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Factors Associated with Not Breastfeeding and Delaying the Early Initiation of Breastfeeding in Abu Dhabi, UAE

Zainab Taha

College of Natural and Health Sciences, Zayed University, Abu Dhabi, The United Arab Emirates

Abstract: The World Health Organization (WHO) recommends early initiation of breastfeeding within the first hour of birth to reduce the risk of infant morbidity and mortality. However, breastfeeding initiation data and related factors in the United Arab Emirates (UAE) are limited. Therefore, this study aimed to evaluate the factors associated with mothers who did not initiate breastfeeding in Abu Dhabi, the United Arab Emirates. The study received ethical approval (ZU17_006_F) from Zayed University. The data for this cross-sectional study was extracted from a larger project aimed to evaluate infants and young children's feeding practices in Abu Dhabi. The project's data was collected from the local community and seven urban and suburban health care centers in Abu Dhabi during 2017. Mothers who had never breastfed their children were compared with mothers who breastfed as recommended by the WHO. Out of 1822 deliveries, 81 (4.5%) of the mothers did not breastfeed. Cesarean delivery (Adjusted Odds Ratio – AOR) 8.45, 95% Confidence Interval - CI (3.02, 23.65), not receiving breastfeeding support (AOR 6.95, 95% CI 1.93, 25.10), and maternal employment (AOR 4.34, 95% CI 1.61, 11.68) were significantly associated with mothers who did not breastfeed. Mothers who did not breastfeed need to be identified as early as possible to receive all kinds of support from the healthcare staff, family, employers, and the community as a whole.

Keywords: breastfeeding, caesarean delivery, breastfeeding support, maternal employment, The United Arab Emirates.

在阿聯酋阿布扎比與不母乳喂養和推遲早期開始母乳喂養相關的因素

摘要：世界衛生組織建議在出生後的第一個小時內儘早開始母乳喂養，以降低嬰兒發病率和死亡率的風險。然而，阿拉伯聯合酋長國 (阿聯酋) 的母乳喂養起始數據和相關因素有限。因此，本研究旨在評估與在阿拉伯聯合酋長國阿布扎比沒有開始母乳喂養的母親相關的因素。該研究獲得了扎耶德大學的倫理批准 (扎耶德大學 17_006_F)。這項橫斷面研究的數據來自一個更大的項目，該項目旨在評估阿布扎比的嬰幼兒餵養實踐。該項目的數據是在二千零一十七年期間從阿布扎比當地社區和七 個城市和郊區衛生保健中心收集的。 將從未母乳喂養孩子的母親與按照世衛組織建議進行母乳喂養的母親進行了比較。在 1822 次分娩中，81 名 (4.5%) 的母親沒有進行母乳喂養。剖宮產（調整後的比值比）8.45，95% 置信區間 (3.02, 23.65)，未接受母乳喂養支持 (調整後的比值比 6.95, 95%置信區間 1.93, 25.10)，以及孕產婦就業 (調整後的比值比 4.34, 95%置信區間) ，11.68) 與沒有母乳喂養的母親顯著相關。沒有母乳喂養的母親需要儘早確定，以獲得醫護人員、家庭、雇主和整個社區的各種支持。

关键词：母乳喂養、剖腹產、母乳喂養支持、孕產婦就業，阿拉伯聯合酋長國。

1. Introduction

Breastmilk contains all the nutrients the infant needs for proper growth and development in the first six months; it protects and strengthens the immunity of infants and young children against diseases in many ways [1]. For example, it composes a multi-faceted fluid containing nutrients and bioactive factors needed for infant health and development [2] and transfers maternal immune cells by breastfeeding [3]. It has been

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About the authors: Zainab Taha, Ph.D., College of Natural and Health Sciences, Zayed University, Abu Dhabi, The United Arab Emirates

documented that breastfeeding is beneficial for children and mothers, regardless of their socioeconomic status [4]. Aiming to save children's lives, the World Health Organization (WHO) developed a set of recommendations, including early and uninterrupted skin-to-skin contact between mothers and infants and exclusive breastfeeding up to 6 months, and supporting mothers to practice this [5].

