

BREASTFEEDING PRACTICES OF ETHNIC MINORITIES IN NORTHERN VIETNAM: A POPULATION-BASED CROSS-SECTIONAL STUDY

ABSTRACT

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Objective: Breastfeeding is the most important and essential practice to help children develop comprehensively, physically, mentally, and intellectually. Therefore, this study aimed to explore the breastfeeding practices among ethnic minority mothers with children under two years old in two communities in Muong Nhe district, Dien Bien province of Northern Vietnam.

Materials and methods: This cross-sectional study was conducted on 457 Mong ethnic mothers who had children under two years old in Nam Khe and Muong Toong communes in Muong Nhe district, Dien Bien province, Northern Vietnam from September 2018 to June 2019.

Results: The proportion of children being breastfed was 90.6%, while the percentage of mothers who knew about the benefits of breastfeeding was less than 60.0%.

Conclusion: While the proportion of children being breastfed was high, the percentage of mothers who knew about the benefits of breastfeeding was low. The proportion of mothers who practiced correctly was higher than the percentage of those with accurate knowledge of breastfeeding.

Keywords: *Breastfeeding; Behavior; Practice; Mothers; Children under two years old; Vietnam.*

I. INTRODUCTION

Breastfeeding (BF) is the foremost important measure for the comprehensive development of children, encompassing physical, mental, and intellectual aspects. Breast milk provides infants with essential nutrients and disease-fighting antibodies that promote good health. BF can reduce the incidence and severity of infections, lowering neonatal mortality risk. According to the World Health Organization's recommendations, mothers should initiate breastfeeding immediately after childbirth, exclusively breastfeed for the first six months, supply appropriate complementary

foods, and continue breastfeeding for up to 24 months or longer [1].

According to estimates by the United Nations Children's Fund (UNICEF), breastfeeding in the first six months can reduce the annual number of under-5 deaths worldwide by 1.3 million [2]. In Vietnam, exclusive breastfeeding could contribute to a 13.0% reduction in child mortality under the age of five. Early initiation of breastfeeding and exclusive breastfeeding for the first six months could lead to a 22.0% reduction in neonatal deaths [3]. Globally, the rate of early breastfeeding is low in many regions: Eastern Europe-Central Asia (17.0%), Asia-Pacific (33.0%), Latin America-Caribbean-North and East Africa (50.0%). The rate of exclusive breastfeeding for the first six months is 39.0%, although there are significant differences between countries and regions. In some Southeast Asian countries, the rate of exclusive breastfeeding for the first six months is not too high. For example, this rate in East Timor is 30.7%, in the Philippines is 33.5%, and in Indonesia is 39.5%. Meanwhile, Cambodia stands out with a significantly higher rate of 68.0%. Previous studies showed that the practice of breastfeeding is influenced by factors such as ethnicity, living area, cultural and religious rituals, educational level, economic conditions, and family pressures related to the nurturing and development of young children. Additionally, factors such as maternity leave policies and advertisements of infant formula companies for children under 12 months also affect breastfeeding practices [4]. Consequently, an investigation into the dynamic relationship between ethnicity and breastfeeding becomes pressingly imperative.

Dien Bien is a border province in the northwest region of Vietnam with a vast territory and challenging transportation. There are resident 19 ethnic groups in Dien Bien province, with the Mong ethnic group being the second most populous in the province. In this area, outdated customs are maintained among the province's resident population regarding infant feeding, which is the main barrier preventing the development of the rates of malnutrition and child mortality. According to the National Nutrition Surveillance Survey in 2010 conducted by the

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National Institute of Nutrition in collaboration with UNICEF, the rate of first-hour breastfeeding was 98.0%, while the rate of exclusive breastfeeding for the first six months was 6.1%, and the rate of predominant breastfeeding in the first six months was 16.0% [5]. To understand the breastfeeding practices of Mong ethnic mothers, we conducted the present study to explore the breastfeeding habit of Mong ethnic mothers with children under two years old in two communes of Muong Nhe District, Dien Bien Province, Northern Vietnam.

II. Methods

2.1. Study Design and Participants

This cross-sectional study was conducted on mothers with 0-24-month-old children living in Nam Ke and Muong Toong communes, Muong Nhe district, Dien Bien province, Northern Vietnam from September 2018 to June 2019.

