



Original Article



Exclusive Breastfeeding Practice and Associated Factors among Mothers of Infants under 6-Months of Age

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ABSTRACT

The consequences of poor feeding practices might exhibit in the form of poor nutritional status in the early part of life whereas delayed mental as well as motor developmental disorders are some most commonly exhibited long term consequences. **Objective:** To determine the prevalence and associated factors of exclusive breastfeeding (EBF) among mothers of infants below six months of age. **Methods:** This cross-sectional study was done at the Department of Pediatrics, Sheikh Khalifa Bin Zayed Al Nahyan Hospital, Rawlakot, Azad Kashmir, Pakistan from August 2022 to January 2023. **Results:** In a total of 237 mothers, the mean age was 27.15 ± 3.87 years. The EBF was reported by 151 (63.7 %) mothers. High socio-economic status (adjusted odds ratio=5.87, $p=0.003$), having fewer than 4 antenatal visits (adjusted odds ratio=4.15, $p<0.001$), cesarean delivery (adjusted odds ratio=5.57, $p<0.001$), the absence of postnatal advice on EBF (adjusted odds ratio=3.06, $p=0.004$), and children aged 4-6 months (adjusted odds ratio=8.58, $p<0.001$) had significantly higher odds of absence of EBF. **Conclusions:** It was concluded that the exclusive breastfeeding was practiced by 63.7% mothers. High socio-economic status, fewer antenatal visits, cesarean section, absence of postnatal advice on exclusive breastfeeding, and relatively older age of the infant were associated with lack of exclusive breastfeeding practices.

INTRODUCTION

Suboptimum breastfeeding, particularly nonexclusive breastfeeding, has profound consequences on child health especially among infants living in developing countries [1, 2]. Globally, rates of exclusive breastfeeding have reached around 48% and very close to reaching the global goal of 25% by 2025 [3]. Data from the developing world revealed that only 52% of children aged below 6 months had exclusive breastfeeding (EBF) [4]. Data from Pakistan revealed that only around 38% of the babies are exclusively breastfed [5]. The consequences of poor feeding practices might exhibit in the form of poor nutritional status in the early part of life while infectious morbidity and metabolic disorders are some of the other concerns among non-

exclusively breast fed infants [6, 7]. Therefore, promoting optimal breastfeeding practices during the critical early parts of life is essential for ensuring the health and well-being of children and future generations. In regions like South Asia where stunting prevalence rates are high [8], inappropriate feeding practices need significant interventions to reduce the related infantile morbidity and mortality. A study conducted in Germany revealed that infants who were exclusively breastfed for first six months had a lower incidence of gastroenteritis compared to those breastfed for less than four months [9]. A cohort study in the United States found that infants exclusively breastfed for more than six months had a reduced risk of pneumonia



and recurrent otitis media compared to those breastfed for 4-6 months [10]. The "World Health Organization (WHO)" recommends exclusive breast-feeding from birth until six months of age, advising that mothers receive counseling and support for exclusive breast-feeding during each postnatal visit [3]. Arif *et al.*, performed a secondary analysis on data from Pakistan Demographic and Health Survey (PDHS) for the year, and shared that 81 % of mothers aged between 30-34 years were having EBF for at least first six months of age [1]. The present study was planned to fill this research gap.

This research aimed to determine the prevalence and associated factors of EBF among mothers of infants below six months of age.

METHODS

This cross-sectional study was performed at the Department of Pediatrics, Sheikh Khalifa Bin Zayed Al Nahyan Hospital, Rawlakot, Azad Kashmir, Pakistan, from August 2022 to January 2023. Approval from "Institutional Ethical Committee" was acquired for this research (604/SKB2/CMH RKT). Informed and written consents were sought from mothers explaining them the aims of this research. A sample size of 237 was calculated taking the anticipated proportion of EBF by mothers among infants below six months of age as 81 % [1], with 95 % confidence level and 5 % margin of error. Mothers aged between 18 to 35 years who gave birth to a single baby in the past 6 months, and willing to participate in this research were included. Mothers who had any contraindication to EBF were excluded. Mothers who did not show consent to be part of this research were also excluded. Adherence to exclusion criteria was observed to avoid confounders. At the time of enrollment, demographic factors (age of the mother, marital status, residence, socio-economic status, educational level and number of alive children), maternal factors (birth order, antenatal care visits frequency, delivery mode, delivery place and postnatal advice about the EBF by healthcare professional) and infant factors (gender, age, initiation of breastfeeding within first hour) were noted on a specially formed questionnaire. Interview was planned at a quiet room in the pediatric unit after taking permission from the mothers. The verbal interview method was used to labeled EBF and it was defined as baby below 6 months of age who was fed only by breast milk in the past 24 hours as described by the mother [11]. Socio-economic status was labeled as low if family monthly income was below 18,000 PKR, middle 18,000 to 40,000 PKR, or high if >40,000 PKR [12]. Residential status was labeled as urban if living in a city above or equal to district level, or rural if living in a city/town below district level. For the data analysis, IBM-SPSS Statistics, version 26.0 was used. Descriptive statistics were applied for the representation of the data. Chi-square test was applied to compare categorical data. The multivariable binary logistic

