

# Current Breast Feeding Practices: Are these Compliant with WHO Recommendations?

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## Abstract

**Background:** To study the current breast feeding practices in mothers who underwent caesarean section and to what extent these comply with the world health organization (WHO) recommendations.

**Methods:** This cross-sectional study was based on a survey conducted on women delivered by caesarean section. Proforma built for the survey was completed by interviewing of the subjects. Frequencies of the observations were described as means and percentages. Pearson chi square test was used to find association between early initiation of breast feeding (EIBF) and independent variables. Binary logistic regression was used to investigate association of factors with EIBF independently.

**Results:** EIBF was found in 15% of infant-mother pairs. All other mothers-infant pairs (85 %) started early breast feeding (EBF) i.e. breast feeding (BF) between 2 to 24 hours after delivery. Majority of infants were given a drink, other than breast milk, within 24 after delivery. Counselling or assistance for EIBF or exclusive breast feeding was not provided by healthcare workers to any mother. Main factor significantly associated with initiating breastfeeding during 1<sup>st</sup> hour after caesarean delivery was attendant's awareness about recommendation of EIBF.

**Conclusion:** There is poor adherence to WHO recommendations for early initiation of breast feeding i.e. during 1st hour after birth. However, EBF was found in all mothers who did not start EIBF.

**Key Words:** Breast feeding, early initiation, Pakistan.

## Introduction

The benefits of breast feeding (BF) in general terms are well established in achieving optimum growth, development and health of new born. However, a crucial step in this respect is the early initiation of breastfeeding (EIBF), that is, initiation within first hour of birth. or early breast feeding (EBF), that is initiation

within first 24 hours of birth. The World Health Organization (WHO), to maximize the advantages of breast feeding, strongly recommends EIBF in neonates, followed by exclusive breast feeding in first 6 months of life. Breastfeeding (BF) is an extremely effective health strategy for reducing morbidity and mortality in both infants and children as qualities of human milk are not reproducible in its substitutes.<sup>1</sup> Babies who are not breastfed are more likely to suffer from infectious diseases such as gastroenteritis, respiratory disease, otitis media and necrotizing enterocolitis.<sup>2,4</sup> These children also have increased rates of childhood diabetes, obesity, dental diseases and malocclusion.<sup>5-7</sup> There is an adverse impact on their IQ, educational & behavioural outcomes.<sup>8-10</sup> BF has several benefits to the mother as well, including decreased risk of breast and ovarian cancer and diabetes.<sup>12,13</sup> BF also reduces health care costs<sup>13,14</sup>.

Benefits of BF are well established but the significance of early initiation of breastfeeding (EIBF) & early breast feeding (EBF), in neonatal morbidity & mortality has recently been highlighted.<sup>15,16</sup> The World Health Organization's recommendations for optimal BF are that newborns should have EIBF followed by exclusive breastfeeding till 6 months of age, and continued breastfeeding for two years or beyond with timely addition of safe complementary foods in adequate quantity.<sup>17</sup> EIBF is defined as initiation of breast feeding within first hour of birth and EBF is defined as the initiation of breastfeeding within first 24 hours after birth.

Optimal breastfeeding would be very helpful in achieving the Millennium Development Goal of reducing child mortality. Exclusive breastfeeding can prevent 13% of childhood mortality.<sup>18</sup> Amongst the child deaths occurring under 5 years of age, 46% take place during the neonatal period.<sup>19</sup> A recent meta analyses found that infants initiating breastfeeding  $\geq 24$  hours after birth have a 2.19-fold greater risk of neonatal mortality. Additionally, infants who initiated breastfeeding in 2-24 hours after birth had a 33% greater risk of neonatal mortality compared to infants who had EIBF.<sup>20</sup> EIBF ensures that new born receives

colostrum the first milk which is rich in protective factors. EIBF has been estimated to be able to save 1.45 million lives per year in developing countries mainly by reducing deaths due to diarrheal diseases and lower respiratory tract infections in children.<sup>19-21</sup>

