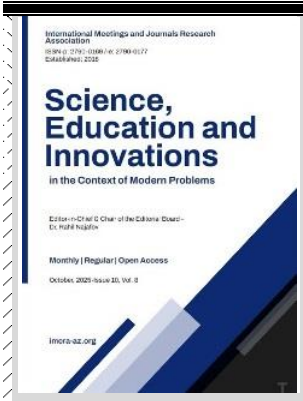

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Title of research article

The Impact of Women's Employment on the Practice of Exclusive Breastfeeding

(A Field Study at the Public Hospital Institution - Ksar Chellala - Tiaret Province)

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Abstract

The rate of exclusive breastfeeding in Algeria is among the lowest in the world, having declined in recent years in parallel with the increase in women's employment in the country. This situation prompted us to question the impact of women's employment on the practice of exclusive breastfeeding. To address this issue, we conducted a field study at a hospital in Tiaret Province, involving 150 mothers of infants aged between 6 and 12 months. The findings revealed a relationship between women's employment and the practice of exclusive breastfeeding, as stay-at-home mothers were more likely to exclusively breastfeed their infants for six months.

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Introduction

It has been scientifically and medically proven that breastfeeding is of great importance and provides significant benefits to the health of both the child and the nursing mother, whether physically, psychologically, or in terms of disease prevention. Breast milk offers complete and optimal nutrition for infants, as it strengthens their immune system and protects them from potentially fatal diseases such as diarrhea and pneumonia. Breastfeeding also reduces the likelihood of infants being exposed to unsafe food or water, thereby saving the lives of millions of children.

Research indicates that exclusive breastfeeding during the first six months, along with continued breastfeeding throughout the first year, can save the lives of 1.3 million children each year — more than 3,000 children every day. Furthermore, if breastfeeding is continued alongside appropriate complementary feeding until at least the age of two, an additional 500,000 children can be saved annually, which is equivalent to around 500 more children every day. Experts strongly advise against the use of breast milk substitutes during this period, particularly infant formula.

Infant formula, as we know it today, is an alternative to breast milk primarily made from cow's milk and consists of nutrients such as proteins, iron, sodium, and fats. Although it contains essential nutrients for infants, its protective properties against diseases remain far lower compared to breast milk. Moreover, the risks associated with its regular consumption by newborns are high. According to the World Health Organization (WHO) and UNICEF, breast milk substitutes pose serious risks to infant digestion, as they often cause fatal infections. Conditions such as diarrhea, colic, respiratory illnesses, diabetes, and even obesity are much more common among children who are not breastfed.

For this reason, the World Health Organization has emphasized regulating the marketing of breast milk substitutes in markets and advertisements through the adoption of the *International Code of Marketing of Breast-milk Substitutes*. This aims to increase breastfeeding rates, which is considered an essential requirement for ensuring adequate nutrition for every child.

(https://www.unicef.org/cotedivoire/recits/lallaitement-maternel-est-il-un-choix)

1. Problem Statement:

The World Health Organization (WHO) and the United Nations International Children's Emergency Fund (UNICEF) have estimated that around ten million children die each year due to gastroenteritis and malnutrition resulting from the use of infant formula. Consequently, these international health organizations banned such advertisements and labeled the producers and exporters of infant formula as "child killers of the Third World." This is because the lives of these children could be saved simply by switching to breastfeeding and abandoning formula substitutes.

Algeria is among the countries suffering from low rates of exclusive breastfeeding during the first six months of a child's life. According to the Sixth Multiple Indicator Cluster Survey conducted in 2019, the rate was estimated at **28.7%** (Ministère de la santé et UNICEF, 2020, p. 48). Although this represents an improvement compared to 2005, when the rate was **6.9%** (Ministère de la santé et autres, 2006, p. 68), and **25.7%** in 2013 (Ministère de la santé et autres, 2015, p. 7), the figures remain low.

At the same time, the proportion of economically active women in Algeria has risen, increasing from **9.97%** in 1987 to **15%** in 1999, then **17%** in 2006, and reaching **19%** in 2015 (Office Nationale de Statistique, 2015, p. 3).

For this reason, our study seeks to highlight the importance of breastfeeding, particularly during the first six months of a child's life, and to explore the relationship between exclusive breastfeeding and maternal employment.

Thus, the key question is: **Does maternal employment contribute to the low practice of exclusive breastfeeding?**

2. Definition of Concepts:

2.1. Breastfeeding:

Breastfeeding is the process of feeding the newborn with the milk produced by the female breast through suckling. It is an innate process shared between humans and other mammals, continuing from birth until weaning (Mohamed, 1992, p. 180).

