

# Exploring the determinants of exclusive breastfeeding among postpartum women in northeastern Morocco: fathers' knowledge as a moderating factor

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## ABSTRACT

Breast milk is the exclusive source of nutrition required for optimal growth and development during the first 6 months of life. It confers many advantages for the health of both mother and child, as well as for the general well-being of society. Several factors, including the father's level of breastfeeding knowledge, influence the decision to breastfeed. This descriptive cross-sectional study aimed to examine the extent of fathers' knowledge about breastfeeding and the factors that influence it. A total of 200 men completed a structured questionnaire in the maternity ward of the Ibn Baja hospital in Taza, northeast Morocco. The results of this study indicate that 89% of fathers exhibited limited knowledge of breastfeeding. Moreover, a significant correlation was observed between the fathers' knowledge of breastfeeding and a range of socio-demographic, cultural, and familial factors and their personal experiences. Implementing targeted interventions to enhance fathers' knowledge is of utmost importance, considering factors specific to the Moroccan context.

## Introduction

The future health of infants is contingent upon the quality of nutrition they receive during the early stages of their development. Breast milk represents the optimal functional formula for infants, providing a natural and ideal source of nutrition.<sup>1</sup> Nutrition assumes a pivotal role during the critical period of the first 1000 days, encompassing pregnancy and the initial 2 years of life. This period's developmental and physiological plasticity, known as the "golden thousand days", is essential for the significant development of the infant's brain, body, and immune system. Nutritional status significantly impacts long-term health outcomes. Breast milk, a unique and complex biofluid, is recommended for infants up to six months. Scientific research highlights its importance due to its diverse nutrients, bioactive substances, and immune system benefits. Breast milk's composition enhances tissue growth and repair processes, making it a valuable source for infants.<sup>2</sup> Furthermore, the composition of breast milk can adapt to meet the evolving developmental requirements of the infant. The early habituation of the mother to breastfeeding is of considerable benefit to the child's development, as the role of breastfeeding extends beyond mere nutrition to encompass immunology, epigenetics, the microbiome, and stem cells. Breastfeeding is a highly effective strategy for ensuring children's health, survival, and optimal development, according

to the World Health Organization (WHO) and the United Nations Children's Fund. It is recommended that infants should be breastfed within the first hour after birth, exclusively for the first six months of life [exclusive breastfeeding (EBF)], and that breastfeeding should continue until the child is two years old or beyond, at the mother's discretion. From 6 months, solid, semi-solid, and soft foods can be introduced incrementally.<sup>3</sup> A significant number of organizations, governments, and agencies have endorsed and implemented this recommendation, which is based on extensive evidence for optimal growth, development, and health of the child.<sup>4</sup>

Ensuring brain nutrient intake is crucial for long-term cognitive, behavioral, and socioeconomic outcomes. Non-breastfed infants have a fivefold higher risk of infectious disease mortality and twice as high during the first 6 months. Breastfeeding is a highly effective method for creating an optimal environment for infants.<sup>5</sup>

The proportion of infants under 6 months of age who are exclusively breastfed is relatively low. Between 2015 and 2020, only 44% of infants were exclusively breastfed. The prevalence of inappropriate feeding practices exhibits considerable variation between countries. For instance, in 2017, only 37% of infants in Africa were exclusively breastfed.<sup>6</sup> Despite the proven benefits of breastfeeding for maternal and infant health, there is a significant decline in breastfeeding rates during the first 2 years of life, with only 45% of infants being breastfed by the age of 2.<sup>7</sup> The most recent national survey on population and family health in Morocco (2018) has revealed worrying rates of breastfeeding. Only 42% of women commence breastfeeding within an hour of giving birth, while 35% of infants continue to receive breast milk six months after birth. These figures fall considerably short of the 50% target set by the Moroccan government and are well below the 70% rate set by the WHO for 2030.<sup>8</sup>

It is evident from research that women globally encounter challenges in breastfeeding as a result of socioeconomic, cultural, and political factors. The involvement of fathers in breastfeeding has the potential to enhance their wives' comprehension and assistance, thereby fostering a favorable experience for the entire family. WHO has acknowledged the significance of paternal involvement in facilitating early breastfeeding, yet this aspect is not explicitly addressed in the ten key steps to successful breastfeeding. Fathers are frequently underrepresented in domestic tasks and breastfeeding decisions due to personal beliefs or traditional societal norms.<sup>9</sup> A review of the literature reveals that paternal support for breastfeeding is contingent upon their comprehension, attitudes, involvement in decision-making processes, and capacity to provide practical and emotional assistance, which serves to motivate mothers to extend the duration of their breastfeeding.<sup>10</sup>

