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Description of breastfeeding success in babies aged 0-6 months born to positive COVID-19 mothers at Anwar Medika General Hospital, Sidoarjo

Valentina Febriyanti ¹, Dwiyantri Puspitasari ^{2,*} and Lilik Djuari ³

¹ Midwifery Program, Faculty of Medicine, Airlangga University, Surabaya, Indonesia.

² Department of Pediatric, Faculty of Medicine, Airlangga University, Surabaya, Indonesia.

³ Department of Public Health and Preventive Medicine, Faculty of Medicine, Airlangga University, Surabaya, Indonesia.

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Abstract

According to the World Health Organization, breastfeeding is a natural way to provide nutrients that are very beneficial for the growth and development of babies. Breast milk is the best nutrition that babies need because it contains various substances and antibodies that can increase the body's immunity so it can become a protector (immune) for babies from all types of infections. During the COVID-19 pandemic, WHO and UNICEF suggest breastfeeding even if the mother is COVID-19 suspected/confirmed. The benefits of breastfeeding outweigh the risks of transmission. However, the infection prevention and control must be strictly applied when breastfeeding. This study aims to describe the success of breastfeeding in infants aged 6-12 months born to mothers positive for COVID-19. This research used a quantitative descriptive study design with a cross-sectional approach. Questionnaires were given to 76 mothers with a positive history of COVID-19. The data analysis used was univariate. The results showed that the majority (67.1%) of mothers with positive COVID-19 had received communication, information, and education (CIE) while being treated at the hospital. Most (59.2%) of COVID-19-confirmed mother unable to provide exclusive breastfeeding to their babies. Majority (89.5%) of them have implemented health protocols when breastfeeding well. There was no COVID-19 vertical transmission from mother to child during delivery or breastfeeding in 89.5% and 93.4% subjects, respectively.

Keywords: Breastfeeding; breastmilk; Exclusive breastmilk; COVID-19; CIE; Health Protocol; Vertical Transmission of COVID-19

1. Introduction

According to the World Health Organization, breastfeeding is a natural way to provide nutrients that are very beneficial for the growth and development of babies. Breast milk is the best nutrition that babies need because it contains various substances and antibodies that can increase the body's immunity so that it can become a protector (immune) for babies from all types of infections [1]. Exclusive breastfeeding is for babies aged 0-6 months who are given only breast milk without being given other food or fluids except vitamins and drugs recommended by health workers for medical reasons [2]. Based on data from the health profile of East Java Province, the coverage of exclusive breastfeeding for infants in East Java in 2020 has decreased by 61.0% compared to 2019 (68.2%). This decrease was due to the COVID-19 pandemic, causing the number of targets examined to decrease. However, this coverage was already above the RPJMN/*Rencana Pembangunan Jangka Menengah Nasional* target in 2020 (40%) [3]. Based on data from the health profile of Sidoarjo Regency, the coverage of exclusive breastfeeding for babies less than six months in 2020 in Sidoarjo Regency was 64.04%, it was lower than the achievement in 2019, which was 70.28% [4]. During the COVID-19 pandemic, WHO and UNICEF suggest breastfeeding even if the mother is COVID-19 suspected/confirmed. The benefits of breastfeeding outweigh the risks of transmission. However, the infection prevention and control must be strictly applied when breastfeeding. It aims to prevent transmission of the virus from mother to baby. This recommendation is based on full

* Corresponding author: Dwiyantri Puspitasari

consideration not only of the risk of transmitting COVID-19 to the infant but also the risk of morbidity and mortality if the infant does not get breast milk or uses an incorrect breastmilk substitute [5,6].

Various factors that can influence the success of breastfeeding during the COVID-19 pandemic include the knowledge, attitude, and psychological factors of the mother [7]. Current evidence shows support for breastfeeding, including skin-to-skin contact and exclusive breastfeeding from the start when a baby is born can help the baby develop so that there is no reason to stop breastfeeding even after the SARS-CoV-2 virus spread around the world [8]. Infants who are not exclusively breastfed have a 14-fold higher risk of death compared to infants who are exclusively breastfed [9]. A study from WHO shows that the current evidence is still limited to concluding the vertical transmission of COVID-19 through breastfeeding. The risk of infection with COVID-19 in infants is low and usually mild or asymptomatic [10].

