

# Breastfeeding practice in Bosnia and Herzegovina

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## Abstract

Bosnia and Herzegovina is one of the new countries established after the break up of the former Yugoslavia. One of the unfortunate legacies of this country due to the 1992-1994 war is the destruction of human and material resources. Despite many negative events, steady progress can be seen in social, technological and cultural aspects of life.

According to the global public health recommendation, infants should be breastfed for the first six months of life to achieve optimal growth, health and development. Therefore, to meet their evolving nutritional requirements, infants should receive nutritionally adequate and safe food, with Breastfeeding (BF) extended up to and beyond two years of age. In Bosnia and Herzegovina (B&H) majority of mothers (estimated at 95%) have initiated breastfeeding. However, Exclusive Breastfeeding (EBF) is not commonly practiced, and BF ceases by the age of five months. After 1995, a number of programs were introduced by WHO and UNICEF in B&H with a primary goal to ensure that babies were given a healthy start in life. Through implementation of Baby-Friendly Hospital Initiative (BFHI), enabling exact public health survey – the Multiple Indicator Cluster Survey (MICS), it would be possible to create comparable health indicators and make a step forward to promote and support breastfeeding practice as the best option for infants.

## Keywords

Breastfeeding, survey, prevalence, duration, postwar health situation.

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## Introduction

Bosnia and Herzegovina, country formed after the break up of the former Yugoslavia, is situated in the southeastern part of Europe, i.e. in the western part of the Balkans peninsula. Its present establishment is a result of 1995 Dayton Accords, following the 1992-1995 war. War and postwar periods were marked with significant demographic movements. Prewar health care was relatively well organized: free health insurance for all segments of population, with children specially protected as the most vulnerable group in society.

Such good practices have been used up to date, despite the country's unsafe socioeconomic development, and severe political, economic and socio-cultural transition. Former Republic of Bosnia and Herzegovina, as a part of ex Yugoslavia, has been transformed into the State of Bosnia and Herzegovina, consisting of two entities: Federation of Bosnia and Herzegovina (F B&H) and Republika Srpska (RS), with a total area of 51,197 km<sup>2</sup>. Administrative structure is very complex, comprising ten Cantons and District of Brčko. Health services are legally guaranteed by the entity forms of insurance. Demographic profile reports on the total population of 3,760,000 (2010 est.), 49% being urban population, 8.47/1,000 infant mortality rate (2012 est.), 8/100,000 (2010) maternal mortality rate. Birth rate is estimated at 8.89 births/1,000 population (2012). Population growth rate is -0.003% (2011 est.) [1].

Percentage of population using improved drinking water sources was 99% (2008). Coverage of antenatal care (by doctor, nurse or midwife) is high, with all women receiving antenatal care at least once during the pregnancy (99%). Overall, 99% of births were delivered by skilled personnel and almost all were delivered in health care institutions. 99% percent of newborns were weighted at birth; around 5% estimated to have been born with birth weight below 2,500 grams [1].

## Survey on breastfeeding practice

In B&H back in the 1980s, before the war, a tendency of abandoning breastfeeding practice and a "silent" introduction of milk food supplements were noted. At the same time, an easy adoption of milk formula by mothers and remarkable conformity of health care professionals were rather emphasized. Aggressive promotion of infant formula producers was a constant practice during last decades.

After an initiation of Global Initiative for Breastfeeding by UNICEF and WHO [2], Initiative for Implementing of International Code of Marketing of Breast Milk Substitutes in 1981 [3], Innocenti Declaration in 1990 [4], Bosnia and Herzegovina also started changing the perception of breastfeeding as an optimal form of infant feeding not only for children, but for women's health too [5, 6]. Despite the fact that the damage is already done, there is positive experience of generations of pediatricians who have, since the 1980s, been slowly increasing a breastfeeding rate in the whole of the former Yugoslavia. Even in the country devastated and discouraged in the terrible war, health care professionals advised mothers and promoted breast milk as optimal infant food. This was, however, provided in a voluntary and enthusiastic manner, neither systematically, nor as a national and global strategy.

During the war some surveys on child health and nutrition were carried out by UNICEF and WHO in Sarajevo, Mostar, Tuzla, Zenica and Bihać. Consequently, certain data on breastfeeding rates and practice were available early in the war and were widely disseminated to government and international agencies, including Non Government Organizations (NGOs) [7]. Since 1993 UNICEF and WHO in cooperation with Ministries of Health have encouraged health professionals to an action for the promotion of breastfeeding throughout Bosnia and Herzegovina. A number of training seminars have been arranged and implemented throughout a campaign which resulted in the increase of breastfeeding rates [8].

