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Knowledge, attitudes, and practices of mothers on exclusive breastfeeding during the first six months in Da Nang

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ABSTRACT

Background: Exclusive breastfeeding (EBF) for the first six months of life is strongly recommended by the World Health Organization and UNICEF as the optimal method of infant feeding. Despite its well-documented benefits, EBF rates in Viet Nam remain suboptimal. This study aimed to assess knowledge, attitudes, and practices (KAP) regarding EBF and to identify associated factors. Methods: A cross-sectional study was conducted from March to April 2025 at three randomly selected health stations in Da Nang City. A total of 350 mothers were recruited using simple random sampling. Data were collected through a structured questionnaire adapted from validated tools, covering sociodemographic characteristics, knowledge (10 items), attitudes (5 items), and practices (3 items). Cronbach's alpha coefficients were 0.82, 0.83, and 0.81, respectively. Data were analysed using SPSS 26.0 with descriptive statistics and chi-square tests. Results: Most mothers (98.0%) demonstrated good knowledge, and 95.4% showed positive attitudes towards EBF; 88.3% maintained exclusive breastfeeding for six months. Maternal education level was significantly associated with breastfeeding practice ($p = 0.030$), while parity was related to attitudes ($p = 0.030$). Conclusion: The majority of mothers in Da Nang had good knowledge, positive attitudes, and appropriate practices regarding EBF. However, a small proportion still demonstrated suboptimal practices.

Keywords: exclusive breastfeeding, knowledge, attitudes, practices, mothers, Da Nang

1. INTRODUCTION

Exclusive breastfeeding (EBF) for the first six months of life is recommended by WHO and UNICEF as the optimal feeding practice, helping to reduce the risk of infections, enhance immunity, and improve long-term health outcomes for both mothers and infants [1, 2].

However, the prevalence of exclusive breastfeeding during the first six months remains low in many countries, including Vietnam. The SDGCW survey (2020 - 2021) reported that only 45.4% of infants under six months of age were exclusively breastfed. In Da Nang, recent studies showed rates ranging from 36.4% to 56.5%, indicating ongoing challenges [3, 4].

Numerous studies conducted both domestically and internationally have assessed mothers' knowledge, attitudes, and practices (KAP) regarding exclusive breastfeeding (EBF). These studies indicate that mothers still have limited

knowledge, while positive attitudes and correct practices remain relatively low; moreover, place of residence has been identified as one of the factors associated with KAP toward EBF [5, 6].

However, most previous studies were carried out in central or provincial hospitals, where participants were primarily postpartum mothers. There is still a lack of research evaluating KAP at the primary healthcare level - the setting directly responsible for antenatal care, immunization, and child health services - particularly among mothers with children aged 6 - 12 months, a group that accurately reflects actual EBF practices during the first six months of life.

Thanh Khe District is a central urban area with a high population density and a large proportion of young families, yet no comprehensive assessment of KAP related to EBF has been conducted there. Identifying mothers' levels of knowledge,

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attitudes, and practices, as well as related factors at primary healthcare facilities, will provide essential evidence for designing interventions aimed at improving exclusive breastfeeding rates in the community.

The study entitled "Knowledge, attitudes, and practices of mothers on exclusive breastfeeding during the first six months in Đa Nang" had two objectives:

- To examine the knowledge, attitudes, and practices of exclusive breastfeeding during the first six months among mothers with infants aged 6 - 12 months, Đa Nang City, in 2025.
- To identify factors associated with knowledge, attitudes, and practices of exclusive breastfeeding among mothers with infants aged 6 - 12 months, Đa Nang City, in 2025.

2. SUBJECTS AND METHODS

2.1. Study design and participants

A cross-sectional study was conducted from March to April 2025 at three randomly selected health stations in Đa Nang City, Vietnam. Participants were mothers with infants aged 6 - 12 months, residing in Đa Nang for at least 12 months, and who consented to participate. Mothers unable to complete the questionnaire due to health conditions were excluded.