2. Materials and methods

It is a descriptive-quantitative study, with primary data obtained from questionnaires and secondary acquired from the electronic medical records of mothers who gave birth positive for COVID-19 at Anwar Medika General Hospital, Sidoarjo from May until December 2021. This study included 76 cases of mothers with positive COVID-19. The inclusion criteria were COVID-19-positive birth mothers with a history of vaginal delivery and cesarean section in May-December 2021 at Anwar Medika Sidoarjo General Hospital. They had babies aged 6-12 months with no congenital abnormalities or chronic diseases. All of the subjects were willing to be respondents. The data taken from the electronic medical records was the patient's telephone number. Collected data were recorded for entry and processed using Microsoft Excel and SPSS.

3. Results and discussion

Respondents in this study were positive COVID-19 birth mothers with a history of vaginal delivery and cesarean section in May-December 2021 at Anwar Medika General Hospital Sidoarjo and had babies aged 6-12 months at the time of the study.

Table 1 The Characteristics of Respondents

Variable	Frequency	Percentage (%)
Age of Respondents		
20 - 35 years	69	90.8%
>35 years	7	9.2%
Total	76	100%
Parity		
Primiparous	58	76.3%
Multiparous	18	23.7%
Total	76	100%
Education		
Middle education	52	68.4%
Higher Education	24	31.6%
Total	76	100%
Occupational Status		
Doesn't work	44	57.9%
Working	32	42.1%
Total	76	100%

The results of this study indicate that the age of mothers giving birth and breastfeeding dominated by reproductive age who was not at risk, namely aged 20-35 years (90.8%). This finding is in line with the opinion of Hidajati (2012) in the research article by Novita E. *et al* (2022). It states that the age of 20-35 is considered a safe age for pregnancy, childbirth, and breastfeeding. During this period, healthy reproduction and appropriate age support exclusive breastfeeding. The age at risk is under 30 years and over 35 years. The results showed that for mothers who gave birth positive for COVID-19 in May-December 2021 at Anwar Medika Sidoarjo General Hospital, the majority of parity status mothers were primiparous (76.3%) while 23.7% were multiparous. According to Norma, Hi Mabud (2014) in a research article by Novita, E., *et al* (2022) stated that parity status is related to exclusive breastfeeding because the mother's experience certainly influences the actions and the decision-making for exclusive breastfeeding. Primiparous respondents are 1.5 times more at risk of not giving exclusive breastfeeding when compared to multiparous respondents [11].

The results of this study indicate that majority of respondents have a secondary education level, namely 68.4%. This finding was in line with Mardeyanti's research (2013) in the research article Umami, W. and Ani M. (2018) which found a relationship between the education level of breastfeeding mothers and exclusive breastfeeding and concluded that a low level of education could increase the risk of mothers not breastfeeding exclusively [12].

The result showed that 44 respondents in this study did not work (57.9%). The results were also in line with a study by Laksono A.D., *et al* (2021) which showed the influence between mothers' education on exclusive breastfeeding. Other variables such as the mother's age, employment status, baby's age, and place of residence are some predictors that can affect the success rate of exclusive breastfeeding in Indonesia [13]. This result was different from the opinion of Amiruddin (2007) in the research article by Umami, W. and Ani M. (2018) which suggests that mothers who do not work or have low socioeconomic status have a greater opportunity to breastfeed than mothers with high socioeconomic status. Low economic conditions encourage mothers to prefer breastfeeding because of the low purchasing power of formula milk [12].

