

**DAMPAK PEMBERIAN INISIASI MENYUSU DINI DAN AIR SUSU IBU  
EKSKLUSIF PADA PERTUMBUHAN BAYI USIA SATU SAMPAI ENAM BULAN**  
*(Early Breastfeeding Initiation And Exclusive Breastfeeding Impact On Growth Of Baby  
From One To Six Months Of Age)*

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**ABSTRACT**

*Early breastfeeding initiation is provision of mother's breast milk to infant within one hour of birth. It is used to promote breastfeeding. Breastfeeding has many health benefit for infant because of its important nutritional contribution. Studies in developing countries has found that frequent breastfeeding is associated with greater linear growth. However, rate of exclusive breastfeeding is still low in many countries, among others, Indonesia (<40%). The low rate of exclusive breastfeeding may contribute to high malnutrition rate in children. This study aims to analyze early breastfeeding initiation and exclusive breastfeeding impact on growth of baby 1-6 months old. This is a prospective cohort study. No randomization was done. Body weight (BW), body length (BL) and head circumference (HC) were monitored and assessed monthly. Feeding options were asked monthly. Two groups available in this study were babies with early breastfeeding initiation continued with exclusive breastfeeding and babies without early breastfeeding initiation continued with exclusive breastfeeding. Sixty-seven samples were analyzed. No significant difference was found between babies who received early initiation of breastfeeding continued with exclusive breastfeeding in the 1<sup>st</sup> month in terms of BW ( $p=0.689$ ), BL ( $p=0.810$ ) and HC ( $p=0.820$ ), 2<sup>nd</sup> month BW ( $p=0.644$ ), BL ( $p=0.636$ ) and HC ( $p=0.483$ ), 3<sup>rd</sup> month BW ( $p=0.377$ ), BL ( $p=0.973$ ) and HC ( $p=0.580$ ), 4<sup>th</sup> month BW ( $p=0.899$ ), BL ( $p=0.269$ ) and HC ( $p=0.534$ ), 5<sup>th</sup> month BW ( $p=0.825$ ), BL ( $p=0.264$ ) and HC ( $p=0.454$ ), 6<sup>th</sup> month BW ( $p=0.131$ ), BL ( $p=0.914$ ) and babies who did not receive that. The only significant different was found in terms of HC ( $p=0.036$ ) between those group at 6<sup>th</sup> month observation. Early breastfeeding initiation continued with exclusive breastfeeding showed similar result with the other group in terms of BW, BL and HC for baby 1-6 months old except the HC in the sixth month.*

**Keywords:** *Early breastfeeding initiation, Exclusive breastfeeding, Growth.*

## ABSTRAK

Inisiasi Menyusu Dini (IMD) adalah bayi mulai menyusu sendiri dalam 1 jam setelah lahir. Inisiasi Menyusu Dini berperan meningkatkan pemberian Air Susu Ibu (ASI) eksklusif. Pemberian ASI merupakan nutrisi penting untuk kesehatan bayi. Studi di negara berkembang menemukan bahwa pemberian ASI berhubungan dengan pertumbuhan linier yang baik. Sayangnya angka pemberian ASI eksklusif masih rendah di banyak negara, antara lain Indonesia (40%). Rendahnya angka ASI eksklusif ini mungkin berperan pada tingginya angka malnutrisi pada anak. Penelitian ini bertujuan menganalisis dampak IMD dan ASI eksklusif pada pertumbuhan bayi 1-6 bulan. Desain penelitian ini adalah kohort prospektif, tidak dilakukan randomisasi. Setiap bulan dilakukan pengukuran dan penilaian berat badan (BB), panjang badan (PB) dan lingkar kepala (LK) serta pengumpulan data nutrisi yang diberikan. Terdapat 2 kelompok yaitu bayi dengan IMD dilanjutkan dengan ASI eksklusif dan bayi tanpa IMD dilanjutkan dengan ASI eksklusif. Terdapat 67 sampel yang dianalisis. Tidak didapatkan perbedaan bermakna antara kelompok yang mendapatkan IMD dilanjutkan dengan ASI eksklusif dan yang tidak dalam hal BB ( $p=0.689$ ), PB ( $p=0.810$ ) dan LK ( $p=0.820$ ) pada bulan pertama, BB ( $p=0.644$ ), PB ( $p=0.636$ ) dan LK ( $p=0.483$ ) pada bulan kedua, BB ( $p=0.377$ ), PB ( $p=0.973$ ) dan LK ( $p=0.580$ ) pada bulan ketiga, BB ( $p=0.899$ ), PB ( $p=0.269$ ) dan LK ( $p=0.534$ ) pada bulan keempat, BB ( $p=0.825$ ), PB ( $p=0.264$ ) dan LK ( $p=0.454$ ) pada bulan kelima dan BB ( $p=0.131$ ), PB ( $p=0.914$ ) pada bulan keenam. Satu-satunya perbedaan yang bermakna adalah pada LK pada bulan keenam ( $p=0.036$ ). Inisiasi menyusu dini yang diikuti pemberian ASI eksklusif tidak berbeda bermakna pada bayi usia 1-6 bulan kecuali untuk LK pada bulan keenam.