Despite the huge benefits of breastfeeding for mothers (decrease the incidence of cancers, diabetes, myocardial infarction, and metabolic syndrome), children (decrease the incidence of infections, obesity, diabetes, leukemia, and sudden infant death syndrome), families and the community as a whole [1-3, 6, 7] as well as the WHO efforts to protect, promote and support breastfeeding for all newborns [5], breastfeeding is not practiced by some mothers. These mothers need to be the research focus by estimating the prevalence of never breastfeeding and identifying the possible causes and factors associated with such an important issue related to infant and young child feeding practices. Suppose the child's survival is negatively affected by delayed initiation of breastfeeding, partial exclusive breastfeeding, and early weaning [8, 9]. In that case, the situation will worsen among those who had never breastfed their children. The WHO [5] recommended best breastfeeding practices. The alternative for human breast milk is breast milk substitutes such as formula milk and animal milk. However, in developing countries, most of these kinds of milk are associated with devastating effects for the short and long term, such as increasing child morbidity and mortality [10, 11].

Breastfeeding is the right of the child, and the vast majority of new mothers can breastfeed. Following the WHO recommendations, all mothers, even those who are HIV positive (the human immunodeficiency virus), can breastfeed their children [13]. Exclusive breastfeeding was associated with less morbidity and mortality than mixed or never breastfed in both HIV-exposed infants and infants of HIV uninfected mothers [14].

The phenomenon of never breastfeeding practices among mothers is alarming in different parts of the world, including the Gulf countries [15, 16]. Most previous studies have only reported the prevalence of the mothers who do not breastfeed, but no more details were given about the factors associated with this practice [15]. Therefore, such a study is of great importance for identifying the factors leading mothers never to breastfeed, which will ultimately provide the basis for future interventions to promote breastfeeding for all mothers.

This study aimed to assess factors associated with mothers in Abu Dhabi, United Arab Emirates, who do not breastfeed.

2. Methods

2.1. Participants and Data Collection

A cross-sectional study was conducted in Abu Dhabi from March to September 2017, recruiting mothers from the community and health care centers located in different geographical areas in Abu Dhabi. Mothers with young children attending the centers during the study days were approached by trained bilingual (Arabic and English) female research assistants, who provided oral and written information about the study. The research assistants interviewed mothers who met the inclusion criteria of having at least one child less than two years of age, using a structured questionnaire on demographics and infant feeding practices. A previous paper has presented more details regarding the participants and methodology of the primary data collection [17].

The subsample in this study was extracted from the original sample of 1822 mother-child pairs split into two groups. One group included mothers who had not initiated breastfeeding (no breastfeeding) and another random group – mothers selected from those who had initiated breastfeeding within 1 hour after birth, exclusively breastfed for six months, and had practiced rooming-in and breastfeeding at the time of the interview (Fig. 1). Breastfeeding support was defined as the support and encouragement from family (mother, husband, other relatives, and other non-relatives) for breastfeeding. Body Mass Index (BMI) was calculated as the self-reported weight in kilograms divided by the square of the height in meters (kg/m^2). The sociodemographic factors investigated to reveal the differences between the two study groups were nationality, marital status, family income, maternal education, paternal education, mother employment. In addition, factors that may influence the mother's decision to breastfeed, such as support, advice, and mode of delivery, were included.

2.2. Statistical Analysis

The statistical package for the social science (SPSS) version 20.0 for Windows, International Business Machines Corporation (IBM Corp, New York, United States) was used for all statistics. Means and proportions of specific characteristics that may influence infant feeding practices were compared between the two groups of the study by using the t-test and Chi-square test, respectively. In addition, variables with a P-value < 0.05 in the univariate analysis were included in the multivariate analysis to control for confounding variables. Breastfeeding practices were the dependent variable (ever breastfeeding was coded as (0) and never breastfeeding was coded as (1), while selected characteristics including medical and obstetrics factors were considered as independent variables. Odds Ratio (OR), Adjusted Odds Ratio (AOR) (Backward LR), and 95% Confidence Interval

(CI) were calculated. A P-value< 0.05 was considered statistically significant.