2.2. Sample size and sampling

The sample size was calculated using the formula:

$$n = \frac{Z^2 \left(1 - \frac{\alpha}{2}\right) \cdot p(1-p)}{d^2}$$

Where:

- n: Required sample size for the study
- $Z_{(1-\alpha/2)}$ = 1.96: Standard normal value corresponding to a 95% confidence level ($\alpha = 0.05$)
- d = 0.05: Allowable margin of error
- p: proportion of mothers with good knowledge

Based on a survey in Hai Duong, the proportion of mothers with correct knowledge was 68%, correct attitude 16 %, and correct practice 5.0% [6]. Applying the formula, the minimum required sample sizes were:

- Knowledge: $n \approx 335$
- Attitude: $n \approx 207$
- Practice: $n \approx 73$

To ensure adequate power for all outcomes, the largest sample size, 335, was selected. Additionally, to account for potential non-response or incomplete questionnaires, the sample size was increased by 10% (369). After data cleaning and excluding incomplete or invalid responses, a total of 350 valid questionnaires were included in the final analysis.

2.3. Data collection tool

The structured questionnaire was adapted from the study by Doan Huynh Cam Tu [8]. It assessed: socio-demographic data, knowledge (10 items, score 0 - 20, from 0 - 13 incorrect knowledge, from 14 - 20 correct knowledge), attitude (5 Likert items, score 0 - 5, from 0 - 3 poor attitude, from 4 - 5 good attitude) and practice (3 items, score 0 - 3, from 0 - 1 poor practice, from 2 - 3 good practice). Higher scores indicated better outcomes. The tool was revised for content and tested for internal consistency. Cronbach's alpha values demonstrated acceptable reliability for knowledge ($\alpha = 0.82$), attitudes ($\alpha = 0.83$), and practices ($\alpha = 0.81$). A mother was considered to have adequate knowledge, a correct attitude, and proper practice if she answered at least 75% of the questions in each respective section correctly.

2.4. Data collection and analysis

Data were collected during routine child immunisation sessions. Mothers self-administered the questionnaire (7 - 10 minutes). Data were analysed using SPSS version 26.0, applying descriptive statistics and chi-square tests. Results are presented in tables and figures.

2.5. Ethical considerations

- All mothers voluntarily participated, and their personal information was kept confidential.
- The study was conducted solely for the purpose of improving public health and had no other objectives.
- Data and results were reported with complete honesty.

3. RESULTS

After studying 350 mothers with infants aged 6 - 12 months in Thanh Khe District, Đa Nang City, we obtained the following results:

3.1. General characteristics of participants

Table 1. Characteristics of participants (n = 350)

Characteristics		Frequency (n)	Percentage (%)
Age group	< 20	9	2.6
	20 - 30	172	49.1
	31 - 40	159	45.4
	> 40	10	2.9
Educational level	Primary	7	2
	Lower secondary	28	8
	Upper secondary school	196	56
	University/postgraduate	93	26.6
	College/vocational	26	7.4
Occupation	Civil servant	35	10
	Service/trading	102	29.1
	Housewife	87	24.9
	Self-employed/others	126	36
Parity	One child	112	32
	Two children	221	63.1
	More than two children	17	4.9
Delivery mode	Vaginal	223	63.7
	Caesarean section	127	36.3
Infant sex	Male	188	53.7
	Female	162	46.3
Breastfeeding counselling	Yes	347	99
	No	3	1
Preterm birth	Yes	0	0
	No	350	100
Infant malnutrition	Yes	0	0
	No	350	100

Comment: The majority of mothers were aged 20-30 (49.1%) and 31 - 40 (45.4%), while those under 20 and over 40 accounted for very small proportions (2.6% and 2.9%). In terms of education, most had completed upper secondary (56%) or university/postgraduate education (26.6%), with very few having only primary schooling (2%). Regarding occupation, the largest group was self-employed/others (36%), followed by service/trading (29.1%) and housewives

(24.9%), while civil servants made up only 10%.