**Kata Kunci:** *Inisiasi Menyusu Dini, ASI Eksklusif, Pertumbuhan*

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## INTRODUCTION

Early breastfeeding initiation is provision of mother's breast milk to infant within one hour of birth. It is used to promote breastfeeding (Roesli, 2008; WHO, 2019). Early breastfeeding initiation

should be done for at least 1 hour, uninterrupted, because there are 5 stages of infant behavior needed to achieve successful first breastfeeding (Roesli, 2008). Implementation of early breastfeeding initiation promotes exclusive

breastfeeding and can prevent infant morbidity and mortality (Debes, 2013; Khan, 2015; WHO, 2019). Problem found in many countries is low rate of early breastfeeding initiation and exclusive breastfeeding, among others, Indonesia (<40% for initiation of breastfeeding and exclusive breastfeeding) (Insight, 2010; Kemenkes, 2014). Infants should be exclusively breastfed for the first six months of life to achieve optimal growth, development and health. Continued, frequent breastfeeding is associated with greater linear growth (WHO, 2019). This research aimed to see the impact of early breastfeeding initiation continued with exclusive breast feeding on growth for baby 1-6 months old.

## **METHODS**

This is a prospective cohort, observational study. Inclusion criteria were well baby who was born in Gotong Royong hospital from July 2019-January 2020 and parents were willing to participate in this study. Exclusion criteria was baby with poor health or congenital anomaly. Drop out criteria were parents who did not want to participate in this study, loss of contact with parents, baby cannot be examined during the 6-month follow up or baby and or mother died during the 6-month follow up.

Early breastfeeding initiation means

provision of mother's breast milk to infants within one hour of birth (WHO, 2019). Exclusive breastfeeding means the baby receives only breast milk, no other liquids or solids are given, not even water with the exception of oral rehydration solution or drops/syrups of vitamins, minerals or medicine (WHO, 2019). Growth was assessed by measuring body weight, body height and head circumference on monthly basis. The World Health Organization growth curves, which use the growth pattern of breastfed children as their standard were used to monitor growth. Information regarding nutrition was collected during those visits. Whenever there was a problem regarding growth problem arises, proper management was done by the research team. Two groups available in this study were babies with early breastfeeding initiation continued with exclusive breastfeeding and babies with/without early breastfeeding initiation and not continued with exclusive breastfeeding for a given period of observation. Appropriate-for age stimulation for optimal development was also given for both groups.

The COVID-19 pandemic has caused major disruption to this study because many parents did not want to be seen but still willingly contacted by phone calls. That was why, starting the 2<sup>nd</sup> month, not all baby was measured and assessed

directly (less than 67 samples) and data regarding nutrition was collected by phone calls (67 samples). Data analysis was done using SPSS. Analysis was done using t-test and Mann-Whitney.

**RESULT**

This research has been ethically approved by the Ethics Committee. The samples of this study were 70 babies born in Gotong Royong hospital from July 2019-January 2020 that met inclusion and exclusion criteria. There was no purposely grouping, all mothers were advised to exclusively breastfeeding. This research is a part of other research which aimed to seek the impact of early breastfeeding initiation on the health of mother and baby 0-6 months old. Because there were 3 drop out samples, only 67 samples were analyzed in this study. Due to COVID-19 pandemic, there was a constant decline in patients that were assessed directly from 67 samples in the 1<sup>st</sup> month, 66 samples in the 2<sup>nd</sup> month, 64 samples in the 3<sup>rd</sup> months, 55 samples in the 4<sup>th</sup> month, 43 samples in 5<sup>th</sup> month and 37 samples in the 6<sup>th</sup> month.

