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| RESEARCH ARTICLE

Breastfeeding Technique among Postnatal Mothers at the Teaching Hospital, Bharatpur, Nepal

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| ABSTRACT

Breastfeeding techniques involve positioning the mother and newborn, attachment to the breast, and suckling during breastfeeding. Ineffective breastfeeding techniques are one of the leading causes of premature discontinuation of breastfeeding. The study aimed to assess breastfeeding techniques among postnatal mothers at the Teaching Hospital in Bharatpur, Nepal. The specific objectives of the study were to assess the breastfeeding techniques adopted by 101 postnatal mothers and to find out the association between the level of breastfeeding technique and selected variables. A descriptive cross-sectional study design was used to study 101 postnatal mothers admitted to the postnatal wards at the teaching hospital, who were selected using a non-probability consecutive sampling technique. Data were collected using a structured interview schedule and observation checklist. The data were analyzed using descriptive and inferential statistics in SPSS. Nearly half of the respondents (48.5%) had good, 23.8% had average, and 27.7% followed poor breastfeeding techniques. The breastfeeding technique was significantly associated with the guided breastfeeding technique by health professionals after delivery (p=0.016). The postnatal mothers guided by healthcare professionals demonstrated a better breastfeeding technique than those without guidance. The breastfeeding technique was statistically not significant with age (p=0.273), educational status (p=0.584), occupation (p=0.599), parity (p=0.985), counseling regarding breastfeeding during ANC visits (p=0.681), type of delivery (p=0.822), birth Asphyxia (p=0.268), and weight of the newborn (p=0.484). Nearly half of the mothers have good breastfeeding techniques, whereas one-third have poor ones. The breastfeeding technique was significantly associated with the guidance of health professionals after delivery. It is necessary to counsel mothers on breastfeeding techniques by healthcare providers during pregnancy and immediately after delivery to adopt the correct technique.

| KEYWORDS

Breastfeeding, Breastfeeding technique, Postnatal mothers

| ARTICLE INFORMATION

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1. Introduction

Breastfeeding is the act of providing the mother's milk to the infant. It is an appropriate food for infants, as it contains antibodies. It protects newborns from common childhood illnesses. It provides all the energy and nutrients needed for the first months of life and continues during infancy and up to 2 years. Children breastfed properly have better performance in intelligence tests. They have less risk of overweight and diabetes in their later life {World Health Organization (WHO), 2019}.

Breastfeeding is the ideal form of feeding neonates and infants to satisfy the baby's nutritional, metabolic, and psychological needs (Devi et al., 2022). It is recommended for early initiation of breastfeeding within the first hour after birth, exclusively for 6 months, and continued breastfeeding up to two years of age or along with safe and adequate complementary foods (WHO, 2021). Proper and sufficient breastfeeding helps a baby's growth and development by increasing immunity power against different infectious diseases in infancy, like bacterial meningitis, diarrhea, respiratory tract infections, otitis media, and urinary tract infections (Pound & Unger, 2017).

Breastfeeding is imperative for the mother to facilitate involution and reduce the risk of breast cancer, epithelial ovarian cancer, osteoporosis, and coronary artery disease. The majority of mothers do not understand the technique of breastfeeding as a learned skill that requires practice and patience (Yilak et al., 2020).

Breastfeeding technique refers to the composite of positioning, attachment, and suckling. The positioning of breastfeeding indicates the technique in which the newborn or infant is held to the mother's body. The infant has sufficient areola in the mouth during attachment, and suckling indicates the sucking of milk from the nipple. Proper positioning of the mother, good attachment of the baby to the breast, and effective suckling are functions of the effective breastfeeding technique. Effective breastfeeding techniques are important to establish breastfeeding, ensure milk transfer, and prevent breastfeeding problems. Breastfeeding technique is understood as a natural phenomenon. It is not an instinctive behavior, and it requires a skill. Mothers can prevent and handle breastfeeding problems if they receive the right steps of breastfeeding techniques from healthcare professionals. Good attachment and positioning of breastfeeding achieved at the first and early feeding avoid breastfeeding difficulties (Tiruye et al., 2018).

Improper positioning, attachment, and suckling are constructs for ineffective breastfeeding technique, which results in inadequate intake of breast milk that leads to poor weight gain, stunting, and decreased immunity. Improper breastfeeding technique is also the leading cause of breast engorgement, cracked nipples, mastitis, and breast abscesses (Yilak et al., 2020).

Globally, in 2022, 149 million children under age 5 were estimated to be stunted, 45 million were wasted, and 37 were overweight (WHO,2023). In Nepal, 25% of children under age 5 are stunted, 8% are wasted, 19% are underweight, and only 1% of children under 5 are overweight. The target of the Nepal government for SDG 2.1.1 is to reduce the prevalence of stunting among those under 5 years at or below 29% by 2022 and at or below 15% by 2030. Likewise, the target for SDG 2.2.2 is to reduce the prevalence of wasting among those under 5 years to 7% by 2022 and 4% by 2030 {Nepal Demographic Health Survey (NDHS), 2022}.

