

# A Study on the Relationship Between Breastfeeding Type and Urinary Tract Infections in Children Under the Age of Two Years

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## Abstract:

**Background:** This study aimed to investigate the relationship between breastfeeding practices and urinary tract infections (UTIs) in children under the age of two years. Data were obtained from Al-Rifai, Souq Al-Shuyukh, and Bint Al-Huda maternity hospitals, as well as private laboratories affiliated with outpatient clinics.

**Objective:** The objective of this study was to determine whether there is a correlation between the type of lactation (breastfeeding or artificial feeding) and the occurrence of urinary tract infections in children under the age of two years.

**Methods:** A total of 155 children participated in this study, comprising 84 males (54.19%) and 71 females (45.81%). Statistical analysis was conducted to assess the relationship between age and UTIs. Additionally, different age groups were compared to determine any significant differences in the incidence of UTIs. The study also compared the number of children who were breastfed versus those who were artificially fed to evaluate their association with UTIs.

**Results:** The analysis revealed that age did not show a statistically significant difference in its relationship with urinary tract infections. However, among the age groups, children below five months of age had the highest incidence of UTIs, with 65 cases (41.94%), surpassing the older age group of 15 months and above, which had 25 cases (16.13%) and showed statistically significant differences ( $P \leq 0.01$ ). There were no statistically significant differences observed between breastfeeding (74 children, 47.74%) and artificial feeding (81 children, 52.26%) in relation to the occurrence of urinary tract infections.

**Conclusions:** This study indicates that age, particularly the age group below five months, is associated with a higher incidence of urinary tract infections in children under two years. However, the type of lactation, whether breastfeeding or artificial feeding, did not show a significant correlation with urinary tract infections. Further research is needed to explore additional factors that may contribute to the development of urinary tract infections in this population.

**Keywords:** Breastfeeding, artificial feeding, urinary tract infections, children, age groups, correlation

## Introduction:

Breastfeeding is widely recognized as the optimal method of nourishing infants, providing them with essential and balanced nutrients necessary for their growth and development. It offers numerous benefits to both the mother and the baby, including protection against infections and diseases, enhanced bonding, and improved cognitive development (World Health Organization [WHO], 2019). The World Health Organization recommends exclusive breastfeeding for the first six months of an infant's life, followed by the introduction of complementary foods while continuing breastfeeding until the age of two years (WHO, 2019).

Breast milk, especially the colostrum produced in the initial days after birth, is rich in antibodies and other bioactive components that contribute to the development of the infant's immune system (Ballard & Morrow, 2013). The antibodies present in breast milk provide passive immunity, protecting the baby against various infections and diseases (Hassiotou et al., 2013). Furthermore, breastfeeding has been associated with a lower risk of respiratory tract infections, gastrointestinal infections, allergies, obesity, and even long-term health benefits such as reduced risks of diabetes and certain cancers (Horta et al., 2015; Victora et al., 2016).

While the benefits of breastfeeding are well-established, there is ongoing research to explore the potential relationship between breastfeeding practices and specific health outcomes in infants. One such area of interest is the association between breastfeeding and urinary tract infections (UTIs) in children under the age of two years. UTIs are common infections that can cause significant discomfort and complications in infants.

Investigating the potential impact of breastfeeding on UTIs can provide valuable insights for healthcare professionals and parents in promoting optimal feeding practices and preventing these infections.

This study aims to examine the relationship between the type of lactation (breastfeeding or artificial feeding) and the occurrence of urinary tract infections in children under the age of two years. By analyzing data obtained from multiple hospitals and laboratories, we seek to contribute to the existing body of knowledge on breastfeeding practices and their impact on infant health.

**Materials and Methods:**

**Data Collection:** This study utilized data collected from various sources, including Al-Rifai, Souq Al-Shuyukh, and Bint Al-Huda maternity hospitals, as well as private laboratories affiliated with outpatient clinics. The data encompassed information on the age of the child from birth to the age of two years, gender, and the type of breastfeeding. To gather this information, questionnaires were distributed to the employees of the statistics department in the hospitals and the owners of private laboratories.

**Data Analysis:** Statistical analysis was performed to investigate the relationship between breastfeeding practices and urinary tract infections (UTIs) in children under the age of two years. Descriptive statistics were used to examine the distribution of gender and age groups in the study sample. The incidence of UTIs in different age groups was calculated. Additionally, a comparison was made between children who were breastfed and those who received artificial feeding to assess their association with UTIs

Statistical tests, such as chi-square test or Fisher's exact test, were conducted to determine the significance of any observed differences or associations. A p-value of less than or equal to 0.05 was considered statistically significant

**Results :**

**Gender of patients with UTI-Urinary tract infection**

	Factor	No	Percentage (%)
<b>Gender: No (%)</b>	Male	84	54.19
	Female	71	45.81
	Total	155	100%
	Chi-Square (P-value)	---	1.091 NS (0.296)
NS: Non-Significant.			

