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# BARRIERS OF FAILURE OF EXCLUSIVE BREASTFEEDING AMONG MOTHERS IN CITY MUZAFFARABAD, AJK: A COMPARATIVE CROSS-SECTIONAL QUANTITATIVE STUDY

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**Abstract**

***Background:*** *Exclusive breastfeeding (EBF) during the first six months of life is recognized as one of the most effective public health interventions for reducing infant morbidity and mortality. Despite global recommendations, EBF prevalence remains critically low in Pakistan, particularly in Azad Jammu & Kashmir (AJK).*

*Objectives: To analyze the knowledge of exclusive breastfeeding among mothers and To identify the barriers of failure of exclusive breastfeeding among mothers.*

***Methodology:*** *A comparative cross-sectional study was conducted among 200 mothers with infants aged 0–6 months in Muzaffarabad, AJK. One hundred mothers practicing EBF were assigned to the control group and 100 non-EBF mothers to the target group. A standardized structured questionnaire (adapted from King Khalid University, Saudi Arabia) was used for data collection. Data were analyzed using SPSS version 26 with descriptive statistics and independent sample t-tests.*

***Results:*** *Significant barriers identified included: medical conditions (70% in target vs. 8% in control group; p<0.001), low confidence in milk supply (46% vs. 81%; p<0.001), maternal employment (22% vs. 11%; p=0.036), physical challenges such as sunken nipples (29% vs. 10%; p=0.001), prolonged hospital stay >3 days (25% vs. 8%; p=0.002), and early introduction of complementary foods (17% vs. 7%; p=0.043). Paradoxically, higher education and income levels were more prevalent in the non-EBF group.*

***Conclusion:*** *EBF failure in Muzaffarabad is driven by an interplay of medical, psychosocial, and structural barriers. Strengthening lactation counseling, psychosocial reassurance, and breastfeeding-friendly workplace policies are critical to improving EBF practices and infant health outcomes.*

## 1. INTRODUCTION

Exclusive breastfeeding (EBF) refers to feeding an infant solely with breast milk for the first six months of life, without any additional food or liquid except prescribed medicines, vitamin drops, or oral rehydration solution.[1] The World Health Organization (WHO) and UNICEF identify breastfeeding as one of the most effective strategies

to ensure child health and survival, yet globally fewer than half of infants under six months receive breast milk exclusively.[1]

Breast milk provides optimal nutrition, immunological protection, and long-term cognitive and developmental benefits for the infant. For mothers, breastfeeding reduces risks of breast cancer, ovarian cancer, postpartum depression, type 2 diabetes, and cardiovascular disease. Despite these well-established benefits, EBF rates in Pakistan remain below 40%, one of the lowest globally.[2] Infant mortality in Pakistan remains among the highest in the world, with a significant proportion attributed to vaccine-preventable infectious diseases that exclusive breastfeeding can protect against.

In AJK specifically, EBF prevalence is recorded at only 42.1%, which is significantly below national targets.[3] Muzaffarabad, as the capital city of AJK, presents a unique context where urban lifestyle factors, healthcare access, and socioeconomic variation converge. Understanding the specific barriers in this local context is essential for designing targeted interventions.

This study was conducted to analyze maternal knowledge of EBF and to identify the key barriers responsible for its failure among mothers in Muzaffarabad, AJK, thereby contributing to the evidence base for local public health programming and policy.

## 2. LITERATURE REVIEW

Research consistently identifies perceived insufficient milk production as the leading cause of EBF failure globally. Yaqub & Gul (2013) found this accounted for 93.2% of EBF failure cases in Rawalpindi, Pakistan, while Nadeem et al. (2017) reported 59.2% in Bahawalpur.[4–5] These findings are mirrored across international studies in Kenya, Ethiopia, Bangladesh, and Nigeria.

Maternal employment is a widely recognized structural barrier. In Pakistan, Rehman et al. (2025) documented that returning to work was the primary driver of EBF cessation among working mothers in Muzaffarabad, with none of their sample maintaining exclusive six-month breastfeeding after resuming employment.[6] Similarly, Sabin et al. (2017) found working physicians and bankers in Faisalabad were significantly less likely to practice EBF compared to nurses and teachers.[7]

Cesarean delivery is consistently associated with delayed breastfeeding initiation and subsequent EBF failure. Studies from Bangladesh (Hasan et al., 2021), Iran (Maharlouei et al., 2018), and Ethiopia (Mekebo et al., 2022) confirm that cesarean section significantly reduces EBF probability.[8–10] Clinical factors including prolonged hospitalization, inadequate lactation support, and maternal illness further compound this risk.