The role of the father in supporting the mother who is breastfeeding is of great importance. This can be achieved by providing emotional support, practical assistance, and encouragement. They cultivate a sense of trust and reassurance, thereby enabling mothers to concentrate on the act of breastfeeding. Additionally, fathers can disseminate breastfeeding expertise, assist with domestic tasks, offer emotional support, and create a comfortable environment conducive to breastfeeding. In conclusion, it can be stated that fathers play a pivotal role in providing breastfeeding support.<sup>11</sup>

Paternal involvement in breastfeeding is of great importance for the promotion and reinforcement of breastfeeding

practices. However, fathers frequently lack the requisite knowledge and guidance from health professionals, which hinders their ability to support their partners effectively. A study by Ng *et al.* (2019) examined the influence of individual, social, and environmental factors on fathers' involvement. These factors included their knowledge, attitudes, perceptions of social norms, sense of control, relationship quality, sociodemographic characteristics, and attendance at antenatal care classes.<sup>12</sup> The decision to cease breastfeeding is significantly influenced by the level of paternal education and the level of support available to the mother. Parents who are well-informed and supportive are more likely to choose to breastfeed for up to 6 months, which in turn encourages mothers to practice EBF. The provision of paternal support serves to mitigate the risk of premature cessation due to a lack of assistance. Fathers can provide practical and emotional support in the resolution of breastfeeding difficulties. Involving mothers in the breastfeeding process has been shown to enhance their knowledge and attitudes towards their children, which in turn leads to longer and more optimal breastfeeding practices.<sup>13</sup> A substantial body of research indicates that the provision of parental education and support during the antenatal and postnatal periods can result in increased rates of EBF for up to 6 months, a reduction in premature weaning during the first 2 months, a reduction in breastfeeding difficulties, an enhancement of parental support for mothers and an improvement in knowledge and attitudes towards breastfeeding.<sup>14</sup>

The practice of breastfeeding is a deeply rooted cultural tradition in the province of Taza, shaped by a complex interplay of Amazigh, Arab, African, and Muslim influences. Islamic teachings advocate for breastfeeding to occur for up to 2 years, reflecting the region's profound spiritual and cultural traditions. Historically, maternal responsibility for breastfeeding has been the norm. However, there is a growing emphasis on encouraging paternal involvement in maternal activities to enhance breastfeeding rates and foster a positive perception of fatherhood. This shift is influenced by sociocultural factors, which may stimulate paternal engagement in maternal education.<sup>6,15</sup> Furthermore, fathers may encounter obstacles from family members, friends, and confidants who, on occasion, promote unscientific breastfeeding practices and disapprove of their involvement in the process. Furthermore, the media can also contribute to fathers' confusion, as they often promote the benefits of formula feeding over breastfeeding.<sup>16</sup>

At the national level, a limited number of studies have sought to examine the relationship between fathers' knowledge of breastfeeding, underlying factors, and the potential association with breastfeeding practices. The present study aims to assess the level of knowledge of the fathers whose wives gave birth in the maternity ward of Ibn Baja Hospital in Taza City and to identify possible determinants of EBF.

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## Materials and Methods

### Study design and population

The study was conducted in the maternity ward of the Ibn Baja Hospital in Taza, a city in northeastern Morocco. A cross-sectional study was pursued with a sample of 200 fathers, selected *via* systematic probability sampling to ensure adequate representation of the population. The biological fathers of healthy live births whose breastfeeding wives

had given birth in the maternity ward of Ibn Baja Hospital and who consented to participate in the study were included in the sample. Those who declined to participate in the study or had a history of psychiatric disorders, as well as those with non-breastfed children, were excluded from the study. The data was collected over 5 months, from November 1, 2023, to the end of March 2024.

## Measures

The questionnaire was constructed following an exhaustive examination of the pertinent literature and is comprised of two sections. The initial section of the questionnaire pertains to the paternal figure's attributes, encompassing factors such as age, educational attainment, and geographical location. The second section of the questionnaire assesses the father's knowledge of breastfeeding, including its initiation, importance, and benefits. The questionnaire was scored following the Food and Agriculture Organization (FAO) reference thresholds, whereby scores below 70% indicate the necessity for intervention, while scores above 70% indicate a high level of knowledge.<sup>17</sup> The reliability of Cronbach's  $\alpha$  for the given sample was found to be 7.86.