There was no significant difference in anthropometric measurement when the baby was born between those who got early breastfeeding initiation and those who did not get it (**Table 1**). There was a constant decline in number for baby who was given early breastfeeding initiation continued with exclusive breastfeeding from 20.89% in the 1<sup>st</sup> month to 13.51% in the 6<sup>th</sup> month (**Figure 1**).



**Figure 1.** Rate of early breastfeeding initiation and exclusive breastfeeding from 1 to 6 month

**Table 1.** Baseline anthropometric measurement at birth between early initiation breastfeeding for 1 hour and the other.

At birth (n=67)	Early initiation of breastfeeding for 1 hour (n=19, 28.4%)	No early initiation of breastfeeding for 1 hour (n=48, 71.6%)	p value
Body weight (gram) mean ± SD	2.9266,3 (414.45)	3.042.7 (433.31)	0.899
Body length (cm) Mean ± SD	49.7 (1.62)	49.5 (1.94)	0.384
Head circumference (cm) mean ± SD	33.2 (1.68)	33.4 (1.58)	0.628

As summarized in table 2, no significant difference was found between babies who received early initiation of breastfeeding continued with exclusive breastfeeding in the 1<sup>st</sup> month in terms of BW ( $p=0.689$ ), BL ( $p=0.810$ ) and HC ( $p=0.820$ ), 2<sup>nd</sup> month BW ( $p=0.644$ ), BL ( $p=0.636$ ) and HC ( $p=0.483$ ), 3<sup>rd</sup> month BW ( $p=0.377$ ), BL ( $p=0.973$ ) and HC ( $p=0.580$ ), 4<sup>th</sup> month BW ( $p=0.899$ ), BL ( $p=0.269$ ) and HC ( $p=0.534$ ), 5<sup>th</sup> month BW ( $p=0.825$ ), BL ( $p=0.264$ ) and HC ( $p=0.454$ ), 6<sup>th</sup> month BW ( $p=0.131$ ), BL ( $p=0.914$ ). The only significant difference found between those two groups was HC in the 6<sup>th</sup> month ( $p=0.036$ ).

## DISCUSSION

World Health Organization recommend to do early breastfeeding initiation. Early breastfeeding initiation is provision of mother's breast milk to infants within one hour of birth. Performing early breastfeeding initiation will provide colostrum for the newborn baby and also

increase the likelihood of performing exclusive breastfeeding for 4-6 months and increase the duration of giving breastfeeding (WHO, 2019). Riset Kesehatan Dasar found that early breastfeeding initiation rate was 34.5% in 2013 (Kemenkes, 2014). In this study, only 19 (28.4%) samples have early breastfeeding initiation for 1 hour. The reason for this action among others are the medical team is busy with other chores, mother feels tired, baby has successfully latch on, baby is sleeping, and parents think early initiation of breastfeeding less than one hour is enough.

Body weight, body length and head circumference at birth do not differ between group with early breastfeeding initiation for 1 hour and group without early breastfeeding initiation for 1 hour ( $p=0.899$ ;  $p=0.384$  and  $p=0.628$ ). It implies that at the beginning, those group have similar data regarding anthropometric measurement at birth.

**Table 2.** Baseline anthropometric measurement at 1 to 6 month between early initiation breastfeeding for 1 hour and the other.

	Early initiation of breastfeeding for 1 hour	No early initiation of breastfeeding for 1 hour	p value
<b>First month (n=67)</b>			
Body weight (gram) mean ± SD	4060.0 (552.28)	3988.1 (605.39)	0.689
Body length (cm) Mean ± SD	52.3 (1.87)	52.2 (2.43)	0.810
Head circumference (cm) mean ± SD	36.6 (1.58)	36.5 (1.50)	0.820
<b>Second month (n=66)</b>			
Body weight (gram) mean ± SD	5158.4 (683.93)	5061.1 (675.15)	0.644
Body length (cm) Mean ± SD	56.1 (1.99)	56.5 (2.49)	0.636
Head circumference (cm) mean ± SD	38.2 (1.30)	38.5 (1.28)	0.483
<b>Third month(n=64)</b>			
Body weight (gram) mean ± SD	6034.6 (766.86)	5828.4 (740.74)	0.377
Body length (cm) Mean ± SD	59.3 (1.88)	59.4 (2.33)	0.973
Head circumference (cm) mean ± SD	39.8 (1.80)	39.6 (1.32)	0.580
<b>Forth month (n=55)</b>			
Body weight (gram) mean ± SD	6502.7 (908.72)	6523.2 (847.62)	0.899
Body length (cm) Mean ± SD	61.6 (1.91)	62.4 (2.15)	0.269
Head circumference (cm) mean ± SD	41.0 (1.33)	40.7 (1.34)	0.534
<b>Fifth month(n=43)</b>			
Body weight (gram) mean ± SD	7222.5 (1475.81)	6919.2 (841.80)	0.825
Body length (cm) Mean ± SD	62.6 (2.86)	64.0 (2.42)	0.264
Head circumference (cm) mean ± SD	41.5 (1.73)	41.8 (1.24)	0.454
<b>Sixth month (n=37)</b>			
Body weight (gram) mean ± SD	7896.0 (1165.79)	7204.0 (894.25)	0.131
Body length (cm) Mean ± SD	65.4 (2.30)	65.6 (2.58)	0.914
Head circumference (cm) mean ± SD	44.3 (1.48)	42.6 (1.42)	0.036