Two-child parity was most common (63.1%), followed by one child (32.0%) and more than two children (4.9%). Most mothers delivered vaginally (63.7%), while 36.3% had caesarean sections. Male infants accounted for 53.7%, and females 46.3%. Nearly all mothers (99%) had received breastfeeding counselling. No cases of preterm birth or infant malnutrition were reported.

3.2. Maternal knowledge of breastfeeding

Table 2. Knowledge of breastfeeding among mothers with infants aged 6 - 12 months (n = 350)

Knowledge	Poor knowledge		Good knowledge	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
	7	2	343	98
Mean score	15.14 (SD = 0.88)			

Comment: Only 2% of mothers had poor knowledge, while 98% demonstrated good knowledge of breastfeeding. This indicates that health education

and communication on breastfeeding have been effective. The mean knowledge score was 15.14 out of a maximum of 20, with a standard deviation of 0.88.

3.3. Maternal attitudes towards breastfeeding

Table 3. Attitudes towards breastfeeding among mothers with infants aged 6 - 12 months (n = 350)

Attitude	Poor attitude		Good attitude	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
	16	4.6	334	95.4

Comment: Most mothers (95.4%) had a positive attitude towards breastfeeding, while only 4.6% expressed poor attitudes.

3.4. Maternal practices of breastfeeding

Table 4. Breastfeeding practices among mothers with infants aged 6 - 12 months (n = 350)

Practice	Poor practice		Good practice	
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)
	41	11.7	309	88.3

Comment: Most mothers (88.3%) demonstrated good breastfeeding practices, while 11.7% did not.

3.5. Associations between general characteristics and knowledge, attitudes, and practices

Table 5. Associations between general characteristics and knowledge, attitudes, and practices (n = 350)

Characteristics		Good attitude			Good practice		
		N	%	p	N	%	p
Educational level	Primary	6/7	85.71	0.63	7/7	100	0.030
	Lower secondary	27/28	96.43		27/28	96.43	
	Upper secondary school	187/196	95.41		177/196	90.31	
	University/ postgraduate	90/93	96.77		74/93	79.57	
	College/ vocational	24/26	92.31		24/26	92.31	
Parity	One child	108/112	96.43	0.030	104/112	92.86	0.18
	Two children	212/221	95.93		190/221	85.97	
	More than two children	14/17	82.36		15/17	88.23	

Comment: Among the factors analysed, parity was significantly associated with attitudes towards exclusive breastfeeding (p = 0.030). Among the factors analyzed, parity was significantly associated with attitudes toward exclusive breastfeeding (p = 0.030). Mothers with only one child (96.43%) demonstrated more positive attitudes compared to those with two children (95.93%) or three or more children (82.36%).

For practices, educational level was significantly associated (p = 0.030). Educational level was significantly associated with breastfeeding practices (p = 0.030). Mothers with lower secondary education (96.43%) and college/ vocational training (92.31%) had higher rates of good practices compared to those with upper secondary (90.31%) or university/ postgraduate education (79.57%). Other factors, such as age and

occupation, were not significantly associated with maternal knowledge, attitudes, or practices of breastfeeding ($p > 0.05$).

4. DISCUSSION

4.1. General characteristics of the study population

A survey of 350 mothers with children aged 6 - 12 months in Da Nang revealed that the majority were between 20 and 40 years old. This is considered an optimal stage in terms of health, economic stability, and psychological readiness for childbearing and child-rearing. This finding is consistent with the study by Nguyen Thi Huyen et al. (2021), which reported a mean maternal age of 32 years [9]. Thus, this age group is generally equipped with sufficient knowledge and economic conditions to care for their children.

Most mothers had completed upper secondary education, similar to the study of Hoang Thi Nam Giang et al. (2022) [10]. Higher education levels facilitate easier access to and comprehension of breastfeeding-related knowledge, thereby improving childcare practices.