2.3. Ethics

The original study from which this data was extracted was approved (ZU17_006_F) by the Research Ethics Committee at Zayed University UAE. Additional clearance was obtained from the Abu Dhabi Health Services Company (SEHA). Informed consent was taken from the participants. Several measures were taken to ensure privacy and confidentiality throughout the study by excluding personal identifiers during data collection.

3. Results

Based on the feeding pattern, two groups of infants were categorized as never breastfed (65 extracted from a total of 81 who responded No to the question ever breastfed) and exclusively breastfed (65 randomly selected from a total of 264 who were timely initiated, exclusively breastfeeding at the interview time, and have completed data) (Fig. 1).

a) Exclusively breastfed. This comprised infants who were timely initiated and given only breastfeeding, excluding water even.

(b) Never breastfed: This included infants who were never breastfed, were given milk other than breastfeeding.

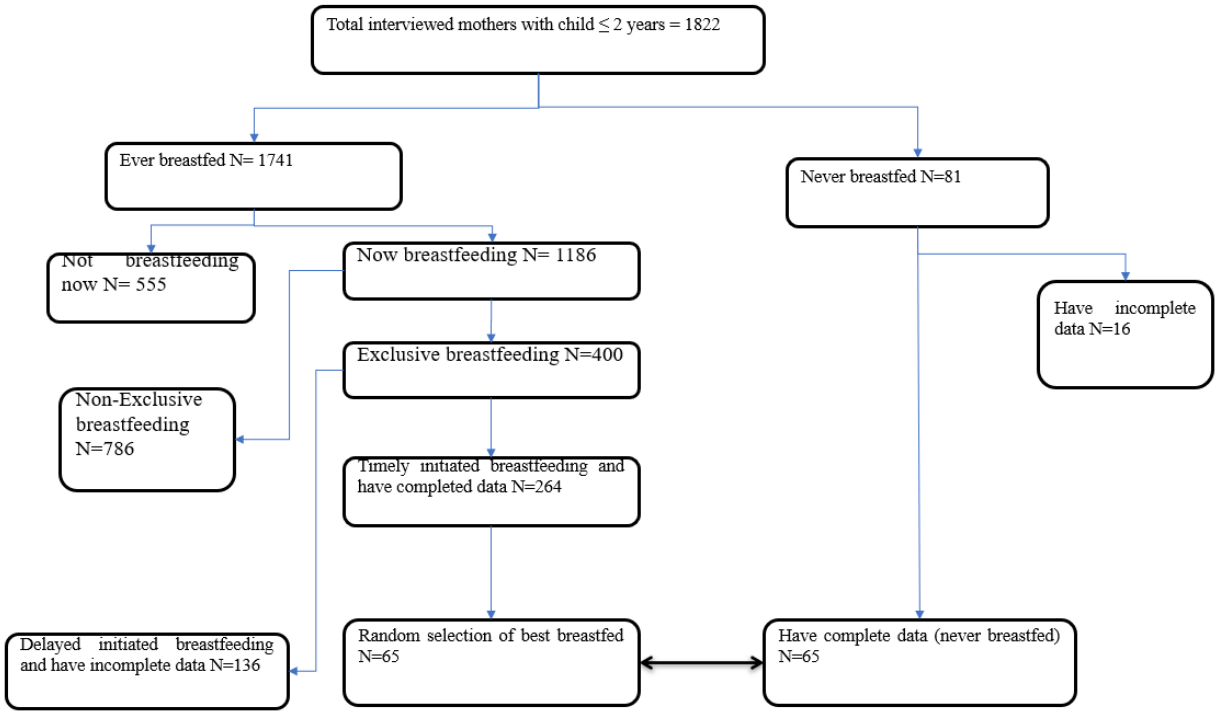

Figure 1, Sample selection process

Out of 1822 mother-child pairs, 81 (4.5%) of the mothers did not initiate breastfeeding. Sixty-five out of the 81 have completed data (Fig. 1). The age, education, BMI, and nationality were not different between the two groups (Table 1).

In comparison with the best breastfeeding group, a cesarean delivery (AOR 8.45, 95% CI (3.02, 23.65), not receiving breastfeeding support (AOR 6.95, 95% CI 1.93, 25.10), and maternal employment (AOR 4.34, 95% CI 1.61, 11.68) were significantly associated with never breastfed (Table 2).