Early breastfeeding initiation followed by exclusive breastfeeding shows consistent decline in number of exclusively breastfed baby as time goes by from 20.89% in the 1<sup>st</sup> month to 13.51% in the 6<sup>th</sup> month (figure 1). In this study, mother was always advised and supported to give exclusive

breastfeeding and educated about timely appropriate feeding for baby. Despite all the effort, rate of exclusive breastfeeding for 6 months is 29.9% (20 from 67 samples). Berhanu found that non-exclusive breastfeeding rate was found to be 47% (Berhanu, 2015). Survei Demografi dan

Kesehatan Indonesia (SDKI) found that exclusively breastfed baby at 6-month old was only 42% in 2012 (Kemenkes, 2014). While Muldiasman found that early breastfeeding alone contributes to stunting prevention in children 6-59 months old, breastfeeding has bigger impact for achieving optimal growth in children (Muldiasman, 2018; Giugliani, 2019).

This study found no significant different in babies who received early initiation of breastfeeding for 1 hours continued with exclusive breastfeeding and babies who did not received it in the 1<sup>st</sup> month in terms of BW ( $p=0.689$ ), BL ( $p=0.810$ ) and HC ( $p=0.820$ ), 2<sup>nd</sup> month BW ( $p=0.644$ ), BL ( $p=0.636$ ) and HC ( $p=0.483$ ), 3<sup>rd</sup> month BW ( $p=0.377$ ), BL ( $p=0.973$ ) and HC ( $p=0.580$ ), 4<sup>th</sup> month BW ( $p=0.899$ ), BL ( $p=0.269$ ) and HC ( $p=0.534$ ), 5<sup>th</sup> month BW ( $p=0.825$ ), BL ( $p=0.264$ ) and HC ( $p=0.454$ ), 6<sup>th</sup> month BW ( $p=0.131$ ), BL ( $p=0,914$ ). Exclusively breastfed infants show differentiated growth when compared to formula fed infants. Formula fed infants gain weight and increase their BMI more rapidly in the first 3-6 months of life than infants in exclusive or predominant breastfeeding (Giugliani, 2019). Exclusive breastfeeding of infants under 6 months is associated with higher mean length-for age and weight-for-age. Promotion of exclusive breastfeeding in low-income countries is important in

preventing growth retardation (Kuchenbecker, 2015). This study showed different result. The growth of both group is similar in terms of body weight and body length. It can be caused by the small sample size or by the intervention given by the research team to achieve optimal growth for both groups.

The only significant different was found between babies who received early breastfeeding initiation for 1 hour continued with exclusive breastfeeding in the 6<sup>th</sup> month in terms of HC ( $p=0,033$ ), despite intervention given by the research team to achieve optimal growth for both groups. Early breastfeeding initiation for 1 hour continued with exclusive breastfeeding group has a bigger head circumference in the 6<sup>th</sup> month observation compares to the other group. Several other studies show that exclusive breastfeeding  $\geq 4$  months decrease the risk of head circumference deficit. Exclusive breastfed infants do have better head circumference compared to formula fed infants (Jaldin, 2011; Ferreira, 2013; Ananta, 2016; Malekzadeh, 2019)

## CONCLUSION

Early breastfeeding initiation followed by exclusive breastfeeding for 6 months is the best for all baby. Whenever early breastfeeding initiation and exclusive breastfeeding for 6 months cannot be done, every attempt need to be done to achieve

optimal growth for those babies by providing optimal nutrition and continuous monitoring. Anthropometric assessment in this study shows similar result between 2 groups except for head circumference in 6 months.

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