A 1995 Baby Friendly Hospitals Initiative (BFHI) in B&H, supported by UNICEF and WHO turned into a national program to support, promote and help breastfeeding practice [9]. International Baby-Food Action Network (IBFAN) supported "Association for breastfeeding promotion" as a Non Government Organization (NGO). This Organization initiated a survey in 1997 to investigate the breastfeeding rate in six cities of the Federation of B&H (Sarajevo, Zenica, Mostar, Livno, Bihać, Goražde) [10].

In cooperation with UNICEF and Institute for Public Health F B&H a Project "Breastfeeding in F B&H" was initiated and performed according to the methodology and health indicators adopted from WHO and UNICEF [11].

In accordance with the Millennium Declaration (2000) [12] and the Plan of Action of World Fit for Children (2002) [13], a Program for monitoring the situation of children and women in Bosnia and

Herzegovina was started. The Multiple Indicator Survey (MICS) was originally developed in response to the World Summit for Children to measure progress towards an internationally agreed set of mid-decade goals. The sample for the F B&H MICS was designated as part of state level MICS, to provide estimates of health indicators at the entity level. The first round was conducted around 1995 in more than 60 countries. It has been a state source for monitoring the Millennium Development Goals (MDG) with 21 MDG indicators (particularly related to health, education and mortalities). From February 2013 there is available data on the MICS 4 (Multiple Indicator Cluster Survey-4) [14].

Also, big effort was made with Baby Friendly Hospital Initiative (BFHI). It began in 1995 and out of a total of 40 maternity wards in B&H, 55% of them (22 wards) were certified as “Baby Friendly” [15].

At that time, appropriate definitions were adopted from WHO [16]:

**Exclusive Breastfeeding (EBF):** The practice of feeding breast milk only, including expressed breast milk, excluding water, other liquids, breast milk substitutes and solid foods. Vitamin drops, minerals, oral rehydrating solution (ORS) and medicines may be given.

**Predominant Breastfeeding (PBF):** The practice of feeding breast milk only as predominant milk source. Water, sugar water, juices, ritual fluids, vitamin drops, ORS and medicines may be given.

**Partial Breastfeeding (PaBF):** Practice of breastfeeding only in addition to food or liquids including non-human milk and formula.

**Any Breastfeeding (ABF):** Includes exclusive breastfeeding, predominant breastfeeding and partial breastfeeding.

**Continued Breastfeeding (CBF):** Proportion of infants 12-15 months and 20-23 months who are breastfed.

**Timely Complementary Feeding (TCF):** Proportion of infants 6-9 months fed with breast milk and complementary food.

**Adequately Fed infants (AF):** Proportion of infants 0-11 months who are properly fed (i.e. 0-5 months EBF, 6-11 months: BF+ solid/semisolid foods, appropriate number of times).

### Breastfeeding practice during the observed time

Before the war no analyses were done on infants' nutritional status at the state level.

*First Nutritional Study (partial)* was done by WHO during 1994 as a pilot project. It showed that only 5% infants under 4 months were exclusively breastfed. There was a common practice in B&H of giving tea, sugar-water and juice early in first months, with bottle (42%); at that time, 25% mothers did not practice breastfeeding [10].

*Second comprehensive analysis* was taken in F B&H in 1997 [10]. It was organized by NGO (Association for breastfeeding promotion) in six cities in F B&H on 892 infants at the age 12-18 months. Main results were the following:

- 9.7% infants less than 6 months of age were exclusively breastfed;
- 64.3% were predominantly breastfed;
- 8.5% infants were continuously breastfed for 12-18 months. Tea and sugar water were given to almost all infants (90.3%) up to three months of age. To 28% of infants substitution food (milk formula) was given up to three months, and to 15% of them up to six months of age. 6% of infants up to three months, and 27% of infants up to six months were given cow milk.

*Third comprehensive analysis* (1999) [11] in F B&H was performed on 469 mother-infant pairs under 5 years of age:

- 8.1% infants below the age of 4 months were exclusively breastfed;
- 5.5% of infants below the age of 6 months were exclusively breastfed;
- 77.3% infants were predominantly breastfed during the age of 6 months;
- 37.1% of infants from 7-12 months old were partially breastfed;
- 40.7% infants were continuously breastfed during the first 12 months of age;
- 9.0% if infants were continuously breastfed during 24 months of age.