An ineffective breastfeeding technique is one of the main causes that leads to non-exclusive breastfeeding and premature discontinuation of breastfeeding. Mothers with poor breastfeeding techniques cease breastfeeding earlier, which ultimately leads to acute infectious diseases like diarrhea, acute respiratory infection, chronic diseases such as diabetes, reduced mental ability, and perhaps an increased risk of epileptic disorder during childhood (Safayi et al., 2021).

Research evidence showed that good attachment and good positioning were found in 62.16% and 60.96% of participants, respectively. Most of the participants (52.08%) had perceived that their newborn was unable to suck the breast effectively (Dave et al., 2022). Likewise, poorer positioning among primipara mothers (38.75%) than among multipara mothers (5.83%). Poor attachment was also observed among primipara mothers (31.25%) compared to multipara mothers (3.33%) (Choudan et al., 2020).

Research evidence showed that 30.7% of postnatal mothers and newborns maintained average breastfeeding positions. A total of 52.47% had maintained an average type of breastfeeding attachment. Similarly, 62% of newborns were effectively suckling at the breast (Aswathaman et al., 2018). Postnatal mothers adopt improper breastfeeding techniques due to a lack of prior experience, education, family members, and health professionals' support, fear, age, etc. (Mortazavi et al., 2015). Lack of formal education, home delivery, being primiparous, and not

receiving counseling during pregnancy and postnatal period are significantly associated with poor breastfeeding technique (Yilak et al., 2020). Good breastfeeding techniques are improved by providing counseling and demonstrating the techniques by health professionals on holding newborns for proper breastfeeding position and attachment (Aswathaman et al., 2018). The specific objectives are:

- To assess the level of breastfeeding technique among postnatal mothers.
- To find out the association between the level of breastfeeding technique and selected variables.

2. Literature Review

Oyato et al. (2024) defined breastfeeding technique as a baby's attachment to the breast, the mother's posture, and the act of sucking during breastfeeding. These are all considered aspects of breastfeeding techniques and are critical to the effectiveness of breastfeeding. The study found that 43.4% of mothers use effective breastfeeding techniques, with factors such as antenatal care follow-up, prior breastfeeding knowledge, multipara status, and primary and secondary education levels significantly influencing these practices.

Alemie et al. (2023) conducted a community-based cross-sectional study on ineffective breastfeeding techniques and associated factors among 389 breastfeeding mothers in Ethiopia using a computer-generated simple random sampling technique. An observational checklist and interviewer-administered questionnaire were used to collect data. The study found that the proportion of ineffective breastfeeding techniques was 66.8%. No formal education, primipara, and not receiving breastfeeding counseling during antenatal care were statistically significant factors. This study concluded that the proportion of ineffective breastfeeding was unacceptable. Maternal care should be strengthened, breastfeeding-related education should be delivered and appropriate strategies should be required to improve breastfeeding techniques.

Subha and Roy (2023) conducted a hospital-based mixed methods study to assess positioning and attachment during breastfeeding among 114 postnatal mothers and identify the factors associated with improper positioning and poor attachment. The result showed inappropriate positioning in 20.5%, poor attachment in 21.4%, and ineffective suckling in 32.4% of postnatal mothers, respectively. More than half of the mothers (55.3%) had done antenatal visits, and 64.7% of mothers had received breastfeeding counseling. Poor breastfeeding habits were linked to primipara mothers who were not receiving breastfeeding counseling. This study concluded that mothers need more encouragement, guidance, and awareness from health professionals to apply effective breastfeeding techniques.

Hollow et al. (2023) conducted a study on antenatal and perinatal service delivery associations with breastfeeding outcomes in Nepal. The study reported that 55.4% of postnatal mothers breastfed their newborns within 1 hour of vaginal birth, whereas 22.6% of postnatal mothers breastfed their newborns within 1 hour of cesarean delivery.

Dhakal et al. (2023) conducted a cross-sectional study on the prevalence and factors influencing exclusive breastfeeding practice among 362 breastfeeding mothers. The result showed that 61.9% of postnatal mothers breastfed their newborns within 1 hour of delivery; more than half of the mothers, 56.1%, were primipara, whereas 43.9% of mothers were multipara. It further reported that around three-fourths of mothers, 74.9%, received breastfeeding education counselling from health professionals. The majority of the mothers, 65.7%, gave birth to babies by normal delivery, and less than half of the mothers, 34.3%, gave birth to babies by caesarean delivery.

Karthigesu et al. (2023) conducted a community-based cross-sectional study on determinants of early cessation of exclusive breastfeeding practices in Sri Lanka to assess the factors influencing the early cessation of exclusive breastfeeding. The result showed that the practice of exclusive breastfeeding was 71.2%. Early cessation of

breastfeeding was practiced by employed mothers, mothers who had low birth weight babies, and those mothers who went through cesarean section birth. This study concluded that the prevalence of exclusive breastfeeding up to six months was low, and it was influenced by employment, birthweight of the baby, and mode of delivery. Furthermore, policymakers should take necessary action to decrease the Cesarean section rate and provide nutritional support to pregnant mothers.

