

Relationship Between Breast Milk Feeding and COVID-19 Incidence in Children Aged 0-2 Years at Siloam Hospital Kelapa Dua During The Pandemic

Jovanicha P. Setiawan¹, Dwi S. Rivami¹

¹ Faculty of Medicine, University of Pelita Harapan, Jendral Sudirman Boulevard, Lippo Karawaci, Tangerang, Indonesia 15811

Abstract

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Correspondance: Jovanicha Putri Setiawan.

E-mail: jovanichasetiawan@gmail.com

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Background: The COVID-19 pandemic has claimed more than 6 million lives worldwide, and children are not spared from its danger. Breast milk is known to protect babies from various kinds of infections. Until now there are few data regarding the relationship between breastfeeding and the incidence of COVID-19 in children aged 0-2 years in Indonesia. This study aims to further examine the relationship between breastfeeding and the incidence of COVID-19 in children aged 0-2 years. Siloam Hospitals Kelapa Dua (SHKD) was chosen as a location because it was one of the referral hospitals for treating COVID-19 for pediatric patients in Tangerang that can be accessed by the researcher.

Methods: This study was conducted using a cross-sectional study method on a sample of children aged 0-2 years from the medical record database of Siloam Hospitals Kelapa Dua for the period 2020 to 2022.

Result: Upon calculation, it was found that the p-value is 0,154 ($p > 0,05$). From 61 sample, 37,7% of the samples were breastfed and 44,3% was COVID-19 positive.

Conclusions: No significant relationship was found between breastfeeding and COVID-19 infection among children aged 0-2 years old in SHKD.

Introduction

Breast milk is considered the best natural food for newborns as it satisfies the energy and nutritional needs of children up to 6 months of age.¹ It contains protective factors that shield children from infections like diarrhea, ear inflammation, cough, and cold.² The World Health Organization (WHO) recommends exclusive breastfeeding for the first six months, followed by continued breastfeeding alongside complementary foods until the child reaches two years of age.³

The Coronavirus Disease 2019 (COVID-19) pandemic has caused about 158,000 deaths in Indonesia as of October 2022. Children are not exempt from COVID-19 infection and are at risk of complications like mild to severe pneumonia.⁴ COVID-19 in children typically presents with mild symptoms such as cough, fatigue, nasal congestion, and fever, along with digestive symptoms like nausea, vomiting, and diarrhea. However, severe complications like Acute Respiratory Distress Syndrome (ARSD) and septic shock can still occur.⁵

This study aims to explore the relationship between breastfeeding and the incidence of COVID-19 in children aged 0-2 years. Given the previous studies by Pérez et al. (2021) and Nurhidayah et al. (2021) have shown conflicting results, this study aims to further investigate the relationship between breastfeeding and COVID-19, ^{4,6} This age group is chosen because they are still recommended by WHO to receive breast milk. SHKD Hospital in Tangerang was chosen as the sample collection site since it is one of the hospitals that treats COVID-19, including pediatric patients from many regions of Indonesia as well.

Material And Methods

This research was carried out at Siloam Hospitals Kelapa Dua from January to March 2023, adopted a non-paired categorical comparative analytic study with a cross-sectional design, focusing on secondary data from medical records between March 2020 and December 2022. The study targeted infants and children aged 0-2 years receiving breast milk, specifically from Siloam Hospitals Kelapa Dua, chosen through purposive sampling based on inclusion and exclusion criteria. The initial sample size calculated was 45, which was increased by 10% to 50 to account for variability.

The inclusion criteria were children in the specified age group treated at SHKD with documented COVID-19 status confirmed by PCR or antigen swab tests, and having information about breastfeeding in their records. Exclusion criteria encompassed factors like low birth weight, a history of premature birth, and incomplete immunization history. The data were transferred to Microsoft Excel (2021) and processed using SPSS software for analysis.

Ethical approval for the study was obtained from the Ethics Committee of the Faculty of Medicine at Universitas Pelita Harapan. The necessary permissions for using the medical records were granted by the hospital, ensuring compliance with ethical standards in the research process.

Result

The highest percentage of children receiving breast milk were those aged 0 years, accounting for 60.9%. In terms of gender, the majority of breastfed children were female, with 65.2% of all female samples consuming breast milk. Geographically, the majority of the samples originated from the Banten province, comprising 47.8%.

Table 1. The Profile of Breastfeeding in Children Aged 0-2 Years at SHKD

Variabel	Breastfed		Total
	(+)	(-)	
Age	0	14	24
	1	7	8
	2	2	6
Sex	Male	8	23
	Female	15	15
Provence	Banten	11	16
	Jakarta	2	4
	West Java	2	4
	Central Java	1	0
	North Sumatra	1	0
	No Data	6	14
Total	23	38	61

The data also indicated that the majority of COVID-19 positive cases were among children aged 0 years, representing 55.6%. Concerning gender, the majority of COVID-19 positive cases were male, accounting for 59.3%, with most samples coming from Banten, making up 40.7%.

