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DETERMINANTS OF EARLY BREASTFEEDING INITIATION AMONG POSTNATAL MOTHERS IN A TERTIARY CARE HOSPITAL, BAJAUR, PAKISTAN: A CROSS-SECTIONAL STUDY

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Abstract

Early initiation of breastfeeding (EIBF) refers to the initiation of breastfeeding within the first hour after delivery, and is a key intervention for enhancing neonatal survival and maternal and child health. The World Health Organization (WHO) has recommended that all babies be breastfed within one hour of birth and this is not the practice in many developing countries, including Pakistan, where there is a high prevalence of delayed initiation of breastfeeding. The objective of the study was to find out the prevalence of EIBF and factors associated with timely initiation of breastfeeding among the postnatal mothers visiting the tertiary care hospitals of Bajaur District of KP, Pakistan. Structured interviewer-administered questionnaires were used to carry out a cross-sectional analytical study of 288 postnatal mothers. Data pertaining to socio-demographic aspects, obstetric history, breastfeeding practices, counseling, myths and support systems was gathered and analyzed with SPSS version (28). Descriptive statistics were used and Chi-square tests were used to test associations between independent variables and EIBF. The study revealed that 77.8% of the mothers started breasts-feeding within one hour after birth of their child. The mean age of participants was 28.23 ± 5.46 years, while the mean parity was 2.48 ± 1.75. Significant associations with EIBF were observed for maternal education (p=0.001), socioeconomic status (p=0.015), normal vaginal delivery (p=0.007), timing of breastfeeding education (p=0.005), reasons for failure of antenatal breastfeeding education (p=0.026), hospital-related barriers to breastfeeding initiation (p<0.001), prelacteal feeding practices (p=0.002), postnatal practical assistance (p<0.001), and indicators of adequate milk consumption (p<0.001). But, maternal antenatal breastfeeding education and the breastfeeding education provider were not significantly associated with early initiation. A number of breastfeeding myths were found, most notably lack of milk and that babies need water after birth. The results indicate that there is a great deal of variation in breastfeeding initiation practices, maternal support, and cultural beliefs. Improvements in early breastfeeding initiation through strengthening

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breastfeeding support in the postnatal period, discouraging prelacteal feeding, correcting common misconceptions about breastfeeding and encouraging breastfeeding friendly hospital practices may further enhance early breastfeeding initiation and help to ensure better neonatal health outcomes in this under-served population.

INTRODUCTION

to achieve birth spacing because it delays the onset of the next period due to lactational amenorrhea, and lowers the economic cost of infant formula, as well as childhood diseases, associated with infant formula feeding (Black et al., 2013).

Even with these advantages, delayed initiation of breastfeeding is still a large public health problem around the world. According to WHO, a significant number of babies around the world are not breastfed in the first hour after birth? However, in many LMICs, cultural beliefs, poor maternal knowledge, and challenges within the healthcare system, as well as suboptimal maternity practices, influence whether or not a child starts breastfeeding. Research has demonstrated that infants who are not fed breast milk within the first hour of birth will have a much greater risk of neonatal mortality than infants who are fed breast milk within the first hour of birth (WHO, 2023; Edmond et al., 2006).

Even with the high acceptability of breastfeeding in the country, Pakistan is still faced with suboptimal breastfeeding practices. A few national surveys have found that many newborns are not breast fed within the suggested first hour after birth, and that prelacteal feeding (honey, water, tea, formula milk) is still practiced. These practices can be delaying breastfeeding initiation, pose the risk of infections and can diminish the protective potential of colostrum (National Institute of Population Studies [NIPS] & ICF, 2019).

Various socio-demographic, obstetric, healthcare-related, and cultural factors affect EIBF in Pakistan. Important determinants have been identified for maternal education, socioeconomic status, parity and place of residence. Factors related to health care, such as antenatal counselling, mode of delivery, immediate skin-to-skin contact and postnatal breastfeeding support, are also important. Mothers who are cesarean are often affected by delayed initiation of breastfeeding due to postoperative pain, recovery issues and temporary separation from the baby (Victora et al., 2016).

Delayed initiation of breastfeeding is also attributed to cultural beliefs and misconceptions. In many communities, colostrum is wrongly regarded as injurious or inadequate for the newborns and disposed of, and replaced with prelacteal feeds. Some common misconceptions are that breast milk is not enough straight after birth that the newborns need extra water, and that formula milk is better than breast milk. These beliefs, which are sometimes passed down through the generations and customary practices, can have a negative impact on mothers' feeding choices and hinder good breastfeeding habits (Aslam et al., 2024).

Bajaur District is a mostly rural and tribal area in the northern region of KPK, where access to health care services is poor, and traditional values are deeply entrenched. The maternal and child health outcomes of the region are still not up to the desired national levels. Despite the high rates of breastfeeding, data on the prevalence and factors influencing early initiation of breastfeeding for mothers in this context is limited. Awareness of these determinants is crucial to designing culturally competent interventions and policies that will enhance breastfeeding practices and neonatal health outcomes.

This study aimed to estimate the prevalence of early initiation of breastfeeding, assess the status of early initiation of breastfeeding within first hour of birth, and explore socio-demographic, obstetric, healthcare related, and cultural determinants associated with early breastfeeding practices among post-natal mothers in tertiary care hospitals, Bajaur District, Khyber Pakhtunkhwa province, Pakistan.

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METHODODLOGY

Study Design

The study was cross-sectional and analytical, using a clinic-based approach, to evaluate the mothers' preference for breastfeeding, breastfeeding practices, the support provided by healthcare, occupation, and determinants of early initiation of breastfeeding amongst all postnatal mothers. The cross-sectional design was chosen because it is the most suitable and commonly used design because of its ability to assess breastfeeding practices and associated factors in similar settings.