As the reason of weaning breastfeeding, 38.6% mothers stated that “there was not enough milk”. Analyzing complementary milk substitutes in the period 7-12 months of age, it was found that in 12.7% infants industrial milk formula was given, in 7.7% of them formula and cow milk were given, in 27.5% of infants cow milk or goat milk were given. Very early (0-6 months) mothers used to give tea, water and juice (71%).

*In 2006 in F B& H Multiple Indicator Survey 3 (MICS 3) was done* [17]:

- 51% of mothers initiated breastfeeding under first hour after delivery;
- rate of EBF under 6 months of infant age was 21.8%;
- rate of PBF was 43%;
- rate of CBF from 12-15 months was 33.8%;
- rate of CBF from 20-23 months was 13.1%;
- rate of TCF was 19.2%;
- rate of AF infants was 19.5%.

The same research was done in Republika Srpska:

- 71% of mothers initiated breastfeeding under first hour after delivery;
- the rate of EBF was 7.6%;
- the rate of PBF was 10%;
- the rate of CBF from 12-15 months was 11.0%;
- the rate of CBF from 20-23 months was 5.0%;
- the rate of TCF was 43.2%;
- the rate of AF infants was 22%.

No differences were noted in breastfeeding practice in urban and rural regions of B&H.

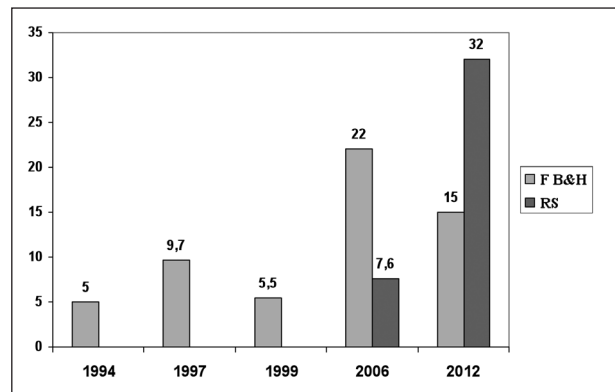
In February 2013, data of MICS 4 (2010-2012) [14] analysis with results for the whole country (B&H), were published:

- 42% if infants were breastfed under one hour after birth, and 87% under first day of age;
- the rate of EBF infants was 15% in F B&H, 32% in RS;
- the rate of PBF was 42% in F B&H, 63% in RS;
- the rate of CBF from 12-15 months was 12%;
- the rate of CBF from 20-23 months was 12%;
- the rate AF infants was 18%.

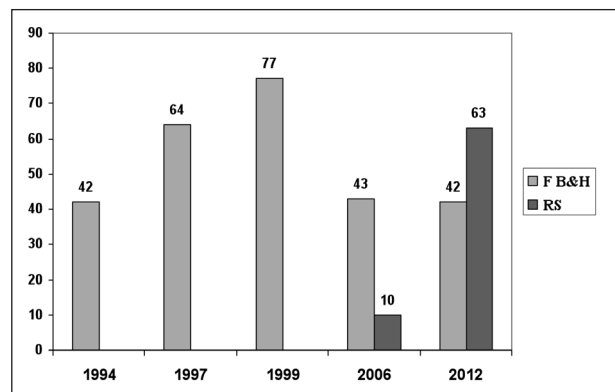
Bottle feeding practice of infants was also studied. It is worrying that 80% of infants aged under 24 months were bottle and pacifier fed, and 60% of infants aged under 6 months were bottle fed.

**Fig. 1** presents the evolution rate (%) of exclusively breastfed (EBF) children below six months of age during the period 1994-2012. We could conclude: average rate of EBF was slowly increasing from 5% in 1994 to 15% (2012) in F B&H. In Republika Srpska, significantly higher increase was noted (from 7.6% to 32%). **Fig. 2** presents the ratio (%) of predominant breastfeeding (PBF) through the observed time (1994-2012) in F B&H and in Republika Srpska (RS).

**Tab. 1** presents some of available data on infant feeding practice (1994-2012) in B&H, RS and whole B&H.



**Figure 1.** The rate (%) of Exclusive Breastfeeding (EBF) in Bosnia and Herzegovina (B&H) under six months of age (1994-2012). The rate (%) in Republika Srpska (RS) is also reported.



**Figure 2.** The rate (%) of Predominant Breastfeeding (PBF) in Bosnia and Herzegovina (B&H) under six months of age (1994-2012). The rate (%) in Republika Srpska (RS) is also reported.