Table 1: Comparing socio-demographic and breastfeeding practices between never and best fed mothers in Abu Dhabi, UAE

Variable		Total	Never breastfed N=65	Best breastfed N=65	t-test/ Chi-square test	
		Mean(SD)	Mean(SD)	Mean(SD)	Odds Ratio (95% Confidence Interval)	P-value
Maternal age, years		29.6(5.5)	29.3(5.9)	29.9(5.2)	0.98(0.92, 1.04)	0.507
Number of children own		2.2(1.3)	2.2(1.2)	2.1(1.4)	1.04(0.80,1.35)	0.765
Gestational age, weeks		38.9(2.0)	38.8(2.6)	39.1(1.2)	0.92(0.77, 1.10)	0.358
Birth weight, grams		3114.0(568.0)	3116.3(656.6)	3111.7(468.24)	1.0(0.999, 1.001)	0.963
Maternal pre-pregnancy BMI		23.5(3.5)	23.8(3.6)	23.3(3.3)	1.04(0.94, 1.15)	0.464
Maternal after delivery BMI		27.9(4.6)	29(5.4)	26.8(3.4)	1.12(1.03, 1.22)	0.006
Maternal current BMI		26.0(4.0)	26.6(4.6)	25.4(3.2)	1.08(0.99, 1.18)	0.099
		N (%)	N (%)	N (%)	OR (CI)	P-value
Child gender	Male	56(43.1)	29(44.6)	27(41.5)	0.88(0.44, 1.77)	0.723
	Female	74(56.9)	36(55.4)	38(58.5)		
Nationality by category	Arab	99(76.2)	55(84.6)	44(67.7)	2.62(1.12, 6.13)	0.025
	Non-Arab	31(23.8)	10(15.4)	21(32.3)		
Marital status	Unmarried	3(2.3)	3(4.6)	0(0)	1.05(0.99, 1.11)	0.08
	Married	127(97.7)	62(95.4)	65(100.0)		
Mode of delivery	Caesarean	56(43.1)	40(61.5)	16(24.6)	4.90(2.31, 10.41)	< 0.001
	Vaginal	74(56.9)	25(38.5)	49(75.4)		
Received breastfeeding advice after delivery	No	12(9.2)	10(15.4)	2(3.1)	0.18(0.04, 0.83)	0.015
	Yes	118(90.8)	55(84.6)	63(96.9)		
Family income rating	Less than good	14(10.8)	9(13.8)	5(7.7)	0.52(0.16, 1.64)	0.258
	Good and above	116(89.2)	56(86.2)	60(92.3)		
Mother education	<Secondary level	29(22.3)	14(21.5)	29(22.3)	1.09(0.48, 2.50)	0.833
	≥secondary level	101(77.7)	51(78.5)	50(76.9)		
Father education	<Secondary level	1(0.8)	1(1.5)	0(0.0)	1.02(0.99, 1.05)	0.315
	≥secondary level	129(99.2)	64(98.5)	65(100.0)		
Mother occupation	Employed	53(40.8)	34(52.3)	19(29.2)	2.66(1.29, 5.47)	0.007
	Housewives	77(59.2)	31(47.7)	46(70.8)		
Breastfeeding support	No	29(22.3)	25(38.5)	4(6.2)	0.11(0.03, 0.32)	< 0.001
	Yes	101(77.7)	40(61.5)	61(93.8)		

Table 2 Factors associated with never breastfeeding in in Abu Dhabi, UAE, using multivariable logistic regression analyses