Study Setting

The study was carried out in Doctor General Hospital and Nawagai hospital, which is a tertiary care hospital at Bajaur District in Khyber Pakhtunkhwa, Pakistan. The clinic is located in a remote and poorly resourced area and provides full maternity and child health services including ante natal, delivery and post-natal. This setting was selected because there is not much information available about breastfeeding in this area.

Study Population

Study population was all eligible postnatal mothers who attended the postnatal OPD of Doctor general hospital and Nawagai during the study period, irrespective of their parity and mode of delivery.

Sample Size

Sample size calculation was done using the World Health Organization (WHO) sample size calculator for this cross sectional study. The value of the standard normal (Z) was selected as 1.96 at a 95 % confidence level. Based on previous studies conducted in the area, the prevalence of early initiation of breastfeeding (P) was assumed to be 20% (0.20) with a margin of error (d) of 0.05 (5%). Substituting these parameters in the standard formula, the minimum number of participants to be included in the study was determined to be 245.8. An extra 20% was added to the sample size calculated to compensate for possible non-response and incomplete questionnaires. Following adjustments, a total sample size of ~288 participants was needed. So there were a total of 288 postnatal mothers who were included in the study.

Sampling Technique

The sampling technique used was a consecutive (non-probability) sampling. All the mothers who attended the clinic during the study period were approached and invited to participate till the required sample size of 288 was achieved. The selection of this method was based on its feasibility in a clinic setting as well as for ensuring a representative sample of the target population.

Inclusion Criteria

All postnatal mothers regardless of age group who had delivered a single, term (gestational age ≥37 weeks), and infant were included in this study. Mothers of live-born newborns, who were not severely affected by major congenital anomalies or serious complications, were eligible to participate. Mothers were asked to participate in the study if they had attended the clinic for delivery and/or after delivery and were willing to give their written informed consent.

Exclusion Criteria

Mothers who had more than one pregnancy, such as twins, triplets, and so on were not included in the study. Mothers with severe medical problems that would affect their ability to breastfeed, including those with eclampsia, serious cardiac disease, or serious anemia, were also not included. Also, neonates born with congenital anomalies or birth defects, mothers or newborns who required admission to intensive care unit (ICU) were not eligible for inclusion. Those mothers who refused participation and those who refused to give informed consent were not included.

Data Collection Procedure

Tool Development

Data was gathered through a structured, interviewer administered questionnaire (proforma) which was developed as per the objectives of the study and after reviewing relevant literature on breastfeeding practices and early initiation of breastfeeding in Pakistan. The questionnaire included sections on socio-

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demographic aspects, obstetric history, breastfeeding preferences, breastfeeding behavior and factors that affect breastfeeding initiation.

Pretesting and Validation

The questionnaire was pretested with 20 postnatal mothers who were excluded from the final sample but met the study criteria, before the beginning of data collection. The aim of conducting the pretest was to assess the clarity and comprehensiveness of the questions, the appropriateness of the language used, the feasibility of administering the questionnaire and the reliability and internal consistency of the questionnaire. Feedback collected during the pilot testing was used to make improvements to the questionnaire to make it more valid, reliable and applicable.

Data Collection Process

Ethical approval and administrative permission were obtained from clinic management and those who met the inclusion criteria were approached at a postnatal visit. The participants' preferred language (Pashto or Urdu) was used to articulate the purpose, procedures, possible risks, and benefits of the study and written informed consent was obtained prior to study enrollment.

The information was obtained via face-to-face interviews with trained health care providers (Lady Health Visitors (LHVs) and nurses) in a private and comfortable room in the clinic premises for the purpose of guaranteeing confidentiality and encouraging the truthful responses. The interviews were conducted for about 20-25 minutes. The structured proforma was completed by the interviewers themselves and then checked by the interviewers for completeness and accuracy before entering the data and analyzing it.

Statistical Analysis

The Statistical Package for Social Sciences (SPSS) version 25 was used in entering, cleaning and analyzing data. The descriptive statistics were used to present the data of the study variables. Categorical variables (mode of delivery, maternal education, and counseling received on breastfeeding, breastfeeding myths and barriers to early initiation of breastfeeding) were presented in frequencies and percentages. When the data were continuous, e.g., maternal age, mean, standard deviation, median, minimum and maximum values were determined.

The Chi-square test of independence was used for inferential analysis to test the association between the independent variables that were categorical and dependent variable (early initiation of breastfeeding). A p value < 0.05 was deemed statistically significant. The results were presented in tables and figures as appropriate.