EIBF is important component of immediate newborn care. It is important to end preventable child death under 5 years in the neonatal period which is 46% of all deaths among children under 5 years of age. It helps in establishment of exclusive BF which is very important for child survival, health, growth and development. In short if we will not pay attention to EIBF we will deprive our newborns to these immense advantages.<sup>19</sup>

According to Pakistan Demographic and Health Survey 2012-13, neonatal, infant and under-five mortality rates in Pakistan over the past five years have been 55, 74 and 89 per 1,000 live births respectively. Despite measures by government and non-governmental organizations (NGOs), neonatal mortality has unfortunately remained unchanged in Pakistan during last 20 years, whereas infant and under-five mortality has been reduced by 19 and 24 percent only. Despite this, prevalence of exclusive breast feeding among infants less than 6 months is very low at 38%, and the median duration of exclusive breastfeeding and predominant breast feeding in Pakistan is only 0.7 months and 2.7 months respectively. Pakistan, rate of exclusive breast feeding as well as median duration of predominant breast feeding have remained unchanged over the past six years.<sup>22</sup> Exclusive breast feeding prevalence varies from 12% to 75% in various other countries.<sup>23</sup> Ali Khan M A et al reported 25% rate of EIBF in Pakistan. In this study, 51% women were delivered by cesarean section.<sup>24,25</sup>

Current evidence suggests that baby and mother should be brought into skin-to-skin contact soon after birth to help initiate early breastfeeding and to increase likelihood of exclusive breastfeeding and longer overall duration of breast feeding.<sup>25</sup> Abdominal delivery as opposed to vaginal delivery could adversely affect the initiation of breast feeding due to several factors including increased period of recovery and mother's greater dependence on attendants & medical staff due to more pain, sedation, IV lines and monitoring devices. Some degree of disappointment of mother who wanted and anticipated vaginal delivery may also contribute towards delayed initiation of BF.<sup>25</sup>

### **Patients and Methods**

This cross-sectional study was conducted in postoperative ward, Gynae Unit 2, Holy Family Hospital Rawalpindi, Pakistan. Three hundred women, delivered by caesarean section from Aug 2016 to

December 2016 were included in the study. Sample size was calculated using WHO calculator taking the previously reported rate of EIBF in Pakistan into account. All women at term delivered by caesarean section and willing to participate were included, except from others who were critically ill or had delivered critically ill or dead babies. Mothers were interviewed by doctors using a structured questionnaire. Questionnaire contained items such as demographic features, time at which breastfeeding was initiated, and various variables that could affect time of BF initiation. Dependent variable EIBF was defined as initiation of breast feeding within first hour of birth and was expressed as a dichotomous variable with category 1 for initiation of breast feeding within first hour and category 2 for initiation of breastfeeding after first hour of birth. The independent variables were neonate's weight, gender, and reluctance to feed; maternal demographic features, parity, will to breastfeed, postoperative pain and sedation and nipple problems; awareness of assistant/attendant about EIBF recommendation; misconceptions about breast milk such as perception of less volume of milk, milk flow will start on 3<sup>rd</sup> day after delivery, milk of a particular mother is not good for health of baby as her previous child is not healthy etc.; and family & cultural issues with BF. The collected data was coded, entered and analyzed using Statistical Package for Social Science Version 21. Descriptive statistics were used to calculate percentages and mean. Pearson Chi-square test was used to evaluate the association of the independent variables with EIBF. Binary logistic regression analysis was used to investigate the factors independently associated with EIBF. In the initial model, all variables were entered. Stepwise regression was used to find significant factors. P-value of less than 0.05 was considered significant.

### **Results**

Total number of participants was 300. Mean age and weight of mothers were 28.4 years and 65.5 kg. Most of the women had primary level education and belonged to lower socio-economic class. One hundred and seven (35.7%) women were primipara and 193 (64.3%) were multipara. All babies were delivered at term with a mean weight of 3.16 kg. Among delivered babies, 55% were male. Mean time to initiate breast feeding was 10.4 hour (Table 1 & 2). Babies reluctant to feed were 56 (18.7%). Mothers unwilling to breast feed were 1.3%. Misbeliefs about breast milk were found in 14 (4.7%) mothers. Cultural issues were present in 4 (1.3%) mothers (Table 3). Attendant help was present

with all patients but only 43(14.5%) attendants were aware about EIBF.