Variable		Crude Odds Ratio (95% CI)	P-value	Adjusted Odds Ratio (95% CI)	P-value
Maternal BMI after delivery		1.06(0.95, 1.17)	0.326	1.06(0.95, 1.18)	0.301
Received breastfeeding advice after delivery	**No**	1.41(0.20, 9.79)	0.727	-	-
	Yes (reference)				
Mode of delivery	**Caesarean**	8.50(3.03, 23.89)	<0.001	8.45(3.02, 23.65)	<0.001
	Vaginal (reference)				
Received breastfeeding support	**No**	6.27(1.55, 25.28)	0.010	6.95(1.93, 25.10)	0.003
	Yes (reference)				
Maternal Employment	**Yes**	4.41(1.62, 11.97)	0.004	4.34(1.61, 11.68)	0.004
	No (reference)				
Maternal nationality	**Arab**	2.50(0.86, 7.25)	0.092	2.52(0.87, 7.30)	0.088
	Non-Arab (reference)				

4. Discussion

Despite the importance of this topic, to the author's knowledge, this is the first of its kind study that tackled mothers who never breastfed their children in the UAE. The current study showed that the rate of the never breastfed infants was 4.5%. However, various rates of never breastfeeding were reported in several countries, which ranged from 2.7% in Nigeria [15], and 3.8% in Qatar [16] to 12% in Madrid [18]. These variations among countries indicate the rationale for estimating each country's rate and even within the same country. Although the rate of non-breastfed in the current study was low compared to other countries such as Madrid, it

should still be taken seriously due to the devastating effects of never breastfeeding in terms of morbidity and mortality [11, 12].

Cesarean section has been associated with stress, delayed initiation of breastfeeding, and lower breastfeeding rates [19]. In contrast, it is well documented that timely breastfeeding initiation is associated with the establishment of more prolonged and more successful breastfeeding [20]. In the current study, mothers who delivered via cesarean section were eight times less likely to breastfeed than mothers who delivered vaginally. This result coincides with what has been reported in other studies. A cesarean section has been associated with delayed breastfeeding initiation of all live births [21, 22], which is significantly lower than those reported in the UAE. In this study, around a third of the mothers delivered via cesarean section. Based on these findings, effective health measures should be taken to reduce the cesarean section rate to improve breastfeeding rates [21, 22].

While lack of breastfeeding education was not found to be associated with the lack of breastfeeding, not receiving breastfeeding support was almost seven times significantly associated with not breastfeeding. Similar to the current results, lack of support was reported by other researchers to interfere with successful breastfeeding and increase the uptake of artificial milk supplementation, and lower breastfeeding rates [23]. This result indicates that breastfeeding support is an essential factor for successful breastfeeding and should always be encouraged, as stated by the WHO [5]. On the other hand, various studies reported that breastfeeding education effectively promoted exclusive breastfeeding and avoidance of bottle feeding in different settings [12, 24, 25]. This discrepancy between breastfeeding education and breastfeeding support could be explained because the power and influence of support are more effective than education, especially among mothers who decide not to breastfeed.

The study revealed that maternal employment (AOR 4.34, 95% CI 1.61, 11.68) was significantly associated with never breastfeeding. Inconsistency with the current results, maternal employment has been reported as the main factor associated with suboptimal breastfeeding [26]. In addition, recent research reported the association between cesarean section and maternal employment [27, 28].

Therefore, continuous support to all mothers from all family members and employers is crucial in successful breastfeeding, especially to those employed and cesarean delivered ones.

Other variables such as age, education, BMI, and nationality were not significantly different between the two groups of breastfed and never breastfed. However, some studies confirmed this relationship [29, 30]. The lack of association may be due to the small sample size.

5. Conclusion

In conclusion, mothers who do not breastfeed their children need to be identified as early as possible to receive all kinds of support from the healthcare staff, family, employers, and the community as a whole.

Regardless of the tremendous efforts, the UAE put in implementing the WHO and UNICEF infant feeding policies, and the breastfeeding rate remains suboptimal. Therefore, the current study's findings would be of great importance as highlighting the factors associated with not breastfeeding and could be addressed in the national breastfeeding education programs and strategies of the UAE.

Although the study has highlighted the mothers who had never breastfed as a vulnerable group and identified its significant association to certain factors, several limitations exist based on analysis of a subsample. First, the small sample size, a study with a big sample size can give more conclusive information. Also, recall bias, commonly seen in cross-sectional studies, may be an issue in this study. Additionally, research is needed to overcome these limitations.

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Availability of Data and Materials

The data that supports the findings of the current study are available from the corresponding author upon reasonable request.

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