Table 2. The Profile of COVID-19 in Children Aged 0-2 Years at SHKD

Variabel	COVID-19		Total
	(+)	(-)	
Age	0	15	23
	1	9	6
	2	3	5
Sex	Male	16	15
	Female	11	19
Provence	Banten	11	16
	Jakarta	3	3
	West Java	3	3
	Central Java	0	1
	North Sumatra	0	1
	No Data	10	10
Total	27	34	61

In this study, the chi-square test was utilized to analyze the relationship between breastfeeding and the occurrence of COVID-19 in children aged 0-2 years at Siloam Hospitals Kelapa Dua. From the analysis, the p-value obtained was 0.154 (>0.05), indicating no significant relationship between breastfeeding and the occurrence of COVID-19 at Siloam Hospitals Kelapa Dua.

Table 3. The Relationship Between Breastfeeding and the Incidence of COVID-19

	COVID-19		Total	P Value	OR
	(+)	(-)			
Not Breast-fed	20	18	38	0,154	0,394 (0,132- 1,174)
Breast-fed	7	16	23		
Total	27	34	61		

Discussion

The study on breastfeeding in Indonesia reveals that breastfeeding rates for children aged 0-2 years are significantly below WHO recommendations, with 62.29% of the sample at Siloam Hospitals Kelapa Dua not breastfed at the time of their medical records. This aligns with Suja et al. (2022)'s findings of inadequate breastfeeding practices in Indonesia, even in urban areas, due to factors like uneven

breastfeeding education, maternal employment, and education levels.¹⁰

Regarding gender, male children are less likely to be breastfed compared to females, a trend also noted by Shafer et al. (2017), though the reasons behind this remain unclear.¹¹ Geographically, breastfeeding rates are lower across all regions in Indonesia, consistent with findings by Suja et al. (2022), pointing towards similar influencing factors.¹⁰

In terms of COVID-19 incidence, infants aged 0 years are most affected, likely due to their inexperienced immune systems. Boys were found to be more susceptible to COVID-19, aligning with Purwati et al. (2022)'s research, suggesting biological factors in female children offer more resistance to viral infections.¹²

The study also observed a higher prevalence of COVID-19 in non-breastfed children aged 0-2 years. Previous studies have shown conflicting results on this relationship. While Pérez et al. (2021) in Spain found that breast milk containing antibodies against SARS-CoV-2 can benefit children, another study by Nurhidayah et al. (2021) in Central Java raised concerns about the vertical transmission of COVID-19 from mother to child through breastfeeding.^{4,6} This study however found a result more aligned with Pérez et al. (2021)'s study, where there is a possibility of protectivity between breastfeeding and COVID-19 incidence, instead of the possibility of increasing the incidence as Nurhidayah et al's theory might suggest. Pérez et al (2021), Pace et al (2021), and Dong et al (2020) suggests maternal immune cells are transferred to the child through breast milk, offering protection against various infectious diseases, including acute respiratory infections.⁶⁻⁸

However, this study is found contrasting with Verd et al. (2021)'s findings that indicated a significant correlation between breastfeeding and reduced COVID-19 incidence, in this study the difference is not found to be significant.¹³ Although, differences in sample size and data collection methods might explain this difference of outcome.

The study's strengths lie in its exclusion of confounding factors and its pioneering nature in the Indonesian context, but it faces limitations due to varied and incomplete medical record data.

Conclusion

Based on the research conducted regarding the relationship between breastfeeding and the incidence of COVID-19 in children aged 0-2 at Siloam Hospitals Kelapa Dua, it was found that the rate of breastfeeding among children aged 0-2 years at Siloam Hospitals Kelapa Dua is 37.7%. Notably, a large proportion of these breastfed children are infants aged 0 years (60.9%) and the majority are female (65.2%). Regarding the incidence of COVID-19, it was observed that the virus more commonly infected children at the age of 0 years (55.6%), with a higher incidence in male children (59.3%) compared to females. The majority of these pediatric COVID-19 cases were from the Banten region, accounting for 40.7%. Interestingly, the study concluded that there is no significant correlation between breastfeeding and the occurrence of

COVID-19 in children within this age group at Siloam Hospitals Kelapa Dua.

This study holds significant relevance, particularly in understanding public health dynamics during the COVID-19 pandemic. It offers crucial insights into breastfeeding rates and practices among infants and toddlers, enhancing our understanding of maternal and child health in this demographic. Importantly, the research reveals that there is no significant link between breastfeeding and the incidence of COVID-19 in children aged 0-2, providing vital information for healthcare decisions. This finding is instrumental in guiding healthcare policies and parental choices, reassuring that breastfeeding, with its well-documented health benefits, does not elevate the risk of COVID-19 in young children, thus aiding in developing comprehensive pediatric care strategies during the pandemic.

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