regression analysis was performed considering independent variables that had p-value below 0.200. Adjusted odds ratio (AOR) with 95 % confidence interval (CI) were calculated and factors with p-value below 0.05 were considered statistically significant.

RESULTS

In a total of 237 mothers, the mean age was 27.15 ± 3.87 years, ranging between 18-35 years. Socio-economic status was low among 130 (54.9 %) mothers. There were 61 (25.7 %) mothers who were illiterate. Mode of delivery was reported to be vaginal delivery among 152 (64.1 %) mothers. Post-natal advice about EBF was provided to 144 (60.8 %) mothers. The mean age of the children at the time of enrollment of mothers was 3.24 ± 1.41 months (ranging between 1 to 6 months). Initiation of breastfeeding in the 1st hour following delivery was reported by 108 (45.6 %) mothers. The EBF was reported by 151 (63.7 %) mothers. Univariate analysis revealed EBF to have significant association with maternal age ($p < 0.001$), socio-economic status ($p < 0.001$), birth order ($p = 0.029$), number of antenatal visits ($p < 0.001$), postnatal advice of EBF ($p < 0.001$), child's age ($p < 0.001$), and initiation of breastfeeding in the 1st hour following delivery ($p = 0.026$). Details about the comparison of study variables with respect to EBF practice are stated in table 1.

Table 1: Comparison of Study Variables with Respect to Exclusive Breastfeeding Practice (N = 237)

Study Variables	Exclusive Breastfeeding		p-Value	
	Yes (n=151)	No (n=86)		
Maternal Age (Years)	18-29	100 (66.2 %)	75 (87.2 %)	<0.001
	30-35	51 (33.8 %)	11 (12.8 %)	
Marital Status	Married	141 (93.4 %)	83 (96.5 %)	0.539
	Divorced	5 (3.3 %)	2 (2.3 %)	
	Widowed	5 (3.3 %)	1 (1.2 %)	
Residence	Urban	47 (31.1 %)	35 (40.7 %)	0.136
	Rural	104 (68.9 %)	51 (59.3 %)	
Socio-Economic Status	Low	91 (60.3 %)	39 (45.3 %)	<0.001
	Middle	50 (33.1 %)	25 (29.1 %)	
	High	10 (6.6 %)	22 (25.6 %)	
Educational Level	Illiterate	38 (25.2 %)	23 (26.7 %)	0.789
	Literate	113 (74.8 %)	63 (73.3 %)	
Family Size	≤4	98 (64.9 %)	65 (75.6 %)	0.088
	>4	53 (35.1 %)	21 (24.4 %)	
Birth Order	1-2	63 (41.7 %)	51 (59.3 %)	0.029
	3-4	45 (29.8 %)	20 (23.3 %)	
Antenatal Visits	>4	43 (28.5 %)	15 (17.4 %)	<0.001
	<4	46 (30.5 %)	60 (69.8 %)	
	≥4	105 (69.5 %)	26 (30.2 %)	
Delivery Mode	Cesarean	35 (23.2 %)	50 (58.1 %)	<0.001
	Vaginal	116 (76.8 %)	36 (41.9 %)	
Delivery Place	Home	36 (23.8 %)	18 (20.9 %)	0.607
	Hospital	115 (76.2 %)	68 (79.1 %)	

Postnatal Advice of Exclusive Breastfeeding		108 (71.5 %)	36 (41.9 %)	<0.001
Child's Gender	Boy	92 (60.9 %)	51 (59.3 %)	0.806
	Girl	59 (39.1 %)	35 (40.7 %)	
Child's Age (Months)	<4	118 (78.1 %)	25 (29.1 %)	<0.001
	4-6	33 (21.9 %)	61 (70.9 %)	
Initiation of Breastfeeding in the First Hour Following Delivery		77 (51.0 %)	31 (36.0 %)	0.026

High socio-economic status significantly increased the odds of lack of EBF (AOR=5.87, p=0.003). Having fewer than 4 antenatal visits significantly increased the odds of lack of EBF (AOR = 4.15, p<0.001). Cesarean delivery significantly increased the odds of lack of EBF (AOR = 5.57, p<0.001). The absence of postnatal advice on EBF significantly increased the odds of not practicing EBF (AOR=3.06, p=0.004). Children aged 4-6 months had significantly higher odds of absence of EBF (AOR=8.58, p<0.001). Details about the multivariate binary logistic regression analysis showing factors associated with lack of EBF are shown in table 2.