Results and analysis

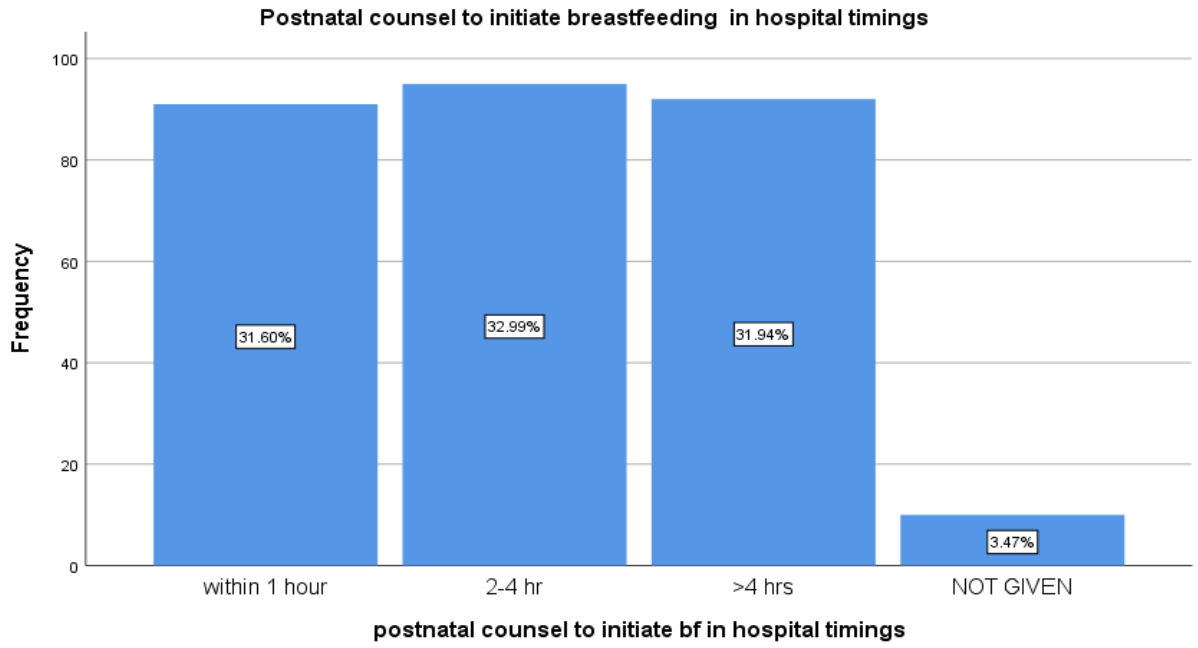
Table 3.1: Descriptive Statistics of Age of Women and Parity

	N	Minimum	Maximum	Mean	Std. Deviation
Age of woman	288	16.00	42.00	28.2326	5.46366
Parity	288	.00	9.00	2.4826	1.74898

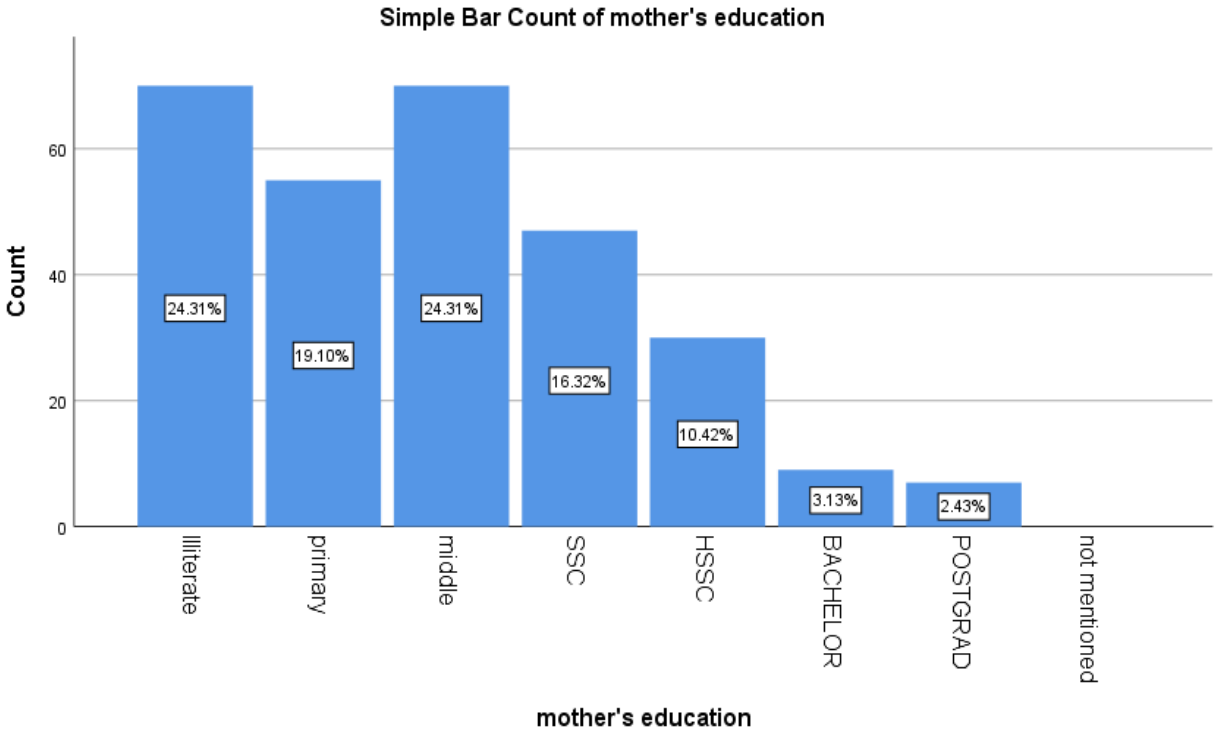
Women's age was mainly young reproductive age as the mean age was 28.23 years. The range in age was between 16 and 42 years with a moderate variation (SD = 5.46). The mean parity was 2.48 indicating overall low to moderate number of children per woman. The parity ranged from 0 to 9 indicating nulliparous women and high parity women in the sample.