2.2. Study sample

To be enrolled in the present study, Mong ethnic mothers with 0–24-month children needed to satisfy each of the following criteria: be a resident of the selected commune; not have mental health issues or be able to respond to the questionnaire and agree to participate in the interview.

The study sample size was calculated using the formula below:

$$n = Z^2_{(1-\alpha/2)} \frac{p \cdot (1-p)}{(p \cdot \epsilon)^2}$$

n: the required sample size.

α: the significance level (α = 0.05).

$Z_{(1-\alpha/2)}$: the Z-value corresponding to the chosen α value ($Z_{(1-\alpha/2)} = 1.96$).

ε: the desired margin of error, set at ε = 0.16.

p: the proportion of infants who were exclusively breastfed in the first few hours after birth, estimated at p = 25.0% [6]. This calculation yielded n = 451 participants. The present study was conducted on 457 mothers.

III. RESULTS

3.1. Characteristics of participants

Table 1. Demographic characteristics of study participants by communes (n = 457)

| Characteristics | | Nam Ke (n = 212) | Muong Toong (n = 245) | Total (n = 457) |
|-----------------|-------|---------------------|--------------------------|--------------------|
| | | n (%) | n (%) | n (%) |
| Age group | <18 | 15 (7.1) | 18 (7.3) | 33 (7.2) |
| | 18-30 | 153 (72.2) | 174 (71.0) | 327 (71.6) |
| | >30 | 44 (20.8) | 53 (21.6) | 97 (21.2) |

2.3. Data Collection

Direct interviews were conducted with mothers of children aged 0-24 months using a standardized questionnaire prepared in advance. The data-collecting process included 5 steps. Firstly, the survey tools were constructed, tested, and refined before interviewing study participants. Secondly, study staff were trained to interview study participants. The third - fifth steps include: interviewing with mothers, collected data were compiled and cleaned.

2.4. Data Analysis

The collected data were cleaned and entered into Epidata 3.1 software and analyzed using SPSS 13.0 software, employing appropriate statistical tests for medical research. Continuous variables were checked for normal distribution before analysis. If the data followed a normal distribution, parametric tests such as the t-test for comparing means and ANOVA (F-test) for comparing multiple means were used. If the data did not follow a normal distribution, non-parametric tests such as the Mann-Whitney test for comparing means and the chi-square test for comparing proportions were employed. Meanwhile, categorical variables were presented as frequencies and percentages and were compared between respective groups using Chi-square or Fisher's tests. A p-value < 0.05 was considered statistically significant.

2.5. Ethical Approval

All participants were provided with specific and clear explanations regarding the purpose and content of the study, ensuring voluntary and cooperative participation. The personal information of the participants was treated as confidential and used solely for research purposes. Participants had the right to refuse participation. Health stations in the selected communes and the Muong Nhe district Health Center in Dien Bien province were informed about the study's details.

| Characteristics | | Nam Ke (n = 212) | Muong Toong (n = 245) | Total (n = 457) |
|-------------------|---------------------------------|---------------------|--------------------------|--------------------|
| | | n (%) | n (%) | n (%) |
| Educational level | Unable to read & write | 95 (44.8) | 153 (62.4) | 248 (54.3) |
| | Primary school | 86 (40.6) | 37 (15.1) | 123 (26.9) |
| | Senior high school | 31 (14.6) | 47 (19.2) | 78 (17.1) |
| | High school | 0 (0.0) | 5 (2.0) | 5 (1.1) |
| | Intermediate degree and above | 0 (0.0) | 3 (1.3) | 3 (0.6) |
| Occupation | Farmer | 209 (98.6) | 238 (97.1) | 447 (97.8) |
| | Workers, officials, or business | 3 (1.4) | 7 (2.9) | 10 (2.2) |

The study sample consisted of 457 Muong ethnic mothers with 0-24-month-old children. Slightly more than 70.0% of study participants were aged from 18 to 30 years. More than one-half of the mothers participating in the study were illiterate at the education level. More than nine of ten study participants were farmers (97.8%) (Table 1).