Maternal occupations were diverse, predominantly including self-employment, freelance work, and service-related jobs, followed by housewives and government employees. This aligns with findings by Truong Thi Thuan (2023), where housewives accounted for a large proportion [4]. Occupational differences may influence time and conditions for breastfeeding, particularly among freelance workers and traders.

The majority of participants had two children, which reflects the current trend of smaller family size, and is consistent with Nguyen Thi Huyen et al. (2021) [9]. Regarding mode of delivery, vaginal birth was more common, in contrast to Doan Huynh Tuan Tu (2023) in Dong Nai, where caesarean section was more frequent [8]. This highlights variations in obstetric practice across regions.

The distribution of child gender was nearly balanced, consistent with Truong Thi Thuan (2023) [4]. Remarkably, nearly all mothers received counselling on breastfeeding, suggesting effective health education and communication strategies. Moreover, the absence of preterm births and

malnutrition indicates adequate maternal and neonatal care.

4.2. Knowledge, attitudes, and practices regarding breastfeeding

Findings revealed that 98% of mothers demonstrated good knowledge of breastfeeding, reflecting the effectiveness of health education and communication programmes. This strong knowledge base is crucial for correct breastfeeding practices, which contribute to improved nutrition, immunity, and overall child development. However, although accounting for only 2%, mothers with insufficient knowledge should still be prioritised to prevent inappropriate practices. This proportion is higher compared to Le Thi Thanh and Tran Thi Thanh Thao (2023), who reported 83.2% with good knowledge [11].

Regarding attitudes toward exclusive breastfeeding for the first six months, 95.4% of mothers expressed a positive attitude, demonstrating the impact of nutrition counselling, health education, and primary healthcare services in Da Nang. This figure is significantly higher than that reported by Nguyen Thi Huyen (2021) in Hai Duong (16%) and Doan Huynh Tuan Tu (2023) in Dong Nai (52.3%) [8, 9]. These results suggest that maternal attitudes in Da Nang are more favourable, thereby supporting the continuation and improvement of breastfeeding practices.

In terms of practice, 89.1% of mothers-initiated breastfeeding within 30 minutes postpartum, in accordance with WHO recommendations [1]. This rate was much higher than those reported by Nguyen Thi Huyen (2021, 23%) and Doan Huynh Tuan Tu (2023, 37.2%) [8, 9]. This finding indicates that mothers in Da Nang are more proactive in implementing beneficial practices, enhancing child health and immunity. Nevertheless, the remaining 10.9% highlights the need for strengthened counselling at health facilities immediately postpartum.

Moreover, 88.3% of mothers exclusively breastfed their children for the first six months, a considerably higher proportion than that reported by Hoang Thi Nam Giang et al (2023, 36.4%) [10]. This positive outcome reflects the effectiveness of local breastfeeding promotion

and support initiatives.

4.3. Factors associated with breastfeeding knowledge, attitudes, and practices

Most sociodemographic factors (age, education, occupation, number of children, delivery mode, and prenatal counselling) showed no statistically significant association with knowledge and attitudes toward breastfeeding ($p > 0.05$). This indicates that, owing to effective communication and healthcare counselling, mothers across different groups were able to access information equally.

However, certain factors demonstrated notable influence. The number of children was associated with maternal attitudes ($p < 0.05$), Mothers with fewer children demonstrated more positive attitudes than those with multiple children. This may be because mothers with several children often have to divide their time among many childcare responsibilities, face greater economic pressure, and may feel overwhelmed when caring for a newborn, which can affect their motivation and attitudes toward breastfeeding. Additionally, some multiparous mothers may have previously experienced difficulties with breastfeeding (such as low milk supply, nipple pain, nipple trauma, or poor infant latch), leading to less positive attitudes compared to their first experience.

For practices, the results showed that educational level was significantly associated with breastfeeding practices ($p = 0.030$), specifically, mothers with lower secondary or college/ vocational education demonstrated better practices than those with higher education (upper secondary or university/ postgraduate). This may be because mothers with lower or medium educational levels often follow direct guidance from nurses, doctors,

or family members and adhere closely to specific instructions, whereas mothers with higher education may rely more on theoretical knowledge and overlook some practical recommendations. In addition, uni-versity/ postgraduate mothers often return to work sooner after childbirth, limiting the time available for breastfeeding, which may lead to lower rates of correct practice.