### Reasons for early weaning

Several analyses studied the reasons for weaning breastfeeding. In a study about infant feeding in F B&H (1997) [11], 51.2% mothers stated “lack of milk” as a reason for weaning BFP. In 17% – mother or baby had a medical problem. Only 1.5% of mothers decided not to breastfeed. Similar results were found in student surveys in the region of Herzegovina.

Some reasons for weaning breastfeeding in F B&H (2002-9) are presented in **Tab. 2**.

### Attitudes and knowledge about breastfeeding

The sources of information about advantages of breastfeeding for mothers differ according to the region of B&H. In two student surveys in

Hospital Nova Bila and Mostar Health Center, medical staff provided mothers with significant amount of information. In the Analysis at University Hospital Mostar only 27% mothers received information on nutrition from medical staff, and in high percentage mothers on their own decided on feeding the babies, without special influence (**Tab. 3**). Also, mother's

mother is a very important person influencing breastfeeding practice. For example, in one of these analyses (Livno Health Center, 2008) to a question about the type of mother's feeding when she was an infant, 83% of mothers answered that they were breastfed, 8.5% had industrial formula supplement, 1.5% were cow milk fed, and 1.5% were fed with mother's milk and formula.

**Table 1.** Some available data on infant feeding practice in B&H (1994-2012).

	WHO Nutritional Study, F B&H, 1994	Study on breastfeeding practice in infants in F B&H, 1997	Project "Breast-feeding in F B&H", 1999	MICS 3, B&H, 2006	MICS 4, B&H, 2012
EBF	5%	9.7%	5.5%	21.8% (F B&H) 7.6% (RS)	15% (F B&H) 32% (RS)
PBF	42%	64.3%	77.3%	43% (F B&H) 10% (RS)	42% (F B&H) 63% (RS)
PaBF	28%	–	37%	–	–
CBF	–	8.5%	9%	25.7% <sup>a</sup>	12% <sup>a</sup>
TCF	–	–	40.7%	33.6% <sup>a</sup>	35.8% <sup>a</sup>
AF	–	–	–	20.4% <sup>a</sup>	18.2% <sup>a</sup>

EBF: Exclusive Breastfeeding; PBF: Predominant Breastfeeding; PaBF: Partial Breastfeeding; CBF: Continued Breastfeeding; TCF: Timely Complementary Feeding; AF: Adequately Fed.

<sup>a</sup>Approximate values for whole B&H.

**Table 2.** Some reasons for weaning breastfeeding in F B&H (2002-9).

Reasons	Survey in F B&H, 1997, 892 mothers	Survey in F B&H, 1999, 469 mothers	Survey in Nova Bila, 2002-3, 1395 mothers	Survey in Mostar, 2002, Health Center, 95 mothers	Survey in Mostar, 2003, University Hospital, 326 mothers*	Survey in Livno, 2009, Health Center, 155 mothers
Lack of breast milk	51.2%	38.6%	64%	68.4%	68.0%	37%
Mother's illness	17%	10.9%	7.2%	5.2%	9.0%	15%
Infant's illness		4.3%	5.6%	7.3%	3.5%	–
Personal decision	1.5%	23.1%	14.5%	12.6%	4.0%	48%
Return to work	No data	No data	8.6%	6.3%	1.5%	No data

\* Šimić at all. [18]

**Table 3.** Information on breastfeeding in F B&H.

The source of information	Survey in Nova Bila, 2002-2003, 1395 mothers	Survey in Mostar Health Center, 2002, 95 mothers	Survey in University Hospital Mostar 2003, 326 mothers	Survey in Livno, Health Center, 2008, 155 mothers
Medical staff	64%	66.3%	27%	–
Media	9%	9.4%	21%	33%
Grandmother	16.4%	16.8%	17%	61%
Husband	–	–	6%	1%
Husband	6.6%	2.1%	2%	5%
None	4%	4.2%	30%	–

## Discussion

Promotion of breastfeeding practice in Bosnia and Herzegovina had two evolutionary stages:

1. before the war (before 1992);
2. after the war (1995).

Before the war there were no population studies about breastfeeding practice. Promotion of breastfeeding was a part of individual voluntary action of some medical workers or medical institutions. First population survey in the new country was done under WHO and UNICEF supervision and support in 1993/4 (during the war).

It was concluded that the rate of exclusive breastfeeding is devastatingly low. That is, only 5% of mothers breastfed their children. Sugar water and tea were very early included in feeding practice [10].