3.2. Breastfeeding behaviour

Table 2. The proportion of mothers who are aware of the benefits of breastfeeding for the mother according to educational level.

| Benefit | Educational level | Unable to read & write (n = 248) | Primary education and above (n = 209) | Total (n = 457) | p-value* |
|-----------------------------|-------------------|-------------------------------------|--|--------------------|----------|
| | | n (%) | n (%) | n (%) | |
| Body recovers fastly | | 163 (65.7) | 144 (68.9) | 307 (67.2) | >0,05 |
| Uterine contracts well | | 148 (59.7) | 118 (56.5) | 266 (58.2) | >0,05 |
| Reduce breast diseases | | 160 (64.5) | 109 (52.2) | 269 (58.9) | <0,05 |
| Delayed return to fertility | | 67 (27.0) | 71 (34.0) | 138 (30.2) | >0,05 |

*Fisher exact or Chi-square test.

The proportion of mothers who were aware of the benefits of faster postpartum recovery was nearly 70.0%. There was a statistically significant difference in the proportion of mothers who were aware of the benefits of reducing breast diseases between the illiterate group (64.5%) and the group with at least primary education (52.2%) (Table 2).

Table 3. The proportion of mothers who are aware of the benefits of breastfeeding for the child according to educational level

| Benefit | Educational level | Unable to read & write (n = 248) | Primary education and above (n = 209) | Total (n = 457) | p-value* |
|--------------------------------|-------------------|-------------------------------------|--|--------------------|----------|
| | | n (%) | n (%) | n (%) | |
| Safe for the baby | | 167 (67.3) | 149 (71.3) | 316 (69.1) | >0,05 |
| Enhances immune system | | 155 (62.5) | 125 (59.8) | 280 (61.3) | >0,05 |
| Helps baby grows | | 166 (66.9) | 123 (58.9) | 289 (63.2) | <0,05 |
| Enough breastmilk for 6 months | | 81 (32.7) | 66 (31.6) | 147 (32.2) | >0,05 |

*Fisher exact or Chi-square tests

Nearly one-third of study participants knew about the benefits of exclusive breastfeeding for six months. Meanwhile, the proportion of mothers who were aware of the other benefits ranges from 61.3% to 69.1%. There was a statistically significant difference in the proportion of mothers knowing about the benefits of promoting child development between the illiterate group and the group with at least primary education (Table 3).

Table 4. The proportion of mothers aware of the benefits of immediate breastfeeding after childbirth according to educational level

| Benefit | Education level | Unable to read & write (n = 248) | Primary education and above (n = 209) | Total (n = 457) | p-value* |
|-------------------------------------|-----------------|----------------------------------|---------------------------------------|-----------------|----------|
| | | n (%) | n (%) | n (%) | |
| Breastfeeding exercises for baby | | 122 (49.2) | 102 (48.8) | 224 (49.0) | >0,05 |
| Breastmilk includes many antibodies | | 54 (21.8) | 104 (49.8) | 158 (34.6) | <0,05 |
| Unknown | | 83 (33.5) | 63 (30.1) | 146 (31.9) | >0,05 |

*Fisher exact or Chi-square test.

Table 4 shows the proportion of mothers who knew about the benefits of immediate breastfeeding after childbirth. Nearly one-half of the study participants knew about the benefits of stimulating the baby’s sucking reflex. There was a statistically significant difference in the proportion of mothers knowing about the benefits of containing more antibodies in colostrum between the illiterate group and the group with at least primary education (Table 4).

Table 5. The proportion of mothers aware of the duration of exclusive breastfeeding according to educational level

| Time | Education level | Unable to read and write (n = 248) | Primary education and above (n = 209) | Total (n = 457) | p-value* |
|----------------|-----------------|------------------------------------|---------------------------------------|-----------------|----------|
| | | n (%) | n (%) | n (%) | |
| Under 4 months | | 1 (0.4) | 13 (6.2) | 14 (3.1) | < 0.05 |
| 4-5 months | | 98 (39.6) | 78 (37.3) | 176 (38.5) | >0.05 |
| 6 months | | 44 (17.7) | 93 (44.6) | 137 (30.0) | < 0.05 |
| Over 6 months | | 71 (28.6) | 13 (6.2) | 84 (18.4) | < 0.05 |
| Unknown | | 34 (13.7) | 12 (5.7) | 46 (10.1) | >0.05 |

*Fisher exact or Chi-square tests

Table 5 shows that the majority of mothers exclusively breastfed their children for 4-5 months (38.5%). There were still 3.1% of mothers who exclusively breastfed for only the first 4 months (Table 5).