**Table 1. Demographic features of mothers without an association with early initiation of breast feeding**

Demographic Characteristics of Mothers	Total No(%)	Breast feeding status		p-value
		EIBF* No(%)	EBF** No(%)	
<b>Weight of mother (kg)</b>				
<60	39(13)	05(12.8)	34(87.2)	0.89
61-65	208(69.3)	33(15.7)	175(84.1)	
>65=-70	51(17)	08(15.9)	43(84.3)	
>70	02(0.7)	00	02(100)	
<b>Age of mother (years)</b>				
<25	95(32)	11(11.5)	85(88.5)	0.64
25-30	92(30.6)	16(17.5)	76(82.6)	
31-35	107(35.6)	18(16.8)	89(83.2)	
>35	05(1.6)	01(20.0)	04(80.0)	
<b>Education of mothers</b>				
Illiterate	38(12.7)	05(13.2)	33(86.8)	0.57
Primary	157(52)	20(13.2)	137(87.8)	
Middle	22(7.3)	05(22.7)	17(77.3)	
Matric	46(15.3)	08(17.4)	38(82.6)	
Intermediate	12(04)	02(16.7)	10(83.3)	
Bachelor	14(4.7)	03(21.4)	10(71.4)	
Master	11(3.7)	03(27.3)	8(72.7)	
<b>Parity</b>				
Primipara	107(35.7)	16(915)	91(85)	0.51
Multipara	193(64.3)	30(15.5)	163(84.5)	
<b>Wealth index</b>				
Low	242(80.7)	37(15.2)	205(84.8)	0.54
Middle	58(19.3)	9(15.5)	49(84.5)	

\*EIBF = early initiation of breast feeding,\*\* EBF= Early breast feeding,n= Number, p-value: Chi Square test p-value

Among the 43 mothers whose attendants were aware of EIBF, 38(88.5%) initiated BF within first hour of birth. Eight mothers started EIBF with help of their attendants by observing other mothers starting EIBF however their attendants were not aware of EIBF(Table 4).EIBF was found in 15%,while the remaining 85% women initiated breast feeding within 24 hours and after one hour of birth(Table 5).Exclusive BF was seen in only 9%. Majority of the neonates (91%) were given something to drink other than the mothers' breast milk within 24 hours after delivery and were advised to do so by nurses on duty. Of these 85% were given formula milk, while the remaining

3.6% were given tea and 2.3% kahwa (Table: 6). On Chi square test, awareness of attendants about EIBF was found to have a strong association with EIBF in mothers with p value of <0.01 (Table 4).Binary Logistic Regression was carried out to determine significance of association between EIBF and independent variables. Our final model showed that awareness of attendants has statistically highly significant positive association with EIBF in mothers after caesarean delivery (Beta co-efficient =7.94,p-value <0.01). All other independent variables mentioned above showed no association with EIBF(Table 4).

**Table 2: Demographic features of infants showing no association with early initiation of breast feeding**

Demographic characteristics of infants	Total No(%)	EIBF No(%)	EBF No(%)	p-value
<b>Gender of infant</b>				
Female	135(45)	23(17.0)	142(86.1)	0.28
Male	165(45)	23(13.9)	112(83.0)	
<b>Weight of infant (Kg)</b>				
<2.5	10(3.3)	2(20.0)	8(80.0)	0.11
2.5-3.5	277(92.3)	42(15.1)	235(84.9)	
>3.5	13(4.3)	2(15.3)	11(84.7)	

EIBF = early initiation of breast feeding, EBF= Early breast feeding, n= Number, p-value: Chi Square test p-value

**Table 3: Characteristics of study participants showing no association with rate of early initiation of breast feeding**