Table 2 Distribution of CIE Frequency Obtained by Respondents

CIE	Frequency	Percentage (%)
Once	51	67.1%
Never	25	32.9%
Total	76	100%

Based on table 2, the majority (67.1%) of mothers in labor with positive COVID-19 in May-December 2021 at Anwar Medika Sidoarjo General Hospital had received CIE while being treated at the hospital. Based on the results of this study, there were still respondents who had never received CIE about breastfeeding during a pandemic (table 2). This discovery should raise awareness among health workers to increase CIE in mothers with positive COVID-19 who were undergoing treatment in the isolation room. According to Sudarma and Momon (2018) in Widyarini's thesis report, Ni Putu Wahyu (2021) states that the sources of information obtained have a positive impact on behavior so that individuals can demonstrate healthy attitudes and lifestyles [14]. Several researchs show that mother's knowledge obtained from counseling or CIE is significantly related to breastfeeding behavior as research conducted by Tamrin SA, *et al* (2019) shows that there is a significant relationship between knowledge about breastfeeding techniques and the success of exclusive breastfeeding in the Prawirodirjan sub-district, the working area of the Gondomanan Health Center Yogyakarta in 2019 [15].

Based on table 3, the majority of mothers with positive COVID-19 in May-December 2021 at Anwar Medika Sidoarjo General Hospital did not breastfeed their babies when they were positive for COVID-19 but the majority, namely 88.2% of respondents, breastfed their babies when tested negative for COVID-19 (table 3).

This result is in line with qualitative research by Meilinda (2021) showed from in-depth interviews that mothers who are confirmed positive for COVID-19 can still breastfeed their babies but must still apply strict health protocols. Mothers who are confirmed positive for COVID-19 must be worried about transmitting the virus to their babies, so mothers tend to be reluctant to breastfeed their babies directly [16].

Table 3 Frequency Distribution of Respondents Breastfeeding When Tested Positive/Negative for COVID-19

Condition(s)	Frequency	Percentage (%)
Breastfeeding When Positive for COVID-19		
Yes	19	25.0%
No	57	75.0%
Breastfeeding When Negative for COVID-19		
Yes	67	88.2%
No	9	11.8%
Total	76	100%

Most respondents did not breastfeed their babies when they were positive for COVID-19. This finding was also supported by the research article by Larasati, M., and Titin (2021) which explained that the choice of nutrition for infants of mothers with COVID-19 in the hospital depends on the mother's health condition, whether asymptomatic, mild, moderate, or severe maternal conditions. Breast milk is the best food for newborns. Hence, formula milk has to be given to babies only based on particular considerations regarding aspects of the mother and the baby. For example, contraindications for giving breast milk to babies and contraindications if the baby gets breast milk [17].

Table 4 The Successful Breastfeeding for Babies ≥ 6 Months

Category(s)	Frequency	Percentage (%)
The Successful Breastfeeding for Babies ≥ 6 Months		
Succeed	53	69.7%
Not successful	23	30.3%
The Successful Exclusive Breastfeeding		
Succeed	31	40.8%
Not successful	45	59.2%
Total	76	100.0%

Table 4 illustrates that 53 (69.7%) respondents managed to breastfeed their babies at ≥ 6 months old. However, it shows that as many as 45 (59.2) mothers tested positive for COVID-19 in May-December 2021 at Anwar Medika Hospital Sidoarjo were unable to provide exclusive breastfeeding to their babies because they gave formula milk and other food or additional fluids before the baby six months old (table 4).

The determination of successful breastfeeding was based on indicators in the operational definition of this study which are breastfeeding while positive for COVID-19 for six months without giving formula milk, other additional food, and beverage or breastfeeding after recovering from COVID-19 for six months without giving formula milk and any other food.

A research article by Nugraheningtyasari, N.A., et al (2018) shows that exclusive breastfeeding can also affect the nutritional status of children because exclusively breastfed babies have a better defense to infection than babies who are not [18].

The result of this study indicates that almost all respondents had properly implemented health protocols when breastfeeding, namely 68 (89.5%). The health protocol is a series of rules issued by the ministry of health regarding activity safety during the COVID-19 pandemic (table 5).