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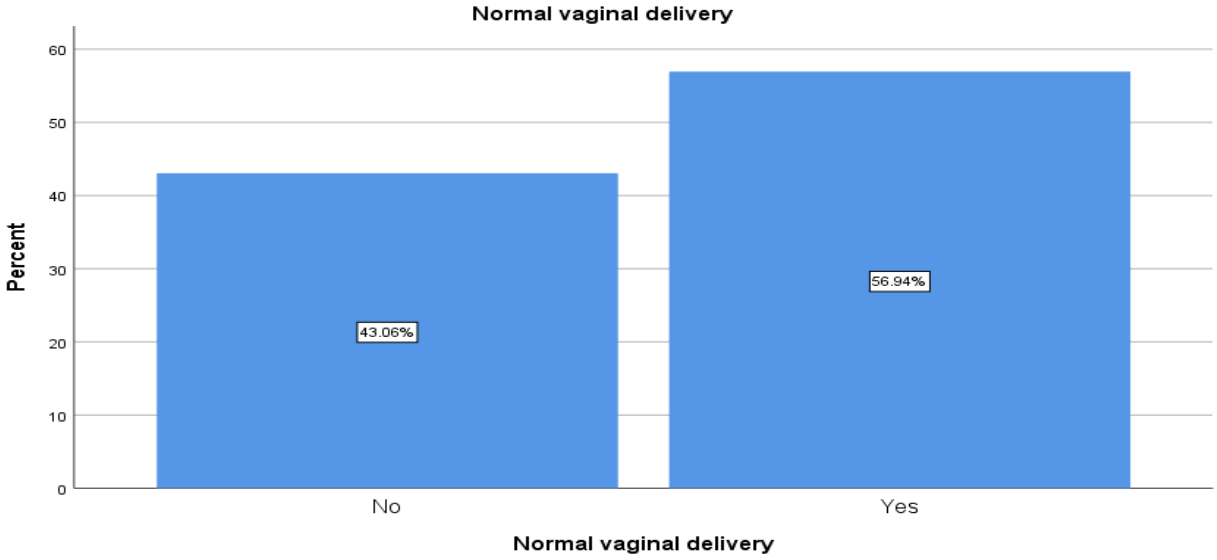
The distribution of postnatal counseling to initiate breastfeeding reveals that majority of mothers receive counseling between 2 - 4 hours after delivery 32.99%, followed by more than 4 hours 31.94% and within 1 hour 31.60%. A minority of mothers (3.47%) reported that they did not receive any counselling. The results found that the mothers were counselled on breastfeeding, but this counselling could be improved by providing it in the first hour after birth.



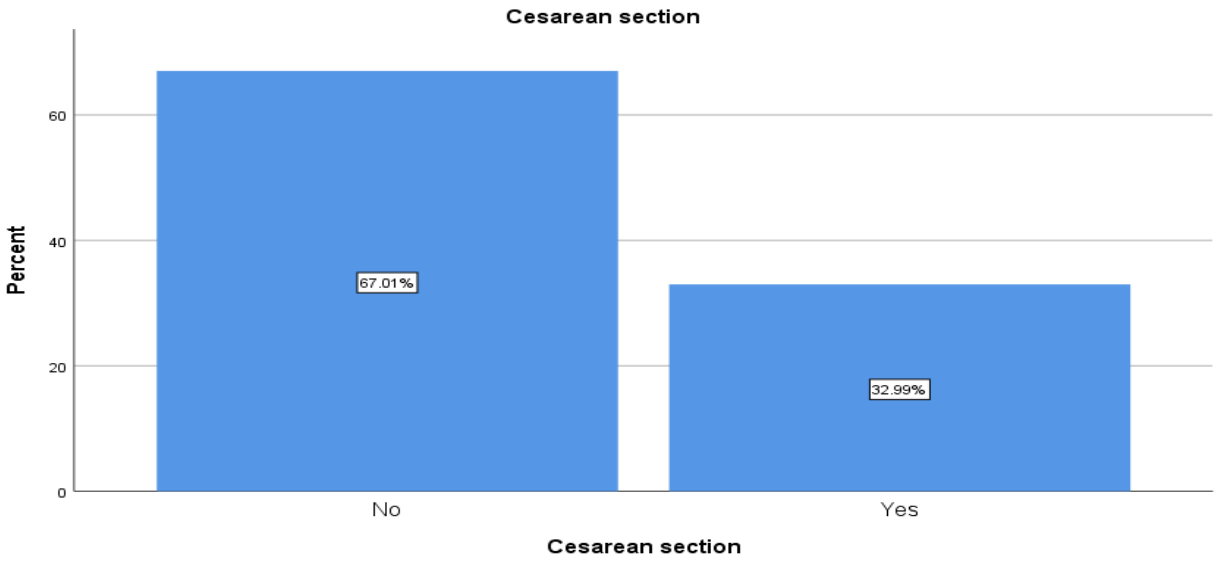
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From the educational status of mothers, it is observed that the maximum proportions were illiterate (24.31%) and middle level educated (24.31%) and then primary education (19.10%) and SSC (16.32%). Less than a third (10.42%) had HSSC education, and 3.13% and 2.43% had bachelor's and postgraduate qualifications, respectively. These data show that most mothers had a low to moderate level of education with few mothers having higher education.