Asmamaw et al. (2022) conducted a community-based cross-sectional study on effective breastfeeding techniques and associated factors among 786 lactating mothers in Ethiopia. An interviewer-administered questionnaire and observational checklist were used to collect data. The result showed that the prevalence of effective breastfeeding techniques was 42.9%. Antenatal care follow-up and receiving postpartum home visits by health workers were significantly associated with the practice of effective breastfeeding techniques.

Devi et al. (2022) conducted a descriptive correlation study on knowledge and practice regarding breastfeeding among 50 primipara mothers in an obstetrics ward in Birganj, Nepal. The result showed that 46.0% had good practice and 54.0% had satisfactory practice on breastfeeding. This study concluded that breastfeeding not only supports normal growth and development but also fosters emotional security and affection, with a lifelong impact on psychological development.

Tariqujjaman et al. (2022) conducted a study on between and within-country variations in infant and young child feeding practices in South Asia countries (SACs). The result showed that the early initiation of breastfeeding feeding (EIBF) practice was 45.4% among all the SACs. Postnatal mothers 44.2% from the poorest households practiced better EIBF compared to mothers 40.7% from the richest households. Postnatal mothers, 68.2% from Nepal and Maldives, were found to practice high EIBF. Mothers with secondary or higher education practiced higher levels of breastfeeding practices in SACs.

Sindhuri et al. (2022) conducted a study in a tertiary care hospital in India to assess breastfeeding techniques and to identify associated factors of positioning and attachment of breastfeeding among 99 postnatal mothers. The study findings showed that 28.3% and 27.3% of postnatal mothers were found practicing improper positioning and poor attachment, respectively. Housewives, young mothers with infants less than 10 days, and mothers without breastfeeding counseling were found practicing poor breastfeeding techniques. This study concluded that maternal age, occupation, age of the infant, and breastfeeding counseling influence the breastfeeding technique of mothers.

Davra et al. (2022) conducted a community-based cross-sectional study on breastfeeding position and attachment practices among 210 lactating mothers to assess breastfeeding techniques in Western India. The technique was observed based on Integrated Management of Neonatal and Childhood Illness (IMNCI) guidelines. The result showed that less than half of the mothers (45.2%) had good positioning, the majority of the mothers (73.8%) had good attachment, and the majority of mothers (73.3%) had good suckling.

Shakya and Shakya (2021) carried out a cross-sectional study on the barriers to early initiation of breastfeeding among 244 postnatal mothers to identify the barriers to the early initiation of breastfeeding among postnatal mothers in Nepal. The study revealed that 19.7% of mothers initiated breastfeeding within 1 hour of birth, and 80.3% of mothers did not breastfeed within 1 hour of birth. The study further revealed that 82.4% of mothers provided pre-lacteal feed to the newborn. Delayed early breastfeeding was associated with the type of delivery, vaginal or caesarean, and early breastfeeding initiation was low, with 19.7% in postnatal mothers. There was no significant association between breastfeeding initiation and the age, education, and occupation of mothers.

Tirkey et al. (2021) conducted a descriptive study on the perception and practice of early initiation of breastfeeding and associated factors among postnatal mothers in East Sikkim among 80 postnatal mothers to assess the EIBF

techniques and associated factors. The study reported that 36% of postnatal mothers breastfed within 1 hour of birth, 19% of mothers gave pre-lacteal feeding, 17% of mothers breastfed infants at an interval of every 2 hours within 24 hours of birth, 53% of mothers breastfed 5-10 minutes of duration, and 19% of mothers breastfed more than 10 minutes. Similarly, 47% of babies had a proper attachment to the breast and suckled the breastmilk comfortably until they were satisfied, and 35% of babies suckled the breastmilk and released it in frequent intervals.

Kassie et al. (2021) conducted an observational cross-sectional study on breastfeeding techniques and associated factors among 414 lactating mothers in Ethiopia. The study reported that the proportion of breastfeeding techniques was 48%. The likelihood of effective breastfeeding techniques practiced by mothers was 55% times lower than the mothers counseled immediately after childbirth. The report concluded that half of the mothers applied proper breastfeeding techniques.

Safayi et al. (2021) conducted an institutional-based cross-sectional study to assess breastfeeding technique and associated factors among 414 lactating mothers visiting Gondar town health facilities in Northwest Ethiopia. The result showed that the proportion of effective BFT was 48%. Proper BFT among the age group 18-20 years was 70% lower than the age group >30 years. Effective BFT in primipara mothers was 49% lower compared to multiparous mothers. Similarly, mothers who did not receive counseling right after giving birth had a 55% decreased chance of having an effective BFT. Moreover, the effective breastfeeding technique for mothers who have breast problems was 78% lower than for mothers who have no breast problems.

