicated for application; 2. groups are organized out of health care system (not easily accessible for researches or there is no sufficient interest for groups activity evaluation), and mothers-group leaders are not educated for researches; 3. sporadic groups establishment. Between two studies, one explores influence of LLL groups on breastfeeding prevalence¹⁵, and the other one exploring LLL groups influence as well as individual counseling by peer counsellors¹⁶. Both studies suggest positive effect on breastfeeding duration. Well-designed, randomized studies performed in Mexico, Bangladesh and Canada also suggest positive effect of in-

dividual peer support on breastfeeding duration^{17–19}.

Particularity of our situation is that all mothers of the newborns in maternity ward were given hospital discharge pack called »Happy Baby« since November 1998. Although the effect of discharge packs' distribution on breastfeeding initiation and duration is questionable, it probably also has played a role. The package content has been changed during 1999–2000 with the aim to be adjusted with the Code. According to some authors, package content does not play an important role, whereas the others claim that it is important, because the mothers which got a pump in the package, breastfed their children in the age of 8 weeks in a bigger percentage, compared with the ones which got infant formula^{20, 21}.

Our findings indicate that the implementation of the BFHI and postnatal support improved the rates of breastfeeding. However, the rates presented are of any breastfeeding. It can be presumed that the rates of exclusive breastfeeding are well below than WHO and UNICEF's recommendations. There is still a lot of work to be done within maternity hospitals and the health care system, including ongoing training for all health professionals who take care about mothers and children. Besides, groups' activities need to be kept alive.

Some limitations of this study need to be noted. First, the sample analyzed in this study was not representative of the Croatian population. Second, standard WHO breastfeeding definitions were not used. It is possible that each doctor may have used his/her own definitions and recall period, especially in the research period without intervention and the first phase of the intervention period. There is no measurement of the accuracy of breastfeeding recordings over that period of time. Third, we did not assess the effect of distributing discharge packs to new mo-

thers on breastfeeding prevalence and duration, which is an issue for future research.

Conclusion

»Ten steps to successful breastfeeding« of BFHI is a »golden standard« which enables maternity wards' staff to provide adequate breastfeeding support to the mothers and babies before discharge. The effect of BFHI is limited because satisfying results are achieved regarding breastfeeding initiation. To achieve maintenance of breastfeeding, continuing support for mothers in the community is needed. The best approach is the one that combines well-designed educational program with the change of hospital practice, and

a common activity of health professionals and volunteers. Further studies evaluating the results of combined interventions and different models of breastfeeding support groups, included cost-effectiveness studies, are needed. Also, implementation of other programs is required, including improvement of mother and child health care, education of the population and implementation of the Code as the law regulations.

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UČINAK INICIJATIVE *BOLNICE – PRIJATELJI DJECE* I POSTNATALNE POTPORE NA UČESTALOST DOJENJA – HRVATSKO ISKUSTVO

S A Ž E T A K

Ispitani su učinci implementacije SZO/UNICEF inicijative za »Bolnice – prijatelje djece« (BFHI) i postnatalne potpore dojenju u zajednici na učestalost dojenja u Međimurskoj županiji. Usporedba s kontrolnom skupinom pokazala je porast prevalencije dojenja u razdoblju implementacije BFHI (1994–1998.) – 68% vs. 87% u dobi 1 mj., 30% vs. 54% u dobi 3 mj., 11,5% vs. 28% u dobi 6 mj., te 2% vs. 3,5% u dobi 11–12 mj. (χ^2 -test, $p < 0,05$). Izrazitiji porast je zabilježen u razdoblju 1999–2000. koje karakterizira djelovanje grupa za potporu dojenju: 68% vs. 87% u dobi 1 mj., 30% vs. 66% u dobi 3 mj., 11,5% vs. 49% u dobi 6 mj., te 2% vs. 23% u dobi 11–12 mj. (χ^2 -test, $p < 0,05$). Zaključujemo da su aktivnosti u promicanju dojenja u rodilištima ograničenog dometa jer dovode do zadovoljavajućeg porasta prevalencije dojenja u ranoj dojenačkoj dobi, a za dalekosežniji učinak potrebna je i postnatalna potpora dojenju u zajednici.