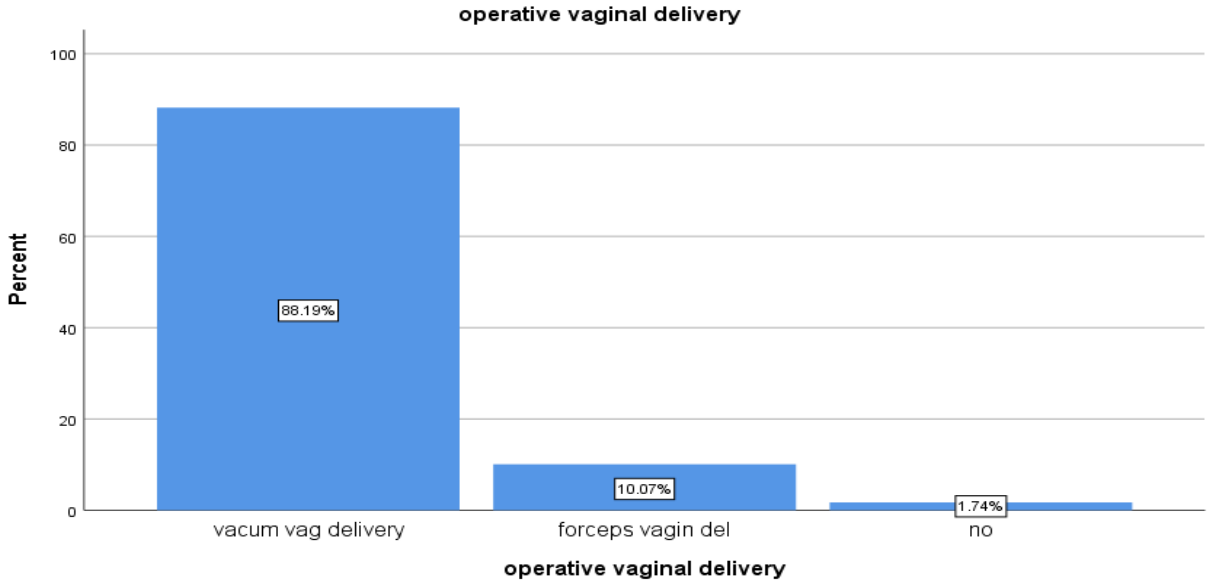
Among the respondents, a slight majority (56.94%) had normal vaginal delivery while the other 43.06% did not. This equates to a moderate difference of almost 14 percentage points between the two groups, indicating that a larger percentage of women had a normal vaginal delivery, but not overwhelmingly so. Because of the lack of other demographic or clinical data, however, it is not possible to investigate other factors that may shape this distribution, including maternal age, parity, obstetric history or institutional practices. Therefore, it is only possible to draw limited conclusions and make limited comparisons.



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The majority of respondents did not have a cesarean section (67.01%) while the minority of respondents had a cesarean section (32.99%). This means that the percentage of non-cesarean births (which is likely cesarean) exceeded the percentage of cesarean births by more than 34 percentage points in this group. This distribution implies a relatively low rate of cesarean delivery in these women, which may be related to institutional procedures, maternal risk factors, or obstetric practices. Without other demographic or clinical factors, such as maternal age, parity, prior cesarean section or indication for surgery, the reasons for this trend are not fully understood, making further interpretation difficult.



The vast majority (88.19%) of these had not been delivered by a vacuum or forceps, with the remaining ~10% likely to be other delivery types or missing delivery types (data does not indicate any other types of delivery). This suggests that vaginal interventions are not widely used in this population with a possible higher prevalence of vacuum compared to forceps, although the breakdown of each is not available from the presented data. This low rate cannot be interpreted without further clinical information, which might be due to either to good obstetric conditions or to institutional preferences or patient-related factors.

Table 3.6: Association of Socioeconomic Status with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding		Total		
			YES(within 1 hour)	No(after 1 hour)			
socioeconomic status	low	Count	56	9	65		
		% within Early Initiation of Breastfeeding	25.0%	14.1%	22.6 %		
		Count	119	47	166		

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	middle	% within Early Initiation of Breastfeeding	53.1%	73.4%	57.6%	8.412	0.015
	high	Count	49	8	57		
		% within Early Initiation of Breastfeeding	21.9%	12.5%	19.8%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

Table 3.6 shows that there was no association between socioeconomic status and early initiation of breastfeeding among postnatal mothers. There were 56 mothers who were in the low SES group who initiated breastfeeding within one hour and 9 mothers (14.1%) who initiated after one hour. Among middle socioeconomic group, 119 (53.1%) started breastfeeding within 1 hour and 47 (73.4%) started after one hour. Among the 219 in the high socioeconomic group, 49 (21.9%) started breastfeeding within one hour, and 8 (12.5%) started after one hour. Statistically significant association was found between SES and EIB practice ($\chi^2 = 8.412$, $p = 0.015$) implying that socioeconomic status has significant influence on the early breast feeding practices among postnatal mothers.

Table 3.7: Association of Socioeconomic Status with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P value
mother's education	Illiterate	Count	60	10	70	23.005	0.001
		% within Early Initiation of Breastfeeding	26.8%	15.6%	24.3%		
	Primary	Count	47	8	55		
		% within Early Initiation of Breastfeeding	21.0%	12.5%	19.1%		
	Middle	Count	59	11	70		
		% within Early Initiation of Breastfeeding	26.3%	17.2%	24.3%		
	SSC	Count	28	19	47		
		% within Early Initiation of Breastfeeding	12.5%	29.7%	16.3%		
	HSSC	Count	22	8	30		
		% within Early Initiation of Breastfeeding	9.8%	12.5%	10.4%		
		Count	4	5	9		

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	BACHELOR	% within Early Initiation of Breastfeeding	1.8%	7.8%	3.1%		
	POSTGRAD	Count	4	3	7		
		% within Early Initiation of Breastfeeding	1.8%	4.7%	2.4%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

There was a significant association between mother's education and early initiation of breastfeeding (χ^2 = 23.005, p = 0.001) as seen in table 3.7. Illiterate, primary and middle educated mothers had the highest rates of early initiation and delayed initiation was comparatively higher among SSC and higher educated mothers. Overall, maternal education were statistically significant with early initiation of breastfeeding.