Table 2: Multivariate Binary Logistic Regression Analyzing Factors Associated with Lack of Exclusive Breastfeeding

Study Variables		p-Value	Adjusted Odds Ratio	95% Confidence Interval	
				Lower	Upper
Maternal Age (Years)	18-29	0.632	1.29	0.45	3.71
	30-35		Reference		
Residence	Urban	0.149	1.79	0.81	3.95
	Rural		Reference		
Socio-Economic Status	Low		Reference		
	Middle	0.186	0.57	0.25	1.32
	High	0.003	5.87	1.861	8.54
Family Size	≤4		Reference		
	>4	0.529	1.73	0.31	9.60
Birth Order	1-2		Reference		
	3-4	0.368	2.45	0.351	7.19
	>4	0.491	1.79	0.34	9.43
Antenatal Visits	<4	<0.001	4.15	1.92	8.99
	≥4		Reference		
Delivery Mode	Cesarean	<0.001	5.57	2.251	3.80
	Vaginal		Reference		
Absence of Postnatal advice of Exclusive Breastfeeding		0.004	3.06	1.42	6.59
Children's Age (Months)	<4		Reference		
	4-6	<0.001	8.58	3.931	8.75
No initiation of Breastfeeding in the first hour following delivery		0.851	1.08	0.47	2.50

*Reference Category

DISCUSSION

This study was conducted to evaluate EBF practices among mothers belonging to Azad Jammu Kashmir District of Pakistan. This research revealed that 63.7 % mothers were practicing EBF in infants aged up to 6 months. Studies from other developing countries like Ethiopia, Ghana, and Uganda have shown relatively higher EBF rates of 60.4 %, 70 %, and 62.3 %, respectively [13-15]. As per "World Health

Organization", only 37.7 % of mother practice EBF among infants aged below 6 months of age [16]. Data from this study reported much higher EBF rates that what have been reported from India (49 %) [17], Mexico (28 %) [18], and China (30 %) [19]. There seems to be a clear variation in patterns of EBF practice so it is imperative to study the factor contributing to these trends in specific population. Our research found that high socio-economic status significantly increased the odds of lack of EBF (AOR = 5.87, p = 0.003). Current findings are in accordance to the published data that there exists a significant relationship between socio-economic status and mother's motivation to EBF [20]. Mothers belonging to higher socio-economic status may prefer buying formula milk than just providing EBF to their babies. Likewise, mothers belonging to low socio-economic status may not have the option to buy formula milk due to its higher price in a country like Pakistan. In this study, relatively higher number of antenatal visits were linked with significantly higher EBF rates. These findings are in accordance to the established beliefs and strengthening antenatal care and delivery at healthcare facilities are thought to improve EBF practices among mothers [21]. The present study highlighted cesarean section to be significantly associated with lack of EBF practices. Mod of delivery has been documented to an important factor influencing EBF practices. The possible explanation could be the negative impact of cesarean section on the physiology of lactation and challenges hindering mother's physical contact with the newborns [22]. Some authors have proved maternal affiliation from rural areas to positively impact EBF but we did not observe any significant differences among rural and urban areas [23, 24]. The present study is perhaps the first one from Azad Jammu Kashmir Region of Pakistan analyzing EBF practices among mothers of infants up to 6 months of age. Single stud center and a relatively modest sample size reduce the generalizability of this research and warrants further research. Most of the study data were based on recall ability of the mothers which might post some bias.

CONCLUSIONS

Exclusive breastfeeding was practiced by 63.7% mothers. High socio-economic status, fewer antenatal visits, cesarean section, absence of postnatal advice on exclusive breastfeeding, and relatively older age of the infant were associated with lack of exclusive breastfeeding practices.

Authors Contribution

Conceptualization: SI, SMB, RIA

Methodology: SC

Formal analysis: CR, DC

Writing-review and editing: ME

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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