Nduagubam et al. (2021) conducted a cross-sectional descriptive study on the assessment of breastfeeding techniques among 396 mothers and child pairs at two tertiary hospitals in Enugu, Nigeria, between September 2018 and February 2019. The mothers were closely observed during breastfeeding and scored using criteria set by the World Health Organization. The result showed that 49% of mothers practiced good breastfeeding techniques. Good breastfeeding techniques were significantly correlated with maternal age (20–30 years), attendance at antenatal clinics, health education and maternal education level, and breastfeeding technique demonstration before and after birth. This study concluded that regular breastfeeding technique demonstrations and greater awareness are required.

Basnet et al. (2020) studied the breastfeeding pattern and its associated factors among 110 mothers working at two hospitals in Kathmandu. The study revealed that most of the mothers, 8.2%, were found aware of early breastfeeding within 1 hour of birth, and more than half of the mothers, 58.2%, breastfed their newborns within 1 hour of birth.

Morais et al. (2020) conducted a quasi-randomized intervention study on breastfeeding techniques and the incidence of nipple traumas in 180 puerperal women to assess the quality of breastfeeding techniques. The study reported that 64% of mothers used correct breastfeeding techniques.

Li and Zhu (2020) conducted a cross-sectional study on breastfeeding techniques and associated factors among 153 mothers before discharge in China to assess breastfeeding techniques and associated factors. The study reported that 8.63 was the average score of breastfeeding techniques assessed before the discharge of mothers from the hospital. The study concluded that breastfeeding guidance is to be provided to promote breastfeeding techniques in mothers.

Yilak et al. (2020) conducted a cross-sectional study on the prevalence of ineffective breastfeeding techniques and associated factors among 415 lactating mothers in Ethiopia. The study reported that the prevalence of ineffective breastfeeding techniques was 63.5%. The study concluded that it is necessary to educate mothers, increase

institutional childbirth, and counsel mothers about breastfeeding for effective breastfeeding techniques for lactating mothers.

Choudan et al. (2020) conducted an institution-based cross-sectional study among 200 patients in India. The result showed poorer positioning among primipara mothers (38.75%) than among multipara mothers (5.83%). A poor attachment was also observed among primipara mothers (31.25%) than the multipara (3.33%). This study concluded that mothers less than 20 years old, the primipara, and mothers who had lower education need more attention, support, and direction for correct positioning and attachment during breastfeeding at the first and early feeds.

Khanal et al. (2019) conducted a cross-sectional study on the knowledge and practice of positioning technique and attachment of breastfeeding in Patan Hospital among 168 postnatal mothers. The result showed that 8.3% had inadequate knowledge, more than half of the mothers, 53.6% had good practice, and 46.4% had poor practice. Nine (5.4%) had poor technique in sitting position and 9.5% in lying position. More than half of the mothers had a moderate level of knowledge and good practice.

Bhandari et al. (2019) conducted a study on determinants of infant breastfeeding practices in Nepal among 1015 infants to assess the breastfeeding practice. The study reported that the prevalence of breastfeeding within 1 hour was 41.8%, and pre-lacteal feeding was 32.7%. The study concluded that less than half of mothers initiated early breastfeeding, and one-third of infants received pre-lacteal feeds, which may affect the breastfeeding practice and health of infants.

Ghimire (2019) conducted a study on the effect of maternal health service utilization in the early initiation of breastfeeding among 1978 Nepalese mothers and infants. The study reported that 55% of mothers breastfed their infants within 1 hour of birth. Mothers with vaginal birth had significantly breastfed their infants within an hour compared to those mothers who had a caesarean delivery.

The breastfeeding technique refers to the positioning, attachment, and suckling during breastfeeding. Various studies were conducted regarding breastfeeding techniques. Most of the studies were conducted outside of Nepal. Evidence from previous studies showed that the majority of postnatal mothers follow poor breastfeeding techniques. Most of the studies were not conducted in an immediate postpartum period, which is crucial for early initiation and successful establishment of breastfeeding. Successful initiation of breastfeeding promotes the mother's and infant's bonding, growth, and development of the infant and prevents early cessation of breastfeeding and childhood illness. Lack of formal education, primipara, not receiving breastfeeding counseling during pregnancy, and not getting guidance regarding breastfeeding technique after delivery leads to poor breastfeeding technique. Overall, the majority of postnatal mothers follow poor breastfeeding techniques. This reality showed a relevant gap to be researched intensively in the field of breastfeeding techniques followed by postnatal mothers for effective breastfeeding.

3. Methods and Procedures

3.1 Study Design

A descriptive cross-sectional study design assessed breastfeeding techniques among postnatal mothers at the Teaching Hospital.

3.2 Study Setting

The study was conducted in the postnatal ward of the Chitwan Medical College Teaching Hospital (CMCTH), Bharatpur, Chitwan, Nepal. CMCTH was established in 2006 by a group of health professionals. It is a tertiary care 750-bedded teaching hospital. CMCTH offers healthcare facilities to promote human health via research, education, and healthcare facilities.