2.2. Exclusive Breastfeeding:

Exclusive breastfeeding means that the infant is fed solely on the mother's milk, without receiving any other liquidsno t even wate or solid foods, with the exception of oral rehydration solutions, or drops/syrups of vitamins, minerals, or medicines (World Health Organization, 2011, p. 2).

2.3. Working Woman:

A working woman is defined as a woman who practices a profession or occupation outside the home, dedicating several hours of her time in exchange for a wage.

3. Methodology Adopted in the Study

3.1. Method:

In this study, we relied on the descriptive-analytical method, as it is the most appropriate approach for our research topic. It can be defined as "one of the forms of organized scientific analysis and interpretation aimed at describing a specific phenomenon or problem and portraying it quantitatively, or by collecting standardized data and information about the phenomenon or problem, classifying it, analyzing it, and subjecting it to in-depth study" (Sami, 2000, p. 324). We collected data from the field, then processed, categorized, and analyzed it using simple and cross-tabulated statistical tables to determine the impact of independent variable indicators on the dependent variable indicators, namely exclusive breastfeeding.

3.2. Questionnaire:

We employed the questionnaire technique in our study, which consisted of 32 questions divided into three sections. The first section was dedicated to personal information about the respondent, the second section concerned information about her infant, and the third section included questions about whether or not she was employed.

3.3. Sample:

The selection of a specific type of sample is dictated by the nature of the study, its problem, and hypotheses. Accordingly, we needed to choose a sample of women of childbearing age [15–49 years] who had an infant between 6 and 12 months old. Since there was no sampling frame available (i.e., the total number of mothers with infants under 12 months was unknown), we opted for a purposive sample, which falls under non-probability sampling. Maurice Angers defines it as "a sample in which the research population is unknown, and therefore the degree of representativeness of the sample cannot be estimated" (Maurice, 1997, p. 229).

We conducted the study at the Public Hospital Institution of Ksar Chellala, specifically in the Pediatrics Department, where mothers stay with their children, and in the Preventive Medicine Department, where children are vaccinated, as mothers usually bring their infants for vaccination.

Our research population consisted of 150 women of childbearing age (15–49 years), all of whom had at least one infant aged between 6 and 12 months. We restricted the age of infants for two reasons: first, the infant had to be at least six months old since the focus of our study required it; second, we capped the age at 12 months to ensure that mothers could easily recall relevant details within the reference period. This made it easier for them to answer precise questions such as the date breastfeeding started, the date when foods other than breast milk were introduced, and the duration of exclusive breastfeeding.

The fieldwork lasted two and a half months and was divided into two phases. The first phase spanned from April 12, 2015, to July 2, 2015, during which we interviewed 27 women and completed 27 questionnaires. In the end, we obtained 150 questionnaires, at an average of two per day. Sometimes, we managed to interview up to five women per day who met the study criteria, while on other days, we found none. It is worth noting that the interviews and the completion of questionnaires were conducted by two nurses from the health sector who had been trained for this task, given a comprehensive overview of the research topic, and were accompanied throughout the fieldwork period.

4. Analysis of Study Results

Table 1: The Relationship Between the Mother's Professional Status and the Timing of Initiating Breastfeeding After Birth

Start of Breastfeeding Professional Status	Immediately After Birth		After 1 to 6 Hours		After 6 to 24 Hours		After 24 Hours		Total	
	K	%	K	%	K	%	K	%	K	%
Working	11	15.71	19	27.15	35	50.00	5	7.14	70	100
Not Working	33	41.25	17	21.25	23	28.75	7	8.75	80	100
Total	44	29.33	36	24.00	58	38.67	12	8.00	150	100

From the data presented in the table, it is evident that the general trend shows that the majority of respondents initiate breastfeeding between six and twenty-four hours after birth, at a rate of **38.67%**, compared to **8%** who begin breastfeeding after twenty-four hours of delivery.

When introducing the independent variable, namely maternal employment, we observe that half of the working mothers initiated breastfeeding only after six to twenty-four hours, compared to **28.75%** among non-working

mothers. Meanwhile, the majority of non-working mothers began breastfeeding immediately after delivery (**41.25%**), compared to only **15.71%** of working mothers who did so.

The initiation of breastfeeding after delivery is influenced by the mother's professional status, as revealed statistically. This can be explained by the fact that working mothers who genuinely wish to succeed in breastfeeding often face work as an obstacle, reducing their chances of initiating breastfeeding immediately after birth. Working mothers may also have already decided to introduce infant formula early, and therefore see no necessity to start breastfeeding immediately, leading to delays. In contrast, non-working mothers are more eager to ensure successful breastfeeding, as they have no professional commitments outside the home. Their awareness of being able to spend all their time with their child in the future, along with their strong desire to succeed in breastfeeding particularly exclusive breastfeeding during the first six months serves as a strong motivation to begin breastfeeding immediately after birth.