Table 3.8: Association of Mode of Delivery with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P-value
Normal vaginal delivery	no	Count	87	37	124	7.309	0.007
		% within Early Initiation of Breastfeeding	38.8%	57.8%	43.1%		
	yes	Count	137	27	164		
		% within Early Initiation of Breastfeeding	61.2%	42.2%	56.9%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		
operative vaginal delivery	vacuum vag delivery	Count	198	56	254	0.080	0.961
		% within Early Initiation of Breastfeeding	88.4%	87.5%	88.2%		
	forceps vagin del	Count	22	7	29		
		% within Early Initiation of Breastfeeding	9.8%	10.9%	10.1%		
	no	Count	4	1	5		
		% within Early Initiation of Breastfeeding	1.8%	1.6%	1.7%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

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There was a significant association between early initiation of breastfeeding and normal vaginal delivery (χ^2 = 7.309, p = 0.007) as shown in Table 3.8. More mothers who had a normal vaginal delivery started to breastfeed within one hour of birth than women who were not. Operative vaginal delivery however, was not significantly associated with early initiation of breastfeeding (χ^2 = 0.080, p = 0.961). The results showed that normal delivery is associated positively with early initiation of breastfeeding while operative delivery has no significant effect.

Table 3.9: Association of Antenatal Breastfeeding Education and Provider of Maternal Education with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P-value
maternal antenatal education received on BF	No	Count	148	36	184	2.081	0.149
		% within Early Initiation of Breastfeeding	66.1%	56.3%	63.9%		
	yes	Count	76	28	104		
		% within Early Initiation of Breastfeeding	33.9%	43.8%	36.1%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		
maternal education provider an	LHV	Count	141	31	172	4.405	0.354
		% within Early Initiation of Breastfeeding	62.9%	48.4%	59.7%		
	Nurse	Count	13	5	18		
		% within Early Initiation of Breastfeeding	5.8%	7.8%	6.3%		
	Doctor	Count	34	13	47		
		% within Early Initiation of Breastfeeding	15.2%	20.3%	16.3%		
	Consultant	Count	24	10	34		
		% within Early Initiation of Breastfeeding	10.7%	15.6%	11.8%		
	None	Count	12	5	17		
		% within Early Initiation of Breastfeeding	5.4%	7.8%	5.9%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

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There was no statistically significant relationship between antenatal education about breastfeeding by the mother and early initiation of breastfeeding (χ^2 = 2.081, p = 0.149) as presented in Table 3.9. A higher proportion of early initiation was noticed among those mothers who did not receive antenatal education, but it was not significant. Similarly, the provider of maternal education was also not significantly associated with early initiation of breastfeeding (χ^2 = 4.405, p = 0.354). The findings suggest that antenatal breastfeeding education and provider did not have a significant impact on the study population in terms of early initiation of breastfeeding.

Table 3.10: Association of Timing of Antenatal Breastfeeding Education with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding		Total	Chi square	P-value
			YES(with in 1 hour)	No(after 1 hour)			
maternal education timing received antenatal	1st trimester	Count	12	3	15	16.754	0.005
		% within Early Initiation of Breastfeeding	5.4%	4.7%	5.2%		
	2nd trimester	Count	20	4	24		
		% within Early Initiation of Breastfeeding	8.9%	6.3%	8.3%		
	3rd trimester	Count	47	5	52		
		% within Early Initiation of Breastfeeding	21.0%	7.8%	18.1%		
	before delivery	Count	33	18	51		
		% within Early Initiation of Breastfeeding	14.7%	28.1%	17.7%		
	Postnatal	Count	111	31	142		
		% within Early Initiation of Breastfeeding	49.6%	48.4%	49.3%		
	NOT RECEIVED	Count	1	3	4		
		% within Early Initiation of Breastfeeding	0.4%	4.7%	1.4%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

The relationship between timing of antenatal breastfeeding education and early initiation of breastfeeding was statistically significant (χ^2 = 16.754, p = 0.005) as shown in Table 3.10. The postnatal educated mothers had a higher rate of early initiation, and the postponed initiation mothers were more likely to be educated prior to delivery, especially in the third trimester of pregnancy. There were low levels of early initiation among a small proportion of mothers who had no education at all. Overall, the timing of breast feeding education had a significant effect on early initiation of breast feeding.

Table 3.11: Association of Reasons for Failure of Antenatal Breastfeeding Education with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding		Total	Chi square	P value
			YES(within 1 hour)	No(after 1 hour)			
		Count	86	27	113		

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reason for failed an bf education	no hospital visits and urgent delivery	% within Early Initiation of Breastfeeding	38.4%	42.2%	39.2%	11.07	0.026
	3rd trimester hospital visit in last month	Count	21	8	29		
		% within Early Initiation of Breastfeeding	9.4%	12.5%	10.1%		
	late preterm delivery with no previous hospital visit	Count	29	3	32		
		% within Early Initiation of Breastfeeding	12.9%	4.7%	11.1%		
	booked patient of hospital with no access to bf hospital	Count	35	3	38		
		% within Early Initiation of Breastfeeding	15.6%	4.7%	13.2%		
	bf education received	Count	53	23	76		
		% within Early Initiation of Breastfeeding	23.7%	35.9%	26.4%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

The association between reasons for failure of antenatal breastfeeding education and early initiation of breastfeeding was statistically significant (χ^2 = 11.07, p = 0.026) as shown in Table 3.11. Lack of hospital visits and urgent deliveries were the most frequently cited reasons, followed by lack of access among booked patients and late preterm deliveries. Some mothers reported that they had been educated about breastfeeding had a higher proportion of delayed initiation. In general, access to the hospital and timing of the delivery were important barriers for early initiation of breastfeeding.