## Analysis of the data

The data were analyzed using SPSS Statistics, version 28 (IBM, Armonk, NY, USA). The study used descriptive statistics to process responses and describe participants. It used univariate and multivariate chi-square analyses and logistic regressions to examine relationships between variables. The

dependent variable was dichotomous, with the mean as the classification threshold. Independent variables included socio-demographic characteristics. Factors with a p-value less than 0.05 were included in multiple regression analysis. The statistical significance threshold was set at  $p < 0.05$ , allowing for meaningful results on factors influencing fathers' knowledge.

## Ethical considerations

The confidentiality and privacy of the study participants were respected following the principles outlined in the Declaration of Helsinki of June 1964.

## Results

### Descriptive statistics

The study included 200 participants. The mean age of the participants was 36 years [standard deviation (SD)  $\pm 6.97$ ], with 56% of the sample consisting of people aged 35 years and over. The mean age of the participants' wives was 28 years (SD  $\pm 6.70$ ), and 72% of the respondents lived in rural areas. Regarding education level, 81% of fathers had formal education, and 5% had a university degree. In addition, 39% of the participants were employed as day laborers, while 20% worked in agriculture. The proportion of women who gave birth vaginally was 77.5%. Regarding the sex of the newborns, 49.5% were male. It was found that 92% of fathers had been breastfed by their mothers. A total of 38% of the women were primiparous. A total of 26% of couples decided to breastfeed their newborn together (Table 1).

**Table 1.** Sociodemographic characteristics of the respondents.

Variable		n	Percentage (%)
Age	Under 35 years	88	44
	Over 35 years	112	56
Provenance	Rural	144	72
	Urban	56	28
Father's occupation	Public employee	14	7
	Self-employed	186	93
Working mother	Yes	22	11
	No	178	89
Educated father	Yes	162	81
	No	36	19
Educated mother	Yes	140	70
	No	60	30
Nuclear family	Yes	76	38
	No	124	62
Duration of marriage	Less than 10 years	145	72.5
	Over 10 years	55	27.5
Newborn's sex	Female	101	50.5
	Male	99	49.5
Delivery mode	Vaginal delivery	155	77.5
	Cesarean operation	45	22.5
Parity	Primiparous	76	38
	Multiparous	124	62
Father breastfed by his mother.	Yes	184	92
	No	16	8
The decision to breastfeed their newborns	Yes	52	26
	No	148	74

## Fathers' knowledge of breastfeeding

The vast majority of fathers (98.5%) indicated that they were aware of the practice of breastfeeding. Nevertheless, only 21.5% of fathers indicated that they possessed knowledge regarding the specific practice of EBF. Regarding dietary diversification, 18% of fathers provided an accurate response to the third item, indicating that they believed this should commence at six months of age. A mere 15% of respondents indicated that the recommended duration of breastfeeding is two years or more. A mere 11% of respondents correctly indicated that breastfeeding should commence one hour after delivery. A mere 9% of fathers were able to correctly identify the name of the initial milk secreted by the mother (colostrum). A mere 7% of fathers indicated that they were aware that breast milk provides protection against certain illnesses for newborns. Moreover, only 3% of respondents correctly identified the role of breast milk in strengthening the immune system. The majority of participants in the study exhibited an inability to establish a relationship between breastfeeding and the protection of the mother against a multitude of illnesses. None of the participants demonstrated an understanding of the importance of continuing breastfeeding in the event of pathological damage to the infant. Consequently, 89% of the fathers surveyed exhibited a restricted understanding of breastfeeding, as evidenced by their performance on the established knowledge test and the FAO scoring system (Table 2).<sup>17</sup>

Concerning paternal involvement in breastfeeding, 85% of respondents indicated that they had exerted influence on the duration of breastfeeding, while 26% reported that they had chosen to breastfeed their child in agreement with their partner. The majority of respondents (71.5%) indicated that they had decided to have their child breastfed by the mother before pregnancy. Moreover, 79% of respondents perceived

breastfeeding as a responsibility shared between partners. Moreover, 66% of respondents indicated a preference for assisting their partner with breastfeeding. Moreover, fathers are more likely to assist with domestic tasks when their partner is breastfeeding (95%) and view it as a source of fulfillment to observe their wife breastfeeding (80%). However, 64.5% of fathers believe that breastfeeding has an impact on their partner's physical condition. Indeed, 37% of respondents indicated that they believe breastfeeding leads to weight loss, while 27% stated that it causes breast deformity. Moreover, 83% of fathers do not consider breast milk to be comparable to other milk. In conclusion, while the majority of fathers express support for their partners' breastfeeding endeavors (91%) and perceive their presence and assistance as beneficial to breastfeeding mothers (94.5%), 17.5% do not concur with their involvement in breastfeeding activities.