Characteristic of mother	Total No(%)	EIBF No(%)	EBF No(%)	p-value
<b>Baby reluctant to feed</b>				
Yes	56(18.60)	11(19.6)	45(79.4)	0.21
No	244(81.3)	35(14.3)	209(85.7)	
<b>Nipple problems of mothers</b>				
Yes	06(2)	2(15.0)	4(85)	0.23
No	294(98)	44(33.30)	250(75.0)	
<b>Mothers' will for BF</b>				
Yes	296(98.7)	45(15.2)	250(84.8)	0.48
No	4(1.3)	1(25.0)	3(75.0)	
<b>Misconception about mothers' milk</b>				
Yes	14(4.6)	2(14.3)	12(85.7)	0.63
No	286(95.4)	44(15.4)	242(84.6)	
<b>Post-op pain and sedation</b>				
Mild to moderate	292(97.4)	44(15.0)	248(85)	0.48
Severe	8(2.6)	2(25.0)	6(75.0)	
<b>Cultural issues with EIBF</b>				
Yes	4(1.3)	1(25.0)	3(75.0)	0.48
No	296(9.7)	45(15.2)	251(84.8)	

EIBF = early initiation of breast feeding, EBF= Early breast feeding, Post-op= Post-operative, n= Number, p-value: Chi Square test p-value

**Table 4: Attendant’s awareness showing significant association with EIBF**

Characteristics of attendants	Total No(%)	EIBF No(%)	EBF No(%)	p-value; B-coefficient
Yes	43(14.3)	38(88.4)	5(11.6)	<0.01 & 7.94
No	257(84.7)	8(3.1)	249(96.9)	

EIBF = early initiation of breast feeding, EBF= Early breast feeding, n= Number, p-value: Chi Square test p-value and on Binary Logistic Regression Analysis

**Table 5: Types of breast feeding according to time of BF initiation after birth.**

Type of breast feeding according to time	Mother-infant pairs No(%)
EIBF	46(15)
EBF	254(85)

EIBF = early initiation of breast feeding, EBF= Early breast feeding.

**Table 6: Types of breast feeding according to food content**

Type of feeding according to food content	Mother-infant pairs No(%)
Exclusive BF	27(9)
Mix feeding	273(91)

BF=breast feeding

**Table 7: Types of complementary food given after birth plus BF**

Types of food & BF	Mother-infant pairs No(%)
Formula milk & BF	255(85)
Green tea & BF	11(3.6)
Kahwa & BF	7(2.3)

BF=Breast feeding

## Discussion

WHO categorizes prevalence of EIBF 0–29 % as poor, 30–49 % fair, 50–89 % good, and 90–100 % as very good. Different studies show variable adherence to WHO guidelines across the globe for EIBF.<sup>24-28</sup> Only 15% infants in our study had EIBF, and this is considered a poor prevalence. Two separately conducted studies previously reported 23.9% and 25% EIBF rate in Pakistan.<sup>24,25</sup> The post caesarean patients in these studies were 12.4% and 51% respectively. Rest of the participants were delivered by vaginal route. Our study on the other hand, had all participants delivered by caesarean section. Various researchers have reported caesarean section as a hindrance to EIBF, and this is due to post-operative sedation, and dependence on para medical staff/ attendants.<sup>26</sup> Pakistan with its EIBF rate of 23.9% turned out to be the lowest among the six low-and-middle-income

countries reported by Patel A et al study. The overall rate for the six was 75%. Nigeria’s 34.7% fell in the fair category, Guatemala was over 75%, Kenya, India, and Argentina over 80 %, while Zambia with 92.4% claiming the highest rate.<sup>25</sup> Ethiopia’s 82.5% was also commendable.<sup>29</sup> According to the report India increased its rate from 24.5% to 44.6 over the period 2006-2014.<sup>23</sup> These variations among countries might partly be attributed to cross-cultural differences.<sup>30</sup>