Table 3.12: Association of Reasons for Failure to Initiate Breastfeeding in Hospital with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P value
failure to initiate bf in hospital	None	Count	106	16	122		
		% within Early Initiation of Breastfeeding	47.3%	25.0%	42.4%		
	Baby in nursery	Count	34	12	46		
		% within Early Initiation of Breastfeeding	15.2%	18.8%	16.0%		

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	Prelacteal feeds	Count	7	0	7	37.205	0.000
		% within Early Initiation of Breastfeeding	3.1%	0.0%	2.4%		
	ICU care	Count	3	0	3		
		% within Early Initiation of Breastfeeding	1.3%	0.0%	1.0%		
	Baby at home	Count	0	4	4		
		% within Early Initiation of Breastfeeding	0.0%	6.3%	1.4%		
	Pain	Count	65	27	92		
		% within Early Initiation of Breastfeeding	29.0%	42.2%	31.9%		
	Fear of failure to feed	Count	3	3	6		
		% within Early Initiation of Breastfeeding	1.3%	4.7%	2.1%		
	Prefer bottle feed	Count	5	0	5		
		% within Early Initiation of Breastfeeding	2.2%	0.0%	1.7%		
	Mother HBV waiting for IMZ	Count	0	2	2		
		% within Early Initiation of Breastfeeding	0.0%	3.1%	0.7%		
	Previous BOH babies died	Count	1	0	1		
		% within Early Initiation of Breastfeeding	0.4%	0.0%	0.3%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

The association between reasons for failure of antenatal breastfeeding education and early initiation of breastfeeding was statistically significant (χ^2 = 11.07, p = 0.026) as shown in Table 3.12. Lack of hospital visits and urgent deliveries were the most frequently cited reasons, followed by lack of access among booked patients and late preterm deliveries. Some mothers reported that they had been educated about breastfeeding had a higher proportion of delayed initiation. In general, access to the hospital and timing of the delivery were important barriers for early initiation of breastfeeding.

Table 3.13: Association of Types of Prelacteal Feeds with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P value
	None	Count	60	12	72		

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types of prelacteal feeds		% within Early Initiation of Breastfeeding	26.8%	18.8%	25.0%		
	Green tea	Count	69	14	83		
		% within Early Initiation of Breastfeeding	30.8%	21.9%	28.8%		
	Formuamilk	Count	50	30	80		
		% within Early Initiation of Breastfeeding	22.3%	46.9%	27.8%		
	Tea	Count	7	0	7		
		% within Early Initiation of Breastfeeding	3.1%	0.0%	2.4%	20.354	0.002
	Honey	Count	21	1	22		
		% within Early Initiation of Breastfeeding	9.4%	1.6%	7.6%		
	Water	Count	8	4	12		
		% within Early Initiation of Breastfeeding	3.6%	6.3%	4.2%		
	Hypertonic	Count	9	3	12		
		% within Early Initiation of Breastfeeding	4.0%	4.7%	4.2%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

There was a statistically significant association between early initiation of breastfeeding and types of prelacteal feeds (χ^2 = 20.354, p = 0.002) as shown in Table 3.13. For mothers with delayed initiation of breastfeeding, the most frequently mentioned prelacteal feeding was formula milk, whereas for mothers who initiated breastfeeding within one hour, green tea and no prelacteal feeding were more common. Mothers who reported giving formula milk had a higher proportion of delayed initiation. Overall, the type of prelacteal feeding practice had a significant impact on early initiation of breastfeeding.

Table 3.13: Association of Postnatal Practical Assistance with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P value
pn practical assistance provided	No	Count	47	31	78		
		% within Early Initiation of Breastfeeding	21.0%	48.4%	27.1%		
	Yes	Count	177	33	210	19	0.000

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		% within Early Initiation of Breastfeeding	79.0%	51.6%	72.9%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

There was significant association between early initiation of breastfeeding and postnatal practical assistance (χ^2 = 19.0, p < 0.001) as presented in Table 3.18. More mothers who were given practical support were able to start to breastfeed within an hour of birth than those who were not supported. However, delayed initiation was more prevalent among mothers who were not given any practical assistance after the birth. Overall, postnatal practical support played a significant role in early initiation of breastfeeding.

Table 3.14: Association of Indicators of Good Milk Consumption with Early Initiation of Breastfeeding

			Early Initiation of Breastfeeding				
			YES(within 1 hour)	No(after 1 hour)	Total	Chi square	P value
indicators of good milk consumption	No	Count	102	51	153	23.314	0.000
		% within Early Initiation of Breastfeeding	45.5%	79.7%	53.1%		
	Yes	Count	122	13	135		
		% within Early Initiation of Breastfeeding	54.5%	20.3%	46.9%		
Total		Count	224	64	288		
		% within Early Initiation of Breastfeeding	100.0%	100.0%	100.0%		

There was a statistically significant correlation between good milk consumption indicators and early initiation of breastfeeding (χ^2 = 23.314, p < 0.001) as presented in Table 3.14. More mothers who said they consumed good amount of milk began breastfeeding within an hour of giving birth than those who did not consume it at all. On the other hand, mothers who indicated poor milk consumption had delayed initiation. Overall, perceived adequacy of milk consumption was significantly associated with early initiation of breastfeeding.

Discussion:

This study was designed to evaluate the prevalence of early initiation of breastfeeding (EIBF) and its associated socio-demographic, obstetric, healthcare-related and cultural factors among postnatal mothers attending Category D hospital Nawagai and Doctor General Hospital, Bajaur. The results are important because they identify some factors that influence breastfeeding in a rural and resource poor environment where cultural belief and health system factors play a significant role in maternal behavior. The percentages of early breastfeeding initiation in the current study were not as high as recommended by WHO.