Table 5 Levels of Implementation of Health Protocols during Breastfeeding

Level of Implementation of Health Protocols During Breastfeeding	Frequency	Percentage (%)
Well	68	89.5%
Enough	8	10.5%
Total	76	100.0%

According to Rochmawati (2021), breastfeeding health protocols include washing hands, cleaning and disinfecting surfaces or items, cleaning all drinking equipment, and performing respiratory hygiene [19]. According to Riyadi (2020), the factors that affect a person's compliance include age, education, and work [20].

In Arisa, N. and Anjar Nurrohmah (2022) research article, most respondents were 20-35 years old, and the level of adherence to implementing health protocols when breastfeeding was in the less category [21]. It is different from this research that found most respondents are 20-35 years with a good level of implementation of health protocols [21]. This finding indicates that even though the subjects were in the same age group, a mother's knowledge, actions, and practices play a fundamental role in the success of implementing health protocols. Hence, Riyadi's opinion (2020) that stated maternal age contribute to her compliance needs to be reconsidered.

Another factor in the research by Arisa, Nur, and Anjar Nurrohmah (2022) that influences a mother's compliance in carrying out health protocols while breastfeeding is work. Working mothers interact with fellow workers so that knowledge transfer can also occur so the information obtained can provide a stimulus for compliance [21]. It is different with this research because most respondents did not work. However, the implementations of health protocols were in the 'good' category.

Table 6 The Vertical Transmission of COVID-19 During Childbirth

The Vertical Transmission of COVID-19 During Childbirth	Frequency	Percentage (%)
Yes	8	10.5%
No	68	89.5%
Total	76	100.0%

The results of this study indicate that almost all respondents, namely 68 (89.5%), did not experience the vertical transmission of COVID-19 during delivery (table 6).

Nasriyah, *et al* (2021) explained that it is unclear whether COVID-19 infection could pass through the transplacental route to the baby or not, although there have been cases of babies being infected with COVID-19 after birth. But, it needs validation whether the infection occurs in the womb, postnatal, or through delivery [22].

Table 7 The Vertical Transmission of COVID-19 During Breastfeeding

The Vertical Transmission of COVID-19 During Breastfeeding	Frequency	Percentage (%)
Yes	5	6.6%
No	71	93.4%
Total	76	100.0%

The result of this study indicates that almost all respondents, namely 71 (93.4%), did not transmit COVID-19 while breastfeeding (table 7).

The SARS-Cov-2 virus has not been detected in breast milk from mothers with suspected or confirmed COVID-19. There is no evidence that the virus is transmitted through breast milk. According to WHO (2020), the SARS-Cov-2 virus is new, so experts are still learning more about this virus. There is also no evidence that this virus is transmitted from pregnant women to their fetuses [23].

Based on various studies examining the presence of SARS-COV-2 in breast milk, most samples did not contain the virus. A few samples contained the virus but did not cause permanent harm to the baby. Babies who consumed breast milk from COVID-19 confirmed mothers had either a negative nasopharyngeal swab test result for SARS-CoV-2 or presented a mild clinical course. There is no significant evidence of mother-to-child transmission through breast milk. However, we must consider the probability of COVID-19 infection during breastfeeding, especially concerning skin contact with the breast. Potential antibodies against COVID-19 infections in breast milk include IgA and IgG [24].

4. Conclusion

Mothers who gave birth while tested positive for COVID-19 had received CIE while being treated at the hospital. However, most of them could not provide exclusive breastfeeding to their babies. Those who managed to breastfeed their babies had properly implemented health protocols during breastfeeding, and there had been no vertical transmission of COVID-19 from mother to baby during delivery or breastfeeding.

Compliance with ethical standards

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Disclosure of conflict of interest

The authors report no conflict of interest.

Statement of ethical approval

This study was approved by the health research ethics committee of faculty of medicine, Airlangga University (No. 185/EC/KEPK/FKUA/2022) on October 24th 2022.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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