An Education Paradox has been described, wherein higher maternal education is paradoxically associated with lower EBF rates. This counterintuitive finding has been observed in Iran, Bangladesh, and Pakistan, and is thought to reflect the greater workforce participation of educated mothers, marketing exposure to infant formula, and lifestyle factors.[9–10]

Psychosocial barriers—particularly low maternal confidence and fear of insufficient milk supply—represent a distinct and powerful category of obstacles. Even mothers with adequate knowledge of EBF benefits fail to maintain the practice due to low self-efficacy and susceptibility to social and familial pressure to introduce formula feeding.[11]

## 3. METHODOLOGY

### 3.1 Study Design

A comparative cross-sectional study design was adopted.

### 3.2 Study Setting and Population

The study was conducted in Muzaffarabad, AJK, Pakistan, across multiple healthcare facilities including AIMS Hospital, Dr. Syed Bilal Ali Naqvi Children's Clinic, Omar Kids Clinic (Dr. Naheem Ahmed), and Children Clinic Usman Plaza (Dr. Raja Imtiaz). The target population comprised mothers with infants aged 0–6 months.

### 3.3 Sample Size and Grouping

A total sample of N=200 was selected, following the methodological precedent of Nasimfar et al. (2022) who examined EBF failure causes using a similar cross-sectional comparative framework.[12]

This sample size provides sufficient power to detect a medium effect size (w≈0.20) at 95% confidence level. Participants were divided into:

- Control Group (n=100): Mothers currently practicing exclusive breastfeeding.
- Target Group (n=100): Mothers who had discontinued or never practiced EBF.

### 3.4 Data Collection Tool

A structured questionnaire originally developed by Al-Binali (2012) at King Khalid University, Saudi Arabia, and subsequently validated in Abu Dhabi, UAE (Al Ketbi et al., 2018), was adapted for use in this study.[13–14] The questionnaire was translated into Urdu to ensure clarity. It assessed: (i) socio-demographic and family characteristics; (ii) support systems and environment; (iii) hospital and medical factors; (iv) maternal and infant health conditions; (v) breastfeeding knowledge; and (vi) workplace factors. Informed consent was obtained from all participants prior to enrollment.

### 3.5 Inclusion and Exclusion Criteria

Mothers included were currently breastfeeding or had ceased for specific reasons (medical, personal, work-related), aged 18–45 years, and capable of providing informed consent. Mothers undergoing chemotherapy, radiotherapy, or anti-tuberculosis treatment, or with severe chronic illness contraindicating breastfeeding, were excluded.

### 3.6 Data Analysis

Data were organized in Microsoft Excel, coded, and analyzed using SPSS version 26. Descriptive statistics (frequencies, percentages, means, and standard deviations) were calculated for all variables. Independent sample t-tests were used to identify statistically significant differences between the control and target groups. A p-value <0.05 was considered statistically significant.

## 4. RESULTS

Significant differences were observed across multiple domains between the EBF (control) and non-EBF (target) groups. Key findings are summarized in Table 1 below.

**Table 1: Comparative Analysis of Control (EBF) and Target (Non-EBF) Groups**

| Variable | Control Group (EBF; n=100) | Target Group (Non-EBF; n=100) | p-value |
|---|---|---|---|
| Infant Age <6 months | 60.0% | 79.0% | 0.003 |
| Mother with Higher Education | 22.0% | 37.0% | 0.000 |
| Father with Higher Education | 19.0% | 41.0% | 0.006 |
| Middle/High Income Family | 58.0% | 73.0% | 0.011 |
| First child only (1 child) | 31.0% | 39.0% | 0.030 |
| No previous BF experience | 19.0% | 51.0% | 0.000 |
| Hospital stay >3 days | 8.0% | 25.0% | 0.002 |
| Physical challenges (e.g. sunken nipples) | 10.0% | 29.0% | 0.001 |
| Knew recommended BF duration | 44.0% | 18.0% | 0.001 |
| Complementary food before 6 months | 7.0% | 17.0% | 0.043 |

| Variable | Control Group (EBF; n=100) | Target Group (Non-EBF; n=100) | p-value |
|---|---|---|---|
| Unsure if BM sufficient for 6 months | 10.0% | 37.0% | 0.000 |
| Felt producing sufficient milk | 81.0% | 46.0% | 0.000 |
| Currently employed | 11.0% | 22.0% | 0.036 |
| Diagnosed medical condition | 8.0% | 70.0% | 0.000 |