## Association between fathers' knowledge and breastfeeding

The study revealed a significant association between fathers' level of breastfeeding knowledge and the practice of EBF by their wives (Table 3).

## Determinants of father's breastfeeding knowledge

The study found that fathers aged 35 and above had superior breastfeeding knowledge compared to those under 35. Education level was a significant factor in this knowledge, with those who completed secondary or higher education showing greater understanding. Fathers with cesarean section-born children had lower breastfeeding knowledge compared to those born vaginally. Fathers with multiple children had a more advanced breastfeeding knowledge. Health profession-

**Table 2.** Responses to items of knowledge about exclusive breastfeeding.

Item	Correct answer		Knowledge	
	n	%	Advanced	Limited
1. Do you know what breastfeeding is?	200	100	11%	89%
2. Do you know what exclusive breastfeeding is?	38	19		
3. Should infants be given foods other than breast milk before 6 months?	36	18		
4. Breastfeeding should continue for up to 2 years or beyond	30	15		
5. When did your wife start breastfeeding her newborn after giving birth?	22	11		
6. Do you know the name of the first breast milk?	18	9		
7. Breastfeeding protects infants from childhood illnesses.	14	7		
8. Breastfeeding boosts babies' immune systems.	6	3		
9. Breastfeeding protects mothers from some diseases (breast cancer/ovarian cancer/type 2 diabetes/post-partum depression)?	2	1		
10. Should mothers stop breastfeeding a sick child?	0	0		

**Table 3.** Chi-square association test between the practice of exclusive breastfeeding and fathers' knowledge of breastfeeding.

		Fathers' knowledge about breastfeeding		Chi-square test		
		Limited	Advanced	Value	ddl	P-value
The practice of exclusive breastfeeding	Yes	61	16	5.069	1	0.024
	No	117	6			

als were the primary source of breastfeeding information for fathers. However, no significant correlation was found between the father's breastfeeding knowledge and variables such as place of residence, profession, family type, duration of marriage, newborn sex, and delivery method (Table 4).

## Discussion

A review of the scientific literature reveals that paternal awareness is a key factor in the success and duration of breastfeeding. The most effective method for providing support is the dissemination of knowledge about breastfeeding. Fathers who possess breastfeeding knowledge can positively influence their wives' attitudes toward the practice, thereby making it a crucial aspect of breastfeeding support.<sup>18</sup> The existing literature demonstrates that the provision of breastfeeding education and support to fathers during the antenatal and postnatal periods can lead to an increase in EBF rates, a reduction in premature cessation, a decrease in breastfeeding difficulties, an increase in support from birth, and an improvement in mothers' knowledge and attitudes toward breastfeeding.<sup>16,19</sup>

The results of this study indicate that the majority of fathers (89%) are unfamiliar with the practice of breastfeeding. This finding is consistent with the results of other studies.<sup>20</sup> However, this finding is at odds with the results of other studies, which indicate that fathers possess more comprehensive knowledge on this subject.<sup>21,22</sup> The study revealed a significant correlation between paternal breastfeeding knowledge and the duration and quality of breastfeeding. The findings indicated that fathers over the age of 35 exhibited superior knowledge compared to their younger counterparts. Further research is required to gain insight into the factors that influence fathers' breastfeeding knowledge and to develop strategies for improvement.<sup>23,24</sup> However, these findings are at odds with those of the study by Mohamed *et al.*, which suggests that the likelihood of inadequate knowledge increases with age.<sup>25</sup> Similarly, the study by Dagla *et al.* revealed no correlation between the age of the expectant father and the level of knowledge about EBF.<sup>26</sup> Additionally, the study identified a statistically significant correlation between educational level and fathers' knowledge of EBF.<sup>21</sup> The study revealed that fathers with mul-

iple children demonstrated superior knowledge regarding breastfeeding, a finding that aligns with the research conducted by Shitu. This suggests that increased exposure to diverse circumstances while raising multiple children can facilitate the acquisition of breastfeeding knowledge.<sup>27</sup>