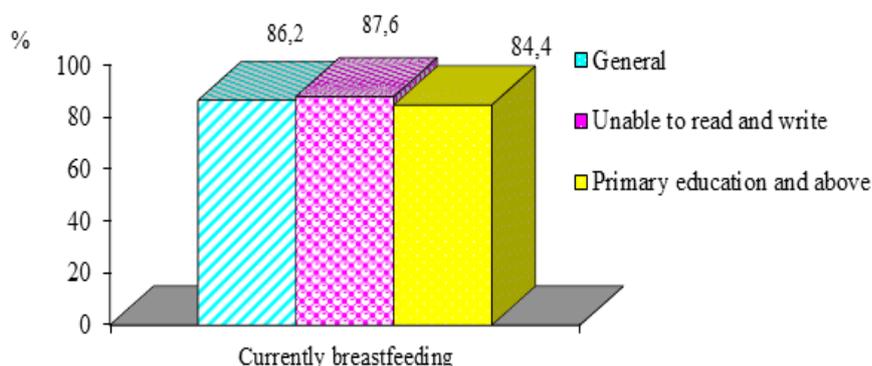


Figure 1. The proportion of currently breastfed children according to mother’s education level

Nearly nine out of ten children of study participants were still breastfed, with 87.6% and 84.4% among children of illiterate mothers and mothers with at least primary education, respectively (Figure 1).

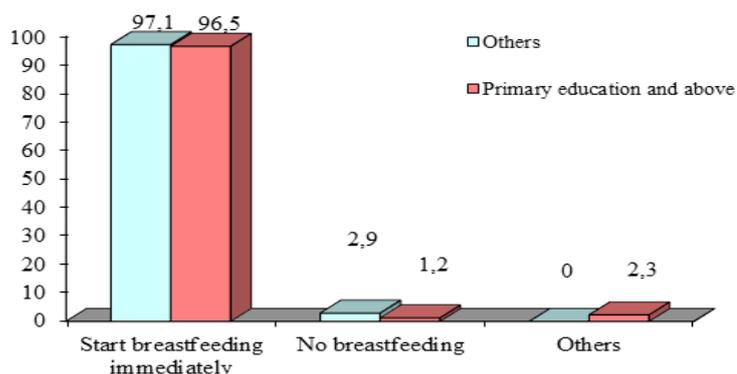


Figure 2. The proportion of mothers breastfeeding in public when the child demands to breastfeed according to the mother's education level

Figure 2 shows that 97.1% and 96.5% of illiterate mothers and those with at least primary education breastfeed their children in public when the child demands to breastfeed, respectively (Figure 2).

IV. DISCUSSION

Our study was conducted on 457 mother-child pairs corresponding to children under 24 months of age in Nam Ke and Muong Toong communes, Muong Nhe district, Dien Bien province, Northern Vietnam. Nearly three-fourths of study participants were aged from 18 to 30. Since the study was conducted in two rural mountainous communes, the main occupation of the mothers was predominantly farming, accounting for 97.8%, with only a small proportion (1.4%) engaged in other occupations such as workers, officials, or business. The demographic characteristics of participants in this study, including age groups and occupation were similar to the study conducted by Duyen Bui Thi and colleagues in 2013, with the majority of subjects falling in the 22-30 age group (48.4%), and 64.5% of the mothers engaged in agriculture [6]. The proportion of illiterate mothers in our study was much higher compared to the studies conducted by Yen Phi Thi Le and Cam Tu Dang [7, 8]. Therefore, there is a need to expand the program of universal education for women in these two communes and extend it to highland areas.

In our study, the proportion of mothers who were aware of the benefits of breastfeeding for themselves was: 67.2% for quick recovery of the body, 58.2% for good uterine involution, 58.9% for reducing breast diseases, and 30.2% for delayed return to fertility. These results were lower as compared to the study by Cam Tu Dang in the provinces of Ha Nam, Lao Cai, and Quang Binh, where the knowledge of breastfeeding benefits for mothers in reducing the risk of postpartum

haemorrhage was 99.4% [8]. However, the results of the previous study were obtained after conducting educational interventions for study participants. When comparing this rate between the two groups of illiterate mothers and mothers with at least primary education, it was found that the proportion of illiterate mothers being aware of the benefits of breastfeeding in reducing breast diseases (64.5%) was higher than the group with at least primary education (52.2%).