3.3 Study Population

A total of 101 postnatal mothers with their newborns up to 5 days old and admitted to the postnatal ward at CMCTH were the study population. The data were collected from the mothers after 24 hours of normal delivery and 48 hours of cesarean section. The population was selected based on the inclusion and exclusion criteria; i.e., inclusion criteria: all the postnatal mothers, irrespective of the type of delivery, admitted to the postnatal ward who had their newborns up to 5 days postpartum and were willing to participate and exclusion criteria: all the postnatal mothers with newborns with congenital anomalies, like; cleft lip and palate, heart disease, etc., and sick newborns were excluded from the study.

3.4 Study Sample Size

A total of 101 postnatal mothers giving birth to newborns were the sample for the study.

3.5 Study Sampling Technique

A non-probability convenience sampling technique was used to select postnatal mothers having newborns of 5 days at the CMCTH. The data were collected from those mothers who met the inclusion criteria. A structured interview schedule and observational checklist were developed based on an extensive literature review and consultation with the experts.

3.6 Study Research Instrumentation

The observational checklist was developed based on the WHO Breastfeed Observational Checklist and Integrated Management of Neonatal and Childhood Illness (IMNCI) guidebook. A structured interview schedule was used to collect socio-demographic, obstetric, and newborn-related characteristics and general information regarding breastfeeding practices. An observation checklist of the breastfeeding technique was used to assess the breastfeeding technique among postnatal mothers. The observation checklist had 3 domains: positioning, attachment, and suckling. The instrument was developed in the English language. The instrument was translated into the respondents' mother tongue (Nepali).

3.7 Validity and Reliability

The content validity of the instrument was checked by reviewing the literature, consulting with experts, and a team of professionals from the Research Committee of the Chitwan Medical College (CMC). The research instrument was validated by 6 experts for the Content Validity Index (CVI). The calculated Content validity index (CVI) was 0.93.

3.8 Pretesting of the Research Instrument

The instrument was pretested on 10.0% of postnatal mothers admitted to the CMCTH's postnatal ward, and they were excluded from the final study. The instrument was updated as needed later.

3.9 Data Collection Procedure

The data collection was started after approval from the Institutional Review Committee (IRC) and the Hospital Administration Department of the CMCTH. Postnatal mothers admitted to the postnatal ward were identified. The schedule for data collection was 8:00 AM to 4:00 PM. The researcher first observed the breastfeeding technique through the participant observation method using the observation checklist, and then the respondents were simultaneously interviewed face-to-face using a structured interview schedule.

The average time for completing the observation of the breastfeeding technique and face-to-face interview was about 30 minutes. Each correct technique was given 1 mark, whereas the incorrect technique was given a 0 mark. Total scores ranged from 0-12. The total score was calculated by summing all the information related to the breastfeeding technique and further classified into 3 categories according to Asmamaw et al. (2022): Good Technique scores were 10-12, Average Technique scores were 6-9, and Poor Technique scores were 0-5. Five respondents were observed and interviewed per day.

3.10 Data Analysis Procedure

The collected data were checked, reviewed, and organized daily for completeness, consistency, and accuracy. The data were coded and entered into the Statistical Package for Social Sciences (SPSS) 23.0 version to analyze. The data

were analyzed using descriptive statistics, such as frequency, percentage, mean, and standard deviation, to describe socio-demographic, obstetric, newborn-related characteristics, self-reported information regarding breastfeeding practice, and breastfeeding technique of the postnatal mothers. Inferential statistics such as the chi-square test were used to measure the association between breastfeeding technique and selected variables. The study findings are presented in the tables. There was a <0.05 threshold for significance.

3.11 Ethical Consideration

An ethical clearance was received from the Institutional Review Committee (IRC) of Chitwan Medical College (CMC), as the hospital is run by the college. Administrative permission was taken from the hospital director and nursing matron, head of the Department of Gynecology and Obstetrics, and in charge of the postnatal ward before data collection. Following the fulfillment of the inclusion criteria, the objectives of the study were explained to the respondents, and each respondent was asked to sign a written informed consent form outlining the study's objectives. Confidentiality was assured by not disclosing the information to others, using alphanumeric code instead of name, and interviewing each respondent separately. Respondents' dignity was maintained by giving them the right to discontinue the research study at any time without incurring any penalties if they felt uncomfortable.

4. Findings

4.1 Socio-demographic Characteristics

Almost all (97.0%) were less than 35 years old. Most of the respondents (89.1%) followed Hinduism. The majority of respondents (74.3%) were living in a nuclear family (60.4%) and had completed secondary education. The majority of respondents (70.3%) belonged to homemakers.