5. CONCLUSION

Most mothers (98.0%) demonstrated good knowledge, and 95.4% showed positive attitudes towards EBF, 88.3% maintained exclusive breastfeeding for six months. Maternal education level was significantly associated with breastfeeding practice ($p = 0.030$), while parity was related to attitudes ($p = 0.030$).

6. RECOMMENDATIONS

Local healthcare facilities and authorities need to implement regular communication programs, emphasizing the benefits of exclusive breastfeeding during the first six months and promoting correct breastfeeding practices.

Continuous health education and nutrition counselling should be implemented at the primary healthcare level, with emphasis on mothers with less positive attitudes and lower educational levels.

Integration into antenatal education: Breastfeeding education should be incorporated into prenatal classes to ensure mothers are well-prepared during pregnancy.

Enhanced postpartum support: Direct guidance should be provided to mothers immediately after childbirth at hospitals and health centres, particularly for mothers with multiple children, to improve correct breastfeeding practices.

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Kiến thức, thái độ và thực hành của các bà mẹ về việc nuôi con bằng sữa mẹ hoàn toàn trong sáu tháng đầu đời tại Đà Nẵng

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TÓM TẮT

Đặt vấn đề: Tổ chức Y tế Thế giới và UNICEF khuyến cáo mạnh mẽ rằng nuôi con hoàn toàn bằng sữa mẹ (EBF) trong sáu tháng đầu đời là phương pháp nuôi dưỡng trẻ sơ sinh tối ưu. Mặc dù có nhiều lợi ích đã được ghi nhận, tỷ lệ EBF ở Việt Nam vẫn chưa đạt mức tối ưu. Nghiên cứu này nhằm đánh giá kiến thức, thái độ và thực hành (KAP) liên quan đến EBF và xác định các yếu tố liên quan. **Phương pháp:** Một nghiên cứu cắt ngang được tiến hành từ tháng 3 đến tháng 4 năm 2025 tại ba trạm y tế được chọn ngẫu nhiên tại thành phố Đà Nẵng. Tổng cộng 350 bà mẹ được tuyển dụng bằng cách sử dụng phương pháp lấy mẫu ngẫu nhiên đơn giản. Dữ liệu được thu thập thông qua bảng câu hỏi có cấu trúc được điều chỉnh từ các công cụ đã được xác thực, bao gồm các đặc điểm nhân khẩu học xã hội, kiến thức (10 mục), thái độ (5 mục) và thực hành (3 mục). Hệ số Cronbach's alpha lần lượt là 0.82, 0.83 và 0.81. Dữ liệu được phân tích bằng SPSS 26.0 với thống kê mô tả và kiểm định chi bình phương. **Kết quả:** Hầu hết các bà mẹ (98.0%) đều có kiến thức tốt, 95.4% bà mẹ có thái độ tích cực đối với việc nuôi con bằng sữa mẹ hoàn toàn, 88.3% bà mẹ duy trì việc nuôi con hoàn toàn bằng sữa mẹ trong sáu tháng đầu. Trình độ học vấn của bà mẹ có liên quan đáng kể đến thực hành nuôi con bằng sữa mẹ ($p = 0.030$), trong khi số lần sinh có

liên quan đến thái độ ($p = 0.030$). Kết luận: Phần lớn các bà mẹ tại Đà Nẵng có kiến thức tốt, thái độ tích cực và thực hành đúng về nuôi con bằng sữa mẹ hoàn toàn. Tuy nhiên, vẫn còn một tỷ lệ nhỏ các bà mẹ chưa thực hành đúng.

Từ khoá: nuôi con bằng sữa mẹ hoàn toàn, kiến thức, thái độ, thực hành, bà mẹ, Đà Nẵng

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