Table 2: The Relationship Between the Mother's Professional Status and the Duration of Exclusive Breastfeeding.

Duration of Exclusive Exclusivity Employment Status	0–1 month (K / %)		2–3 months (K / %)		4–5 months (K / %)		6 months (K / %)		Total (K / (%)	
	K	(%)	K	(%)	K	(%)	K	(%)	K	(%)
Working	3	4.3	45	64.3	6	8.6	16	22.9	70 /	100
Not working	14	17.5	29	36.3	10	12.5	27	33.8	80	100
Total	17	11.3	74	49.3	16	10.7	43	28.7	150	100

Through the statistical reading of the table, it appears that its general trend indicates that the majority of the surveyed women exclusively breastfed their children for a duration ranging from 2 to 3 months at a rate of 49.3%, compared to 10.7% of the surveyed women who exclusively breastfed their children for a duration ranging from 4 to 5 months.

When introducing the independent variable represented by the mother's employment status, it becomes clear that the majority of working mothers exclusively breastfed their children for a period of 2 to 3 months at a rate of 64.3%, compared to 4.3% who practiced the same pattern for a duration ranging from 0 to 1 month. Meanwhile, 36.3% of non-working women exclusively breastfed their children for two to three months, compared to 12.5% who practiced the same type of breastfeeding for 4 to 5 months. In general, we notice that there is a relationship between the two variables, which was confirmed through the calculation of the Chi-square test, where its value was estimated at 13.786, which is greater than the tabular Chi-square at the degree of freedom 3 and the significance level 0.05 estimated at 7.86. As for the degree of the relationship between the two variables, when calculating the contingency coefficient, it was estimated at 0.290, meaning that there is a somewhat weak relationship between the two variables.

It seems to us that the mother's employment does affect the practice of exclusive breastfeeding, and although the effect is somewhat weak as mentioned earlier, this weakness in the effect may be due to the influence of other factors, which prevents us from precisely determining the effect of the mother's employment status on the practice of exclusive breastfeeding. This is what we seek to determine by breaking down this variable into several other indicators in order to understand the real relationship between the two variables.

Table No. 3: The Relationship Between the Mother's Employment Status and the Type of Nutrition Provided to the Child During the First Six Months of Life,

	Exclusive Breast	Mixed	Breast feeding +	Mixed Feeding +	Total

Type of Nutrition Provided to the Child / Employment Status	feeding (K)		Feeding (K)		Other Food (K)		Other Food			
	K	(%)	K	(%)	K	(%)	K	(%)	K	(%)
Working	16	22.9	45	64.3	1	1.4	8	11.4	70	100
Not working	27	33.8	38	47.5	3	3.8	12	15.0	80	100
Total	43	28.7	83	55.3	4	2.7	20	13.3	150	100

surveyed women provided mixed feeding to their children during the six months following childbirth, at a rate of **55.3%**, compared to **2.7%** of the surveyed women who provided breastfeeding combined with other food during the same period.

When introducing the independent variable represented by the mother's employment status, it was found that the majority of working mothers provided mixed feeding to their child in the first six months of life at a rate of **64.3%**, compared to **1.4%** of them who provided breastfeeding combined with other food. Meanwhile, **47.5%** of housewives provided mixed feeding to their child, compared to **3.8%** of them who provided breastfeeding combined with other food.

This disparity in percentages can be explained by the changing social role of Algerian women as a result of the economic, social, and cultural transformations that society has experienced. Whereas women used to remain at home, caring for the upbringing of children and fulfilling the needs of the husband and the family within the framework of the social division of labor between the spouses, today, after attaining educational levels, women have entered the labor market alongside men and spend most of their time outside the home. This situation affects their performance and relationships within the household. This is clearly reflected in the results of this table concerning the rate of exclusive breastfeeding during the first six months. Although the rate is low among both categories, it is noticeably lower among working women.

Table No. 4: The Relationship Between the Nature of the Mother's Working Hours and the Duration of Exclusive Breastfeeding During the First Six Months.