The proportion of mothers aware of the safety and hygiene benefits of breastfeeding was 69.1%. Results from our study were higher in the group of mothers with at least primary education (71.3%) compared to the illiterate group (67.3%). However, the difference was not statistically significant. Similarly, the proportion of mothers being aware of the benefits of breast milk for child development was 66.9% in the illiterate group, higher than the group with at least primary education (58.9%), with a statistically significant difference. The benefits of breast milk for the comprehensive development of children were approved. The study conducted by Girish S and colleagues indicated that infants who were breastfed had a lower risk of developing obesity in adulthood compared to those fed with formula milk [9]. The risk of diabetes in children who were breastfed was only 0.61 times compared to those who were not breastfed. Breastfeeding increases the IQ and improves the learning outcomes of children in adulthood. The longer a child is breastfed, the higher their intellectual

abilities, which is reflected in improved motor skills, language, and cognitive development.

In the current study, when assessing mothers' knowledge about the benefits of breastfeeding for infants immediately after birth, we found that as many as 31.9% of mothers were unaware of these benefits. Among them, the illiterate group accounted for 33.5%, which was higher than the group with at least primary education, which accounted for 30.1%. The proportion of mothers with at least primary education who knew about the benefits of early breastfeeding for initiating sucking actions in infants was 49.2%, slightly higher than the illiterate group at 48.8%. However, there was no statistically significant difference between the two groups. The proportion of mothers with at least primary education knowing about the benefits of colostrum as containing many antibodies, was 49.8%, significantly higher than among the illiterate group at 21.8%. These findings are similar to a study conducted by Anh Tu Thi Ton on 383 mothers with infants under 6 months of age attending the Children's Hospital 1, where 91.8% of mothers believed that "breastfeeding should be initiated immediately after birth because colostrum contains valuable nutrients and immune substances" [10].

Results from our study show that 30.0% of mothers knew that infants should be exclusively breastfed for the first 6 months. This proportion was 17.7% and 44.6% in the illiterate group and the group with at least primary education, respectively. The proportion of mothers who believed that exclusive breastfeeding should only be practised for less than 4 months and from 4 to 5 months was 3.1% and 38.5%, respectively. Additionally, 10.1% of mothers were unaware of the recommended duration for exclusive breastfeeding. Anh Tu Thi Ton's study reported that 48.1% of mothers believed that infants should be exclusively breastfed for the first 6 months, which was higher than our findings [10]. Our results were also lower than those reported by Mavis Fosuaa Boateng and colleagues, where 78.3% of mothers believed in exclusive breastfeeding for the first 6 months, 10.4% believed it should be continued for more than 6 months, and 11.30% believed breastfeeding should be practised for less than 6 months [11].

Interestingly, due to concerns about aesthetics and safety for the child, most mothers were reluctant to breastfeed in public places. Additionally, many

people believed that breastfeeding in public was inappropriate. However, when a baby is hungry, he/she needs to be breastfed regardless of the location, and the needs of the baby should always take priority. Therefore, mothers should become accustomed to breastfeeding in any location. Our study revealed that 97.1% of mothers breastfed their infants when demanded to in public places, specifically accounting for 97.1% in the illiterate group and 96.5% in the group with at least primary education. This percentage was significantly higher than the findings of Cam Tu Dang's study, where only 16.3% of mothers agreed to breastfeed in public [8].

V. CONCLUSIONS

The rate of breastfeeding among infants was high. However, the rate of mothers' awareness of the benefits of breastfeeding for both the mother and the child was low. The rate of mothers practising breastfeeding correctly was higher than the rate of mothers having correct knowledge about breastfeeding. However, the rate of mothers initiating breastfeeding within the first few hours after birth and exclusively breastfeeding for the first 6 months was low. The majority of children are weaned between 12 and 18 months. Findings from this study contributed to the growing body of research on social determinants of breastfeeding. In addition, the study added evidence to the impacts of cultural assimilation on ethnic minorities' health in the rural areas of Northern Vietnam

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Author Contributions:

BMT, TTMN: conceptualized and designed the study, synthesized data, wrote and revised the manuscript;

BMT, TTMN: synthesized data, wrote and revised the manuscript;

BMT, TTTX: conceptualized the study, reviewed and revised the manuscript;

TTMN, TTTX: collected and synthesized data and revised the manuscript;

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