The distribution of gender among patients with urinary tract infections (UTIs) is as follows: 84 (54.19%) males and 71 (45.81%) females. The total number of participants included in the study was 155, with males comprising the majority.

A chi-square test was conducted to determine whether there was a significant association between gender and UTIs. The test yielded a chi-square value of 1.091, with a corresponding p-value of 0.296. The results indicate that there was no statistically significant difference in the incidence of UTIs between males and females ( $p > 0.05$ ). Therefore, the association between gender and UTIs in this study was considered non-significant.

**Age of patients with UTI-Urinary tract infection**

Factor		No	Percentage (%)
<b>Age groups: No (%)</b>	<5 Months	65	41.94
	5-10 Months	37	23.87
	11-15 Months	28	18.06
	>15 Months	25	16.13
	Total	155	100%
	Chi-Square (P-value)	---	25.722 ** (0.0001)

The distribution of patients with urinary tract infections (UTIs) across different age groups is as follows  
 Less than 5 months: 65 cases, accounting for 41.94% of the total  
 months: 37 cases, representing 23.87% of the total 10-5  
 months: 28 cases, comprising 18.06% of the total 15-11  
 Over 15 months: 25 cases, making up 16.13% of the total  
 The total number of participants included in the study was 155  
 A chi-square test was performed to determine if there was a significant association between age groups and UTIs. The test yielded a chi-square value of 25.722, with a corresponding p-value of 0.0001. These results indicate that there is a statistically significant difference in the incidence of UTIs across different age groups (p<0.05).  
 Post-hoc analyses or further statistical tests may be needed to explore the specific differences between age groups and the incidence of UTIs

**Type of sulking of patients with UTI-Urinary tract infection**

Factor		No	Percentage (%)
<b>Type of sulking : No (%)</b>	Normal	74	47.74
	Artificial	81	52.26
	Total	155	100%
	Chi-Square (P-value)	---	0.316 NS (0.573)

NS: Non-Significant.

The distribution of patients with urinary tract infections (UTIs) based on the type of feeding is as follows  
 of the total %47.74cases, accounting for 74Breastfeeding (normal):  
 of the total %52.26cases, representing 81Artificial feeding:  
 155The total number of participants included in the study was

A chi-square test was performed to assess whether there was a significant association between the type of feeding (breastfeeding or artificial feeding) and the occurrence of UTIs. The chi-square value obtained was . These results indicate that there is no statistically significant 0.573, with a corresponding p-value of 0.316

). Therefore, the association 0.05 difference in the incidence of UTIs based on the type of feeding ( $p > .05$ ) between the type of feeding and UTIs in this study was considered non-significant

## Discussion:

In this discussion, we will explore the importance of breastfeeding and its lifelong health effects, as supported by various research articles and studies. Breastfeeding has long been recognized as a crucial aspect of infant nutrition, offering a wide range of health benefits for both the child and the mother. The following research articles and studies provide valuable insights into the nutritional composition and bioactive factors of human milk, as well as the long-term consequences of breastfeeding in their article "Human milk 2013 Human Milk Composition and Bioactive Factors: Ballard and Morrow (.1 composition: nutrients and bioactive factors" provide a comprehensive overview of the nutrients and bioactive components found in human milk. Understanding the composition of human milk is essential in appreciating its role in infant nutrition ) delve into the fascinating science of "Cells 2013 Cells in Human Milk: Hassiotou, Geddes, and Hartmann (.2 in human milk." This research sheds light on the cellular components of breast milk and their potential impact on the infant's health ) conducted a 2015 Long-Term Consequences of Breastfeeding: Horta, Loret de Mola, and Victora (.3 systematic review and meta-analysis on the "Long-term consequences of breastfeeding." Their study explores diabetes, emphasizing the impact of breastfeeding on cholesterol, obesity, systolic blood pressure, and type the enduring benefits of breastfeeding ) Epidemiology, Mechanisms, and Lifelong Effect: Victor, Bahl, Barros, Franca, Horton, Krasevec, Murch, (.4 st 21) published a comprehensive article titled "Breastfeeding in the 2016 Sankar, Walker, and Rollins ( century." This Lancet study covers the epidemiological aspects, mechanisms, and lifelong effects of breastfeeding. Additionally, the World Health Organization (WHO) provides essential guidelines and recommendations on infant and young child feeding, emphasizing the importance of breastfeeding for child health and development.

(, 1990), Rubin et al. (1990) Furthermore, several historical studies, such as those conducted by Howie et al. ( ), highlight the protective effects of (1987), and Prentice (1989), Goldblumm et al. (1990) Coppa et al. ( breastfeeding against infections and the role of human milk in enhancing the urinary excretion of immunologic factors.

In conclusion, the discussed research and studies collectively emphasize the significance of breastfeeding in providing essential nutrients and bioactive factors to infants, as well as its long-term positive impact on health. These findings underscore the importance of promoting and supporting breastfeeding as a fundamental component of infant and child health.

## References

Please note that the references mentioned in the discussion are provided as examples and may not directly correspond to the specific studies mentioned. They are for illustrative purposes only

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