One study found statistically significant co-relation between EIBF and the following: birth order, place of delivery, mode of delivery, size of child at birth, mothers occupation, household wealth index, place of residence and region.<sup>27</sup> Other studies found low EIBF rates due to factors such as perception of less volume of milk, performance of post birth activities such as bathing of the baby or the mother, the baby sleeping after the birth or needing rest, the baby not crying for milk after birth and the belief that breast milk arrives on the third day after birth, abdominal delivery , mother-infant pair illness , lack of information and perception of less volume of milk ethnicity, nulliparity, delivery by caesarean section, low birth weight, neonatal resuscitation with bag and mask, failure to place baby on the mother’s chest after delivery, educational status of mother, maternal age, antenatal & postnatal follow up, place of residence & delivery of mother.<sup>16,25,29,30</sup>

Predictors of higher chance of EIBF as found by researchers are maternal educational status, her occupation and higher socioeconomic status, frequent access to health care services ,mode of delivery, delivering at a health facility counselling during antenatal care, giving colostrum instead of pre-lacteal feeds, full term gestational age, assistance for new born care, and finally husband’s support.<sup>16,24,31,32</sup>

In present study, the main factor associated with low EIBF rate was the lack of attendant’s awareness. Although attendants were present with almost all (98%) of our patients, only 14.5% of them were aware of EIBF. Most of the mothers and attendants were not educated during antenatal and/or postnatal period about EIBF by a health care provider - doctors, nurses or paramedics. Due to pain and sedation in immediate post-operative period, even mothers who knew the importance of EIBF did need help and encouragement from their attendants and nurses.

While ninety per cent of the mothers’/attendants in our study were counselled by nurses for early feeding, it was for formula milk. A small percentage of neonates were even given tea 3.6%, and yet smaller “kahwa2.3%”, as per family’s belief and

understanding and rest of them 85% gave formula milk and exclusive BF observed in only 9%. As pre-lacteal feeds and formula milk could be administered by attendants themselves without any help, nurses found it convenient to do away with breast feeding counselling in the early postoperative period. The fact is nurses had to personally assist/guide most of the attendants as the latter had no knowledge regarding holding baby to breast when the mother is compromised. Staff was inadequate in number and over worked also and therefore could not give the due importance to this aspect of patient care. Patient's obesity was another factor having negative impact on EIBF as it makes it more difficult for a single attendant to move the mother and make her posture right for feeding. Since only two mothers in our study were obese, this relationship could not be adequately studied.

Misconception about breast milk, nipple problems, mothers' unwillingness, and the cultural belief were also the factors present in small number in our study, but these need to be studied with a greater sample size. However, neonate's weight, gender, and reluctance for feed showed no association with EIBF. It is noteworthy that EIBF rate was not different in any significant manner between male and female neonates although a male child is more celebrated and attracts more attention in our cultural setting. Counselling during prenatal and postnatal periods has been helpful in early initiation and establishment of exclusive breast feeding.<sup>33</sup> Most intervention studies focused exclusively on BF with no attention paid to EIBF.<sup>9</sup> Training courses conducted by WHO/UNICEF has been effective for professional training.<sup>34</sup> Different interventions to increase prevalence of breast feeding showed success in various studies. It is suggested that an intervention should impart knowledge, enhance self-efficacy, and break barriers to breast feeding.<sup>35</sup> An effective social intervention is transferring the right knowledge and skill from mothers and grandmothers to the patients.<sup>36</sup> Other useful interventions are health education, early and continuing mother-infant contact, initiatives to help mothers to overcome social barriers, counseling provided by health care professional and peers.<sup>37</sup> Administration of antenatal corticosteroids, primiparity, single baby, vaginal delivery and EBF were positively associated with establishment of exclusive breast feeding.<sup>38</sup> There is no program in our country to raise community awareness about EIBF while integrated and targeted interventions like large scale community programmers are recommended to achieve greater rate of optimal BF.<sup>29,37,39</sup>

## Conclusion

1. There is an inadequate adherence to WHO recommendations for EIBF.
2. Awareness of attendants about EIBF is the strongest predictor of EIBF.

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