Robertson A. et al. achieved similar results in the 1993 research in besieged Sarajevo [8]. It was carried out on resident and refugee mothers: only 6% mothers exclusively breastfed their infants below 4 months of age. The authors pointed out that it was a result of lack of relevant education of health workers. But, from our point of view, it could have been caused by turbulent war situation and unsafe atmosphere resulting in mothers' confusion. Many medical workers were apathetic and tried to survive. In one word, there were a lot of interactive factors influencing breastfeeding practice during the war. The other analysis from the same time (1992-1994) in another part of Sarajevo (Dobrinja) showed that 87% babies were breastfed until 12 months of age. The author concluded it was a result of breastfeeding promotional activities by the UNICEF and other humanitarian organizations in Bosnia and Herzegovina [19]. This is a possible explanation, but, having in mind the situation in Bosnia and Herzegovina, it could be a result of little safer situation in Dobrinja, the part of Sarajevo not besieged at that time.

However, the conclusion of survey done by WHO and UNICEF showed that it was necessary to start with completely new medical and political action in promotion and support of breastfeeding in Bosnia and Herzegovina. As a new country, B&H ratified various international agreements among which UN declaration on the Rights of children. Under special support of WHO, UNICEF and IBFAN, the results achieved in the field of infant nutrition are considered of high human priority.

It is evident that these results could be improved, providing the advance of health and economic situation in the country and stronger efforts in the implementation of Millennium Declaration [2].

Great effort in promotion and support of breastfeeding in Bosnia and Herzegovina was achieved by NGOs. Special enthusiasm was shown by the "Association for breastfeeding promotion" headed by Ms Mira Ademović, MD, pediatrician. NGOs, WHO, UNICEF and IBFAN gave a great impetus to medical workers and a new approach and attitude to breastfeeding practice were encouraged in B&H. The period between 1994-2012 met a significant improvement of exclusive breastfeeding from 5% (1994) to 19% (2012) and predominant breastfeeding from 42% (1994) to 46% (2012) (MICS 3 and 4) [14, 17]. The result of monitoring BF practice differs throughout the Europe, depending on the region. Many European countries experienced a great increase from mid 1980s up to 1997 [20], followed by a period of certain stagnation. It seems that there are many interactive factors influencing infant feeding practice [20-23]. With WHO Global strategy on Infant and Young Child Feeding [24] there is a significant improvement in EBF in South Asia (44%) [25]. Some African countries have a significantly high rate of EBF up to six months after delivery (Nigeria) [22], but in central and eastern Europe, there is the lowest rate of EBF (about 20%) [26]. Nevertheless, Central and Eastern countries made significant improvement doubling the rates from 10% to 20% between 1996 and 2006 [26]. All studies in B&H from 1994-2012 stated very early introduction of tea, sugar water and juice in feeding practice (at 58% by 3 months in 1994; and at 71% in 1999) [10]. Such practice has a bad influence on the rate and duration of EBF. It is clear that better education and the change in the attitude and practice of breastfeeding among medical workers is a priority [24, 27].

Research on the reasons of weaning BF in our studies in B&H showed a higher percentage of mothers whose impression was "lack of milk", similar to the results of other research studies [18, 28-30]. However, a result referring to the source of information may better predict an environmental situation and a total lack of support. Special attention should be paid to the absence of husbands' influence on mothers in our region. This could be explained by prevailing motherhood tradition in infant feeding practice and father's fear of infant feeding problems. This problem should be looked at in more detail in the future. Also, in

some regions of B&H source of information and support about breastfeeding comes with mother's mother help, which is still a part of the experience of transferring knowledge through several generations. This fact could also be a subject of future studies. One student analysis in Mostar (2003) [18] found some concern among medical workers as a source of giving practical information on breastfeeding. After UNICEF action in 1997, there have been no training courses in our country for medical staff to help in the promotion of breastfeeding, except for survey practitioners in MICS analysis. A very good example is the action of "Association for breastfeeding promotion" in Sarajevo which conveyed a clear message during the World's Breastfeeding Week celebration: "There is no adequate substitute for breast milk".

## Conclusion

In Bosnia and Herzegovina there has been a slow increase of exclusive breastfeeding practice, from 5% to 19% up to 6 months of age in the last two decades. The aim of future action could be placed on raising the rate of EBF closer to European standards (between 30-40%). For the duration of breastfeeding, B&H is under European standards. There is a need for better training programs for medical workers in new processes of survey, promotion, support and sustainability of breastfeeding practice worldwide. This evidence strongly suggests that there is no adequate substitute for breastfeeding.

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## Declaration of interest

The Author declares that there is no conflict of interest.

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