Moreover, the study demonstrated a correlation between paternal knowledge and their personal experiences with breastfeeding during childhood. The study emphasizes the pivotal role of environmental factors. The majority of fathers (51%) reported receiving advice from family and friends, while a small percentage (2%) reported receiving information from healthcare professionals. Similarly, Baldwin *et al.* found that fathers frequently lack adequate information about breastfeeding and support from healthcare professionals.<sup>28</sup> Similarly, it has been proposed that a straightforward educational intervention may enhance man's comprehension of breastfeeding, thereby increasing the prevalence of breastfeeding in the initial six months postpartum.<sup>29</sup>

The study found a significant correlation between fathers' knowledge of breastfeeding and the duration and quality of breastfeeding. The results of a logistic regression model indicated a significant correlation between paternal age and breastfeeding knowledge. Fathers over 35 showed a higher level of knowledge than younger fathers, which is consistent with previous research. Therefore, further research is needed to understand the factors influencing fathers' breastfeeding knowledge and to develop strategies to improve their breastfeeding skills.<sup>16</sup>

The findings of this study indicate that 66% of participants expressed a desire to provide support to their partner throughout the pregnancy. Furthermore, 95% of fathers indicated their willingness to assist with domestic tasks when their partner was breastfeeding, and 80% reported a sense of accomplishment when they observed their wife breastfeeding. Prior research has demonstrated a correlation between the provision of emotional and practical support by fathers and longer breastfeeding periods for mothers. Promoting culturally appropriate educational initiatives is of the utmost importance, as breastfeeding is no longer perceived as an obligation incumbent solely on the mother; rather, it is a shared responsibility in which the husband's involvement is crucial. Furthermore, cultural factors exert an influ-

**Table 4.** Logistic regression model of predictors of fathers' breastfeeding knowledge.

Predictive factors	Coefficient of regression	p	OR (95% CI)
Father's age (less than 35=0)	0.843	0.013	0.430
Residence (urban=0)	0.036	0.698	1.266
Father's occupation (jobless=0)	0.277	0.586	1.319
Father's education (no education=0)	2.092	0.007	8.100
Nuclear family (yes=0)	1.196	0.068	0.302
Duration of marriage (less than 10 years=0)	0.090	0.913	1.094
Sex of the newborn (female=0)	0.403	0.459	1.496
Parity (primiparous=0)	0.087	0.018	0.917
Father breastfed as a child (yes=0)	21.087	0.000	1.504
Mode of delivery (vaginal=0)	0.710	0.533	2.035
Sources of information (healthcare professionals=0)	1.017	0.001	2.764
Father's involvement in breastfeeding (no=1)	0.195	0.850	0.823

OR, odds ratio; CI, confidence interval.

ence on other aspects of breastfeeding, including duration, posture, and the number of children. It is of the utmost importance that culturally appropriate educational initiatives, including communication programs and parenting education seminars, are implemented to promote inclusive parenting, father involvement, and breastfeeding support.<sup>30</sup> Previous studies have demonstrated that educating and supporting fathers about breastfeeding during the perinatal period leads to higher rates of EBF for up to 6 months, a reduction in premature cessation of breastfeeding, and a lower incidence of breastfeeding difficulties.<sup>15,16</sup> A partner's lack of knowledge about breastfeeding can lead to inadequate support for mothers, which can increase the risk of premature cessation of breastfeeding. It is, therefore, imperative that culturally appropriate educational initiatives are implemented to promote inclusive parenting, father involvement, and breastfeeding support.<sup>31</sup> Cardoso *et al.* (2018) posits that the likelihood of successful breastfeeding is enhanced when parents collaborate to achieve a common goal.<sup>32</sup>

It is therefore imperative to gain an understanding of the cultural significance of these dynamics to provide appropriate and compassionate support to mothers engaged in breastfeeding and to enhance collaboration within the couple.

## Limitations

The present study examines the knowledge of breastfeeding practices held by men in northeastern Morocco. The research's single-center design and focus on a single hospital may not fully represent the local community's socioeconomic and cultural diversity. The findings are limited to middle- and low-income households and may not be generalized to other demographic groups. It would be beneficial for future studies to include a more comprehensive socioeconomic context, encompassing private clinics, urban and rural areas, and high-income patients, to gain a more nuanced understanding of fathers' knowledge and participation in breastfeeding.

## Conclusions

A father's level of knowledge about breastfeeding is a significant predictor of his involvement and support in this area. A variety of cultures, familial and socio-demographic factors, in addition to personal experiences, contribute to the formation of this knowledge base. It is of the utmost importance to encourage and support the participation of fathers to facilitate and promote breastfeeding. It is recommended that media and information campaigns be employed to emphasize the benefits of breastfeeding and the role of fathers. This constitutes a pivotal element in the promotion and maintenance of breastfeeding.

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