**4.1 Infant Age and Breastfeeding Status**

A statistically significant association was found between infant age and breastfeeding status (p=0.003). A higher proportion of younger infants (<6 months) were found in the target group (79%) compared to the control group (60%), indicating that EBF failure occurs predominantly in the first weeks of life.

**4.2 Sociodemographic Factors and the Education Paradox**

Paradoxically, mothers and fathers with higher education levels were more prevalent in the non-EBF group. Among target group mothers, 37% had college or university education compared to 22% in the control group (p<0.001). Similarly, 41% of target group fathers had higher education versus 19% in the control group (p=0.006). Higher socioeconomic status (middle to high income) was also more common in the target group (73% vs. 58%; p=0.011), suggesting that affluence and education may facilitate formula feeding through career demands and marketing exposure.

**4.3 Prior Experience and Family Size**

More than half of target group mothers (51%) had no prior breastfeeding experience, compared to only 19% in the control group (p<0.001). Control group mothers were more experienced, with 61% having previously breastfed one or two children. First-time motherhood (39% in target vs. 31% in control; p=0.030) emerged as a risk factor, highlighting the role of experiential knowledge in successful EBF maintenance.

**4.4 Hospital and Medical Factors**

A longer hospital stay after delivery was strongly associated with EBF failure. Twenty-five percent of target group mothers stayed more than 3 days post-delivery, compared to only 8% in the control group (p=0.002). This finding is likely linked to higher rates of cesarean delivery in the target group (61% vs. 48%), which delays milk initiation and increases formula dependency. Strikingly, 70% of target group mothers reported a diagnosed medical condition affecting breastfeeding, compared to only 8% in the control group (p<0.001). Of these, 35% cited insufficient milk production as the specific medical barrier, while other conditions included post-operative recovery, infections, and metabolic issues.

**4.5 Physical Challenges**

Mothers in the target group were nearly three times as likely to report physical challenges affecting breastfeeding, such as sunken nipples or medication use (29% vs. 10%; p=0.001), indicating that anatomical and clinical issues represent a significant pathway to EBF failure.

**4.6 Knowledge Gaps and Confidence Deficits**

Significant knowledge gaps were identified in the target group. Only 18% of target group mothers knew the recommended minimum duration of a breastfeeding session per breast (15 minutes or more), compared to 44% in the control group (p=0.001). Furthermore, 50% of target group mothers were unsure of the recommended session duration. Thirty-seven percent of target group mothers were unsure whether breast milk was sufficient to meet infant needs for six months,

versus only 10% in the control group (p<0.001). Critically, only 46% of target group mothers felt they were producing sufficient breast milk for their baby, compared to 81% of control group mothers (p<0.001). Mothers in the target group were also more than twice as likely to introduce complementary foods before six months (17% vs. 7%; p=0.043).

### 4.7 Employment Status

Employment was significantly correlated with EBF failure. Working mothers constituted 22% of the target group compared to 11% of the control group (p=0.036), consistent with the broader literature on work-related breastfeeding challenges.

## 5. DISCUSSION

This study presents a comprehensive comparative analysis of EBF barriers in Muzaffarabad, AJK, an area with known low EBF prevalence (42.1%). The findings reveal that EBF failure is not attributable to a single cause but arises from the convergence of medical, psychosocial, and structural factors.

### 5.1 The Crisis of Confidence

The most dominant barrier identified was low maternal confidence. The high proportion of 'not sure' responses regarding milk sufficiency among the non-EBF group (37%) indicates a deep psychosocial vulnerability. When a mother doubts her milk supply, she is highly susceptible to introducing formula at the first sign of infant fussiness. This 'perceived insufficient milk' phenomenon is the most widely reported EBF barrier in global literature.[4–5] Local studies corroborate this: Yaqub & Gul (2013) found it accounted for 93.2% of EBF failures at Rawalpindi, and Nadeem et al. (2017) reported 59.2% in Bahawalpur.