Duration of Exclusive Breastfeeding / Nature of Working Hours	0–1 month		2–3 months		4–5 months		6 months		Total	
	K	(%)	K	(%)	K	(%)	K	(%)	K	(%)
Full-time	3	5.0	42	70.0	2	3.3	13	21.7	60	100
Part-time	–	–	3	30.0	4	40.0	3	30.0	10	100
Total	3	4.3	45	64.3	6	8.6	16	22.9	70	100

Through the statistical reading of the data in the previous table, it appears that its general trend indicates that the majority of working women practiced exclusive breastfeeding for a duration of two to three months at a rate of **64.3%**, compared to **4.3%** of them who practiced the same pattern of breastfeeding for a duration ranging from 0–1 month. When introducing the independent variable represented by the nature of working hours, a variation in percentages appears, as most of the surveyed women working full-time practiced exclusive breastfeeding for two to three months at a rate of **70%**, compared to **3.3%** of them who exclusively breastfed their children for four to five months. Meanwhile, the majority of women working part-time practiced exclusive breastfeeding for four to five months, while the remaining percentage was divided between exclusive breastfeeding for two to three months and for four to five months at a rate of **30%** for each duration.

Based on the data of the table and after calculating Chi-square (Khi²), its value was estimated at **16.338**, which is greater than the tabular Chi-square value at the degree of freedom **3** and the significance level **0.05**, estimated at **7.86**. As for the degree of the relationship, when calculating the contingency coefficient, it was estimated at **0.435**, which indicates a moderate relationship between the two variables.

The nature of the mother's working hours affects the breastfeeding process, as observed in the previous table, where surveyed women working part-time had a longer duration of exclusive breastfeeding. This is natural since the mother is closer to her child most of the time, and if she truly intends to succeed in the breastfeeding process, her part-time work does not constitute an obstacle, as she is absent from home for only a short period. She can compensate her child with a feeding upon returning home if she works in the morning, or she can breastfeed him before leaving for work if her part-time shift is in the evening. This situation, however, does not apply to women working full-time, as they are absent from home throughout the entire day, and thus they find themselves compelled to introduce formula milk or other foods to their child.

Table No. 5: The Relationship Between the Proximity of the Mother's Home to Her Workplace Allowing Her to Return at Midday and the Duration of Exclusive Breastfeeding During the First Six Months.

Duration of Exclusive Breastfeeding / Nature of Working Hours	0–1 month		2–3 months		4–5 months		6 months		Total	
	K	(%)	K	(%)	K	(%)	K	(%)	K	(%)
Can return home	-	-	2	10.5	5	26.3	12	63.2	19	100
Cannot return home	3	5.9	43	84.3	1	2.0	4	7.8	51	100
Total	3	4.3	45	64.3	6	8.6	16	22.9	70	100

Through the data of the previous table, it appears that the general trend shows that the majority of working women practiced exclusive breastfeeding for a duration of two to three months at a rate of **64.3%**, compared to **4.3%** of them who practiced the same pattern of breastfeeding for a duration ranging from 0–1 month. When introducing the independent variable represented by the proximity of the workplace to the home, allowing the mother to return to her child at midday, it appears that the majority of the surveyed women who stated that they could return to their children at midday exclusively breastfed their children for **6 months** at a rate of **63.2%**. On the other hand, most of the women who stated that they could not return to their children at midday practiced exclusive breastfeeding for only two to three months at a rate of **84.3%**, while **2%** of them practiced exclusive breastfeeding for four to five months. After calculating Chi-square (Khi²), its value was estimated at **40.952**, which is greater than the tabular Chi-square at the degree of freedom **3** and the significance level **0.05**, estimated at **7.86**. As for the strength of the relationship, when calculating the contingency coefficient, it was estimated at **0.608**, which indicates a strong relationship between the two variables.

The effect of the mother's employment on the practice of exclusive breastfeeding does not appear clearly, as employment is not necessarily an obstacle to breastfeeding. This was observed in the previous table, as the mother who seeks to succeed in breastfeeding, even if she is employed, will always strive for it whenever she has the opportunity and will make use of every available moment. This was the case among the surveyed women who could return to their children at midday, as two-thirds of them succeeded in practicing exclusive breastfeeding for six months, and more than a quarter practiced it for four to five months. This indicates an increase in the duration of exclusive breastfeeding compared to their counterparts who are absent from home throughout the day, most of whom introduce other foods to their children during the second or third month. Breastfeeding hours represent valuable giving if accompanied by other complementary conditions, such as the presence of nurseries near the home or close to the workplace, where the mother can breastfeed the child in the morning and evening, in addition to the morning feeding before leaving for work. In this way, she can make

good use of those two hours, and she does not have to introduce other food, thereby ensuring the continuity of exclusive breastfeeding until the sixth month.

Table No. 6: The Relationship Between the Duration of Maternity Leave and the Duration of Exclusive Breastfeeding During the First Six Months.