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Breastfeeding is common, however, the first hour after birth is not the ideal time for initiating breastfeeding. This is in line with the global evidence that almost half of the newborns in LMICs are not breastfed within one hour of birth (World Health Organization [WHO], 2023). These have been also reported in the Pakistan Demographic and Health Survey (PDHS) which shows persistently low EIBF in Pakistan (National Institute of Population Studies [NIPS], 2019).

In the present study mode of delivery was significantly related to early initiation of breastfeeding. The mothers that had a vaginal delivery were more likely to start breastfeeding early than the cesarean section mothers. This is in line with studies indicating that cesarean delivery leads to milk production delay as a result of pain, anesthesia effects and mother–infant separation (Victora et al., 2016). In South Asian populations where caesarean delivery is a significant problem in timely breastfeeding, similar results have been found. Maternal education was also a determinant of EIBF. Educated mothers had better practices related to breastfeeding than uneducated mothers. This could be because there is greater awareness of the infant feeding guidelines and baby health information is more readily available. Other studies have also described such links in which maternal education is a good predictor of good breastfeeding practices (Black et al., 2013; Victora et al., 2016). Other factors related to health care, like antenatal counseling and immediate postnatal support, had a significant impact on breastfeeding initiation. Mothers that received counseling were more likely to begin breastfeeding early. This aligns with the baby-friendly practices recommended by WHO and structured breastfeeding counseling to enhance the initiation rates within the first hour of birth (WHO, 2023). Health system interventions can have a profound impact on breastfeeding outcomes when done properly, according to evidence.

The study identified some factors that hindered early initiation, including cultural beliefs and traditional practices. Prelacteal feeding and misconceptions about colostrum were prevalent. Many mothers thought that colostrum was bad and disposed of it. These results are corroborated by other South Asian and Pakistani studies that find cultural myths and family dynamics have a significant influence on breastfeeding choices (UNICEF, 2022; NIPS, 2019). These misconceptions underscore the need for community based education programs aimed at specific misconceptions. Multiparous mothers were also more likely to start breastfeeding early than primiparous mothers, and this was also associated with parity. This could be due to a history of experience and confidence in neonatal care. These results are in line with previous studies that found breast-feeding experience positively affects optimal feeding practices (Victora et al., 2016). Although breastfeeding is culturally acceptable in the study area, the initiation is suboptimal as a result of lack of knowledge, poor practices in the hospital, and much influence of culture. Delayed initiation is also caused by lack of structured maternal education and healthcare counseling in rural areas, such as Bajaur.

Conclusion:

This study evaluated the prevalence of early initiation of breastfeeding (EIBF) and analyzed socio-demographic, obstetric, health care and cultural risk factors for early initiation of breastfeeding (EIBF) among postnatal mothers of the Category D hospital Nawagai and Doctor General Hospital (DGH), Bajaur Khyber Pakhtunkhwa Province Pakistan. The results offer valuable data on breastfeeding behavior in a rural community with sparse resources and deep-rooted cultural influences on maternal and child health behaviors. The study found that the proportion of early initiation of breastfeeding was poor. Breastfeeding was practiced by most mothers, but not all mothers began to breastfeed in the first hour after birth as suggested by the World Health Organization (WHO). There is a delay in the opportunity for newborns to benefit from colostrum – nutrients, antibodies, and immune protection that are important to neonatal survival and healthy development. Many factors were identified to significantly affect the initiation of breastfeeding. One of the strongest factors was mode of delivery, as mothers who had vaginal delivery were more likely to breastfeed within the

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recommended time frame than those delivered by cesarean section. The delay in initiation post cesarean section could be due to the pain, discomfort of the mother, the anesthetic effect and separation of the mother and infant. The results of these studies point to the need for encouraging early skin-to-skin contact and breastfeeding assistance after cesarean section deliveries. Another important determinant influencing EIBF was maternal education, with educated mothers showing better breastfeeding practices, and higher likelihood of starting breastfeeding within the first hour after birth. Similarly, contact with health care professionals during the ante- or post-natal period had a positive effect on breastfeeding practices – those mothers who were provided with information or support on breastfeeding during the ante- or post-natal period were more likely to adhere to indicated breastfeeding practices. There was a high prevalence of cultural beliefs and traditional practices that were found to be barriers to timely initiation of breastfeeding. Some mothers continued to have misconceptions about colostrum and about when the colostrum feeding should be delayed, and the decisions regarding infant feeding were also influenced by the family elders, who often had significant roles in the infant feeding decisions, confirming misconceptions about delaying breastfeeding initiation. These practices will have a negative impact on the protection afforded by the early breastfeeding and on the health of the newborn. Breastfeeding behavior was also influenced by parity, with multiparous mothers showing better breastfeeding practices as compared to first-time mothers. The previous experience of the mother can boost her confidence and knowledge of infant feeding methods, and this could necessitate extra counseling, education and support from health care providers for prim parous mothers before and after delivery. The overall results suggest that breastfeeding is culturally acceptable in the Bajaur District, however, the rate of timely initiation of breastfeeding is low because of various obstacles including obstetric, educational, healthcare, and cultural factors. Community awareness programs to change harmful cultural perceptions, increasing maternal education, improving practices and services in health facilities to support breastfeeding, and strengthening practices in antenatal and postnatal care are key interventions to improve EIBF rates. Finally, it is recommended that breastfeeding initiation should continue to be a public health priority. Multisector interventions, including health care providers, families, community leaders and policy makers are required to increase breastfeeding and to improve neonatal health outcomes. This will help ensure that infant morbidity and mortality is reduced, which will enhance the health of mothers and children in Bajaur District and other situations.

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