Table 1: Socio-demographic Characteristics of Respondents

Variables	Number	Percent
Age group in years		
< 35 Years	98	97.0
≥ 35 Years	3	3.0
Mean ± SD 26.99 ± 3.874, (Min-20, Max-39)		
Ethnicity		
Brahmin	28	27.7
Chhetri	23	22.8
Dalit	9	8.9
Janajati	39	38.6
Muslim	2	2.0
Religion		
Hinduism	90	89.1
Buddhist	8	7.9
Christianity	2	2.0
Islam	1	1.0
Family type		
Joint	26	25.7
Nuclear	75	74.3
Education status		
Basic education	18	17.8
Secondary education	61	60.4
Bachelor and above	22	21.8
Occupation		
Homemaker	71	70.3
Wage employment	4	4.0
Business	12	11.8
Service holder	14	13.9

SD=Standard Deviation Min.= Minimum, Max.=Maximum n=101

4.2 Obstetric and Newborn-related Characteristics

Almost all (98.0%) had no health problems during the postnatal period, and 95.0% of newborns belonged to term gestation. More than half of the respondents (58.4%) were multipara, 59.4% of respondents did not receive guided breastfeeding techniques from health professionals after delivery, and 58.4% of respondents had received counseling on breastfeeding during ANC visits. Most of the respondents (75.2%) went through cesarean section delivery, 88.1% of newborns belonged to normal birth weight, 78.2% of newborns had no asphyxia at birth, but 21.8% had mild asphyxia at one minute of birth. Cent percent of respondents had done ANC visits.

Table 2: Obstetric and Newborn-related Characteristics of Respondents

Variable	Number	Percent
Parity		
Multipara	59	58.4
Primipara	42	41.6
Counselling regarding breastfeeding during ANC visits		
Yes	59	58.4
No	42	41.6
Type of delivery		
Normal delivery	25	24.8
Caesarean section delivery	76	75.2
Support for the guided breastfeeding technique from health professionals after delivery		
Yes	41	40.6
No	60	59.4
Health problems during the postnatal period		
Yes	2	2.0
No	99	98.0
Weeks of gestation		
Preterm	5	5.0
Term	96	95.0
Asphyxia at birth		
Present (mild asphyxia)	22	21.8
Absent	79	78.2
Weight of newborn		
Low birth weight (<2500 gm)	12	11.9
Normal birth weight (≥2500 gm)	89	88.1

4.3 Self-reported Information of Breastfeeding Practice

Cent percent of respondents breastfed their newborn after every 2 hours during the day. More than half of the respondents (52.5%) did not start breastfeeding within one hour of childbirth, 57.4% of respondents did not carry out prelacteal feeding, and 52.5% of respondents breastfed their newborn for 10 minutes or more in one sitting. Almost all of the respondents (94.1%) breastfed their newborn after every 2 hours at night, whereas only 5.9% of respondents breastfed their newborn after every 3 hours at night. Most of the respondents (80.2%) burped their newborns after each breastfeeding.

Table 3: Self-reported Information of Breastfeeding Practice among Respondents

Variable	Number	Percent
Breastfeeding within one hour after delivery		
Yes	48	47.5
No	53	52.5
The interval of breastfeeding during the day is		
Every 2 hours	101	100.0
Interval of breastfeeding at night		
Every 2 hours	95	94.1
Every 3 hours	6	5.9
Duration of breastfeeding in one sitting		
<10 minutes	48	47.5
≥10 minutes	53	52.5
Burp the newborn after each breastfeeding		
Yes	81	80.2
No	20	19.8
Prelacteal feeding to newborn		
Yes	43	42.6
No	58	57.4

4.4 Correct Techniques during Breastfeeding

Most of the respondents (82.2%) positioned the newborn's body straight. Almost all (97.0%) of the newborn's body turned towards the mother, facing the breast. The majority (67.3%) of the newborn's body touched the mother's abdomen, and only (15.8%) of the newborn's whole body was fully supported by the mother. Regarding attachment with the breast, a cent percent of the newborn's lips are touched by the nipple. The majority (69.3%) of the newborn's mouth was wide open, and more than half (57.4%) of the newborn's lower lip was turned outward. The majority (60.4%) of respondents' upper areola was seen above the newborn's upper lip. Regarding effective suckling, only 27.7% of newborns suckled the breast deeply in a regular pattern. Cent percent of the newborns paused between sucking, and only 16.8% of newborn's cheeks were full and the sound of swallowing was heard.

Table 4: Respondents' Correct Techniques during Breastfeeding

Variables	Correct Techniques	
	Number	Percent
Criteria for correct body positioning		
Position the newborn close to the mother with the newborn's head and body straight	83	82.2
The newborn's body turned towards the mother, facing the breast, nose opposite to the nipple	98	97.0
The newborn's body touching the mother's abdomen	68	67.3
The newborn's whole body is fully supported by the mother	16	15.8
Criteria for correct attachment with breast		
The newborn's lips are touched with the nipple,	101	100.0
chin touching the breast		
The newborn's mouth is wide open	70	69.3
The newborn's lower lip is everted (turned outward)	58	57.4
The upper areola is seen above the upper lip	61	60.4
Criteria for effective suckling		
The newborn suckles slowly (about one suck per second) and in a regular pattern	101	100.0
The newborn sucks deeply (jaw moving, cheeks should not draw inward, and visible swallowing after every one or two sucks) in a regular pattern	28	27.7
The newborn pauses suckling	101	100.0
The newborn's cheeks are full and the sound of swallowing is heard	17	16.8

n=101

4.5 Levels of Breastfeeding Technique among Postnatal Mothers

Less than half of the respondents (48.5%) had followed good breastfeeding techniques, 23.8% of respondents had followed average breastfeeding techniques, and only 27.7 % of respondents had followed poor breastfeeding techniques.