Duration of Exclusive Breastfeeding / Duration of Maternity Leave	0–1 month		2–3 months		4–5 months		6 months		Total	
	K	(%)	K	(%)	K	(%)	K	(%)	K	(%)
3 months	3	5.0	44	73.3	1	1.7	12	20.0	60	100
3–5 months	–	–	–	–	5	100.0	–	–	5	100
6 months or more	–	–	1	20.0	–	–	4	80.0	5	100
Total	3	4.3	45	64.3	6	8.6	16	22.9	70	100

It appears that the general trend of the table shows that the majority of working women practiced exclusive breastfeeding for a duration of two to three months at a rate of **64.3%**, compared to **4.3%** of them who practiced the same pattern of breastfeeding for a period ranging between 0–1 month. When introducing the independent variable represented by the duration of maternity leave, it is evident that **73.3%** of women who benefited from 03 months of maternity leave exclusively breastfed their children for two to three months, compared to **1.7%** of them who exclusively breastfed their children for 4 to 5 months. In contrast, all women who benefited from a duration of 03 to 05 months of maternity leave exclusively breastfed their children for 4 to 5 months, while we notice that most of those who benefited from a maternity leave of 06 months or more exclusively breastfed their children for 06 months, compared to **20%** of them who exclusively breastfed their children for two to three months.

We observe a relationship between the two variables, as evidenced by the Chi-square test, which when calculated was estimated at **70.34**, a value greater than the tabular Khi² at 6 degrees of freedom and a significance level of 0.05, estimated at **12.59**. As for the degree of association, when we calculated the contingency coefficient, it was estimated at **0.711**, indicating a strong relationship between the two variables.

Through this variable, represented by the duration of maternity leave, it becomes clearly evident that the mother's employment affects the practice of exclusive breastfeeding. Maternity leave is often limited to only three months, which leads to the introduction of formula milk and other foods to the child immediately, so that the mother can resume her work since her maternity leave limited to 3 months—has ended. This is despite the fact that the National Charter emphasized the necessity of taking into consideration the working conditions of women to enable them to balance between their household duties and their professional duties. It stated that: *"Women represent half of the population capable of working and constitute an important reserve of the labor force in the country. However, the integration of Algerian women into the circles of production must take into account their role as wives and homemakers in building and supporting the family, which constitutes the basic unit of the nation. Moreover, the employment of women must be surrounded by strict laws that preserve motherhood and ensure the security of the family."* (National Liberation Front Party, 1976, p. 168).

Conclusion and Summary:

Through our analysis of the tables, we concluded that stay-at-home mothers are the first to initiate breastfeeding after childbirth at a rate of **41.25%**, compared to only **15.7%** of working women who initiate breastfeeding immediately after delivery. This indicates that the more the mother stays at home, the earlier she begins breastfeeding her child immediately after birth.

We also concluded that the mother's employment does not directly affect the breastfeeding process if certain factors are available that prevent the influence of this variable. When this variable is introduced in general—by dividing it into two categories (mother works – mother does not work) the clear effect on the practice of exclusive breastfeeding only appears after breaking down the mother's work into the indicators we addressed in the analysis of the previous tables.

One of the most important indicators of the mother's work is her working hours. We found that mothers who work part-time or on a reduced schedule had longer durations of exclusive breastfeeding compared to their counterparts who work full-time.

The same result was reached when dividing working mothers according to the proximity of their workplace to their home or to the home of a relative, making it possible for them to return to the child and breastfeed during midday. The duration of exclusive breastfeeding was higher among those who could return to their children during the workday, as they made good use of breastfeeding hours in addition to the midday break. There was a significant difference in the rate of exclusive breastfeeding compared to those whose workplaces were far from their homes. Perhaps the most important indicator that had a significant impact on the practice of exclusive breastfeeding is the duration of maternity leave. We observed that the early introduction of formula milk and other foods to the child occurred immediately after the end of maternity leave so that the mother could resume work. On the other hand, the rate of exclusive breastfeeding for six months rose to **80%** among women who did not return to work until after six months or more had passed since childbirth.

From the above analysis, it can be said that the mother's employment significantly reduces the likelihood of the newborn receiving exclusive breastfeeding during the first six months of life. However, this effect may not occur if certain facilities are provided, such as the availability of nurseries in workplaces, strengthening existing laws regarding maternity leave and breastfeeding hours with additional legislation that guarantees children's rights to adequate breastfeeding without resorting to formula and other foods that cause more harm than benefit, and enabling the mother to exercise her natural biological role.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the research, authorship, or publication of this article.

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