### 5.2 The Medical Pathway to Failure

The finding that 70% of non-EBF mothers had a diagnosed medical condition is the most significant result of this study. Medical morbidity—encompassing cesarean section complications, post-operative recovery, maternal infections, and post-partum metabolic conditions—represents a critical clinical pathway to EBF failure. This is consistent with published literature identifying C-section, maternal illness, and prolonged hospitalization as primary barriers.[8–10] The corollary is that hospitals represent the most powerful point of intervention; adequate lactation support during hospitalization could meaningfully shift outcomes.

### 5.3 The Education and Income Paradox

The counterintuitive finding that higher education and income were associated with EBF failure warrants explanation. Educated mothers are more likely to be in formal, career-track employment with rigid schedules and shorter maternity leave, making sustained EBF untenable.[7] Additionally, higher-income families have greater affordability and marketing exposure to formula products, reinforcing the WHO's concern about inappropriate marketing of breast milk substitutes. This paradox has been documented in Iran, Bangladesh, and Pakistan and underscores that EBF promotion must specifically target educated, urban, and employed mothers, not just low-income communities.[9–10]

### 5.4 The Cycle of Inexperience

The data show that 51% of target group mothers had never successfully breastfed before. First-time mothers represent an especially high-risk group, as breastfeeding is a learned skill in which prior positive experience strongly predicts success. This finding has important implications for targeted antenatal breastfeeding education and peer-support programming for primiparous mothers.

### 5.5 Comparison with Existing Literature

The barriers identified in this Muzaffarabad-based study are highly consistent with, and serve to validate, the broader published literature. Perceived insufficient milk, maternal employment, cesarean delivery, physical challenges, and knowledge deficits are recurrently identified barriers across diverse global settings.[4–15] The EBF rate in AJK (42.1%)[3] is below the global average and far behind high-performing regions such as Kenya (61%) and East

Africa (83% in some surveys), reinforcing the urgency of targeted local intervention.

## 6. CONCLUSION

This comparative study conclusively identifies the determinants that hinder exclusive breastfeeding in Muzaffarabad, AJK. Maternal medical morbidity, psychosocial lack of confidence and self-efficacy, employment-related structural barriers, and knowledge deficits are the primary predictors of EBF failure. Higher educational level, paradoxically, is associated with increased risk rather than protection. These findings provide the first local quantitative, comparative evidence base for Muzaffarabad and can inform the design of multi-level, targeted interventions that go beyond generic awareness messaging.

## 7. RECOMMENDATIONS

- Clinical Support Reform: Hospitals and maternity units should train healthcare personnel to provide specialized lactation counseling and physical breastfeeding support, particularly for mothers following cesarean deliveries or prolonged hospitalization.
- Psychosocial Support and Education: Health education programs should shift from generic awareness campaigns to confidence-building interventions that directly address fear of insufficient milk and normalize infant feeding patterns.
- Workplace Policy: Policymakers should enforce and monitor breastfeeding-friendly workplace policies, including paid maternity leave, flexible scheduling, lactation breaks, and on-site lactation rooms.
- Targeted Programs: Interventions should specifically target high-risk groups: first-time mothers, working mothers, mothers with medical conditions, and educated, urban mothers who may be primary targets of formula marketing.
- Future Research: Longitudinal studies and qualitative research on breastfeeding self-efficacy, peer-support programs, and workplace lactation policy feasibility in Muzaffarabad are recommended.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest. This study received no external funding.

## ETHICAL APPROVAL

Ethical approval was obtained from the University of Azad Jammu & Kashmir, Muzaffarabad. Written informed consent was obtained from all participants prior to enrolment. Participant confidentiality was ensured throughout the study.

## AUTHORS' CONTRIBUTIONS

Muqadas Batool Kazmi and Aiza Arif contributed equally to study design, data collection, analysis, and manuscript preparation. Muhammad Junaid Irshad Awan supervised the study and reviewed the manuscript. All authors read and approved the final version.

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