Table: 5 Levels of Breastfeeding Technique among Postnatal Mothers

Levels of Breastfeeding Technique	Number	Percent
Good Technique (9-12 score)	49	48.5
Average Technique (6-8 score)	24	23.8
Poor Technique (9-12 score)	28	27.7
Total	**101**	**100.0**

Total possible score =0-12

4.6 Association between Breastfeeding Technique with Selected Variables

The breastfeeding technique adopted by the postnatal mothers was statistically significant, with the guidance breastfeeding technique received from health professionals after delivery (p=0.016). However, the breastfeeding technique was statistically not significant with age (p=0.273), educational status (p=0.584), occupation (p=0.599), parity (p=0.985), counseling regarding breastfeeding during ANC visits (p=0.681), type of delivery (p=0.822), birth asphyxia (p=0.268), and weight of newborn (p=0.484).

Table 6: Association between Breastfeeding Technique with Selected Variables

Variables	Level of Breastfeeding Technique			χ^2 value	P -Value
	Poor (28) No. (%)	Average (24) No. (%)	Good (49) No. (%)		
Age group in years					
< 35	28(28.6)	44(44.9)	26(26.5)	-	0.617#NA
≥35	0(0.0)	2(66.7)	1(33.1)		
Education status					
Secondary and below	23(29.1)	17(21.5)	39(49.4)	1.076	0.584**
Bachelor and above	5((22.7)	7(31.8)	10(45.5)		
Occupation					
Homemaker	21(29.6)	15(21.1)	35(49.3)	1.025	0.599**
*Others	7(23.3)	9(30.0)	14(46.7)		
Parity					
Primipara	12(28.6)	10(23.8)	20(47.6)	1.089	0.985**
Multipara	16(27.1)	14(23.7)	29(49.2)		
Counselling regarding breastfeeding during ANC visits					
Yes	15(25.4)	29(49.2)	15(25.4)	0.767	0.681**
No	13(31.0)	17(40.5)	12(28.6)		
Type of delivery					
Normal delivery	7(28.0)	7(28.0)	11(44.0)	0.392	0.822**
Caesarean section	21(27.6)	17(22.4)	38(50.0)		
Support for guided breastfeeding techniques from health professionals after delivery					
Yes	5(12.2)	12(29.3)	25(41.7)	8.312	**0.016****
No	23(38.3)	12(20.3)	25(41.7)		
Weeks of gestation					
Preterm	0(0.0)	2(40.0)	3(60.0)	-	0.367NA
Term	28(29.2)	22(22.9)	46(47.9		
Birth Asphyxia					
Present	9(40.9)	5(22.7)	8(36.4)	2.633	0.268**
Absent	19(24.1)	19(24.1)	41(51.9)		
Weight of newborn					
Low birth weight (<2500 gm)	4(33.3)	4(33.3)	4(33.3)	-	0.484#
Normal birth weight (≥2500 gm)	24(27.0)	20(22.5)	45(50.6)		

*Significant at p-value <0.05, # Fisher's Exact test, ** Chi-square, NA= Not Applicable,* n=101

**Other occupation -Daily wage employment, Business, Service holder*

5. Discussion

5.1 Socio-demographic characteristics

The findings of the study showed that almost all of the postnatal mothers (97.0%) were less than 35 years old. Most of them (89.1%) followed Hinduism. The majority of them (74.3%) were living in a nuclear family, and 70.3% of postnatal mothers' occupations were homemakers.

5.2 Obstetric and newborn-related characteristics

Almost all postnatal mothers (98.0%) had no health problems during the postnatal period, and 95.0% of newborns belonged to term gestation. Cent percent of postnatal mothers had made ANC visits during pregnancy, and among them, 58.4% of postnatal mothers had received counseling regarding breastfeeding. More than half of the postnatal mothers (58.4%) were multipara, and 59.4% of postnatal mothers did not receive guided breastfeeding techniques from health professionals after delivery. Most of the postnatal mothers (75.2%) went through cesarean section delivery, and (88.1%) of newborns belonged to normal birth.

5.3 Self-reported Information Regarding Breastfeeding Practice

In the present study, nearly half (47.5%) of mothers initiate breastfeeding within one hour of birth. This finding is consistent with a study conducted in India by Mary et al. (2022) in which 43.5% of mothers initiate breastfeeding within one hour of birth. This similarity might be due to a similar setting and study population. Similarly, this finding is inconsistent with the study conducted in Nepal by Dharel et al. (2020), in which 67.2% of mothers initiate breastfeeding within one hour of birth. This might be due to multiple settings and sample sizes. A total of 42.6% of mothers give prelacteal feeding to their newborn, which is inconsistent with the study conducted by Akello et al. (2021), in which 36.5% of mothers give prelacteal feeding. It might be due to multiple settings, sampling techniques, and especially mothers who had received health education about newborn feeding practices. Cent percent of postnatal mothers breastfed their newborn every 2 hours during the day and night, and 42.6% of mothers gave prelacteal feeding. These findings are inconsistent with the study done in India by Tirkey et al. (2021), in which breastfeeding every two hours intervals and giving prelacteal feeding are 17% and 19%, respectively. Similarly, 47.5% of mothers breastfed for less than 10 minutes, which is consistent with the study done by Tirkey et al. (2021), in which the percentage of mothers breastfed for 5-10 minutes is 53%.

5.4 Breastfeeding Technique

The findings of this study showed that nearly half of the postnatal mothers (48.5%) had followed good breastfeeding techniques. The finding is consistent with the studies done in Nepal by Khanal (2019), in Nigeria by Nduagubam et al. (2021), in Ethiopia by Safayi et al. (2021), and Tiruye et al. (2018) showed 53.6%, 49%, 48%, and 43,4% of postnatal mothers respectively followed good breastfeeding techniques. In the present study, only 27.7% of postnatal mothers followed poor breastfeeding techniques. This finding is lower than the study conducted in Ethiopia by Yilak et al. (2020) and Alemie et al. (2023), in which the proportion of poor or ineffective breastfeeding techniques was 63.5% and 66.8%, respectively. The discrepancy might be due to differences in cut-off points. Regarding item-wise breastfeeding technique, the study found that 82.2% of newborns had a close position to the mother with the head and body straight, and 97% of newborns were turned to mothers facing the breast and the nose opposite to the nipple. This finding is consistent with the study conducted in India by Davra et al. (2022), in which 76.7% of newborns had straight positions to the mother, and 91.9% of newborns were facing the breast along with the nose opposite to the nipple. In the present study, the body of 67.3% of newborns had touched the mother's abdomen, and the mother fully supported the body of 15.8% of newborns.

This finding is contrary to the study conducted in India by Davra et al. (2022), which reported that only 47.1% of the newborn's head and body were touched to the mother's abdomen or body, and the mothers fully supported the body of 41.9% of newborns. This study found that a cent percent of newborns' lips had touched with the nipple,

chin touching the breast while the lower lip turned outwards, and the upper areola above the upper lip was seen in 57.4% and 60.4%, respectively. This finding is inconsistent with the study conducted in India by Davra et al. (2022) that a baby's lip and chin touched the breast, the lower lip turned outwards, and the upper areola above the upper lip was seen in 70.5%, 94.8%, and 71.4% respectively. This discrepancy might be due to the 61% of mothers were taught about the breastfeeding technique by health professionals and family members in the study in India, whereas, in the present study, only 40.6% of mothers were taught about the breastfeeding technique. The mouth of 69.3% of newborns was wide open, which is consistent with the study conducted in India by Davra et al. (2022), in which the mouth of 72.4% of newborns was wide open. Similarly, it was found that all the newborns were suckling breastmilk effectively, which was supported by Davra's findings that all the newborns were suckling effectively.

5.5 Association between Breastfeeding Technique and Selected Variables

In this study, support for the guided breastfeeding technique from health professionals after delivery (p=0.016) was statistically significance with the breastfeeding technique, whereas education, parity, occupation, type of delivery, and breastfeeding counseling during pregnancy were not statistically significant with the breastfeeding technique. In the present study, the breastfeeding technique was significantly associated with support for guided breastfeeding techniques from health professionals after delivery. This finding is consistent with the study conducted in Nigeria by Nduagubam et al. (2021), which showed a significant association between the breastfeeding technique and the demonstration of the breastfeeding technique after delivery (p=0.001). It might be due to a similar setting, sampling technique, and study design. Regularly providing support for guided breastfeeding techniques from health professionals immediately after delivery is crucial for early initiation of breastfeeding in the early neonatal period. If the mothers adopt the correct technique, it helps to establish continued breastfeeding and prevents discontinuation of breastfeeding. So, others should be taught and guided on the correct breastfeeding technique. There was no significant association between breastfeeding technique, education, parity, occupation, type of delivery, breastfeeding counseling during pregnancy, and birth weight. These findings were consistent with the studies conducted in Nepal by Khanal (2019) and Shrooti et al. (2016), in Nigeria by Nduagubam et al. (2021), in India by Prajapati et al. (2016) and in Sri Lanka by Nagendra et al. (2017).

5.6 Limitations

The study was conducted in a tertiary-level hospital in the Chitwan district, Nepal, which may limit the generalizability of the results to other healthcare settings. The postnatal mothers meeting the inclusion criteria were included in the study. The self-reported data may cause recall bias, as participants may not accurately remember or report their experiences. While the sample size was relatively small, it provided in-depth insights into the breastfeeding techniques of postnatal mothers.

6. Conclusions

Nearly half of the mothers have good breastfeeding techniques, whereas one-third have poor breastfeeding techniques. The breastfeeding technique was significantly associated with guided breastfeeding from health professionals after delivery. It is necessary to counsel mothers on breastfeeding techniques by healthcare providers during pregnancy and immediately after delivery to adopt the correct breastfeeding technique that promotes early and effective breastfeeding.

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