



Does exclusive breastfeeding correlate with infant's early language milestone?☆



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Abstract

Objective: This study aims to assess the correlation between the exclusive breastfeeding status with infant's early language milestone.

Method: The design of this study is the correlational study with cross sectional method. This study examined 57 infants who lived around Harapan Raya Community Health Center Pekanbaru. The age of the infants was 6 months old during the data collection. The breastfeeding status was examined by using the questionnaire. The infants early language development was assessed by using the questionnaire which was modified from ELM Scale 2 (Early Language Milestone Scale 2). The data was analyzed by using the chi square or Fisher exact test to assess the correlation of exclusive breastfeeding status with each milestone on the 6 months infants language development.

Results: The study found that exclusive breastfeeding status has correlated significantly with two language milestones which are Auditory Expressive 6 (AE 6) the infant ability to produce mono babbling (0.044) and Auditory Receptive 6 (AR 6) the infant inhibit to 'no' (0.011).

Conclusions: This study found that exclusive breastfeeding has a correlation in infant language milestone. However due to small sampling size, further study needed to be done to assess the effect of breastfeeding for infants with the bigger scale of population.

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Introduction

Breastmilk is the ultimate food for infant. It contains fatty acid, amino acid lactose and water in the ideal amount for infants brain development. It is also contain a high level of docosahexaenoic acid (DHA; 22:6 n-3) and a major form of n-3 long-chain polyunsaturated fatty acids

(LC-PUFAs) which play an important role on neurotransmission and neurodevelopment.¹

There are many benefits of breastfeeding for children. Breastfeeding can prevent many infectious diseases such as respiratory tract and ear infection, gastrointestinal tract infection and enterocolitis. It also reduce the allergic incidence and the number of infant mortality. Moreover, infants who received the breastmilk experienced fewer incidence of chronic disease such as Diabetes Melitus, Leukemia and Obesity.²

Breastfeeding also gives positives outcome for children development. Breastfeeding for more than 4 months has been identified to have positive impacts on toddler fine motoric skill.³ Another cross sectional study about breastfeeding suggests that breastfeeding may prevent the speech and motoric delay on young children.⁴

Among the benefits of breastfeeding to the children early life development such as language and motor skill, the number study specifically assessed about the effect of breastfeeding to language development on early life is still limited. This study aims to assess the correlation between exclusive breastfeeding to infants early development milestone. More over this study will try to assess about the correlation between breastfeeding to each aspect of language development among infant.

Method

This study is a correlational study with cross sectional method. The sample was identified during the infants visit on Posyandu activity in Harapan Raya Community health center area of Pekanbaru. The sample of this study is 6 months old infants who attend the Posyandu for immunization.

The infant breastfeeding status were assessed by asking the mother whether they breastfeed exclusively or not. The latter is determined by mother response regarding how long her breastfed their children exclusively. Mothers who breastfed their infants exclusively for 6 months were categorized into exclusive breastfeeding group while the rest were categorized as non-exclusive breastfeeding group.

The infant language development was assessed by using ELM Scale 2 (*Early Language Milestone Scale 2*). There were 8 aspects of language skill assessed for 6 months infants including 4 aspects of auditory expressive skill, 2 aspects of auditory receptive skill and 2 aspects of visual skill. Each of language skill was analyzed separately by using chi square or Fisher exact analysis.

Result

The number of infants involved in this study is 57 infants. There were more number of male infants in this study as well as the exclusive breastfeeding infants. Majority of the mother were in reproductive age during the data collection. Majority of mother who were involved on this study were high school graduated (Table 1).

The infant language development was assessed by using ELM Scale 2. Table 2 shows that the exclusive breastfeeding infant has more percentage on language development almost on all aspects. All of the breastfeeding infants can pass the raspberry section compare to non-breastfeeding

Table 1 Characteristics of the study sample.

No.	Characteristics	(n)	(%)
1.	<i>Infant gender</i>		
	Male	34	59.6
	Female	23	40.4
2.	<i>Exclusive breastfeeding</i>		
	Yes	36	63.2
	No	21	36.8
3.	<i>Maternal age</i>		
	17–25	20	35.1
	26–35	33	57
	36–45	4	7.0
4.	<i>Maternal level of education</i>		
	Less than High School	15	28.3
	High School	26	45.6
	More than High School	16	28.1
Total		57	100.0

infant. However only the ability of producing polysyllabic babble correlates statistically significant to exclusive breastfeeding status (p -value 0.044).

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The infant language development was assessed by using ELM Scale 2. Table 2 shows that the exclusive breastfeeding infant has more percentage on language development almost on all aspects. All of the breastfeeding infants can pass the raspberry section compare to non-breastfeeding infant. The assessments of language development were assessed in three areas. The auditory expressive, auditory receptive and visual aspects. In the auditory expressive (AE) only AE 4 the ability of producing polysyllabic babble correlates statistically significant to exclusive breastfeeding status (p -value 0.044). In the auditory receptive (AR) aspects, exclusive breastfeeding status has significant correlation on AR 6 the ability inhibits to 'No' (p -value 0.011). This result shows that exclusive breastfeeding status has correlation with some aspects on early language infant development especially in the advance level. However it does not have correlation with the lower section of early language development.

Discussion

Language is important development on infant early life. Non-verbal communication developed well in the early life. The quality of reciprocal interactions between infant and caregiver is common type communication between caregiver and infant. The interactions started by making cooing and reciprocal vocal play between parent and child. This interaction started at 2 months. By age of 6–10 month children begin to produce babbling sound which adds consonants to vowels The increasing of the oral muscular control

Table 2 The infants language development.

No.	Language development	Exclusive breastfeeding	Non-exclusive breastfeeding	p-value
1	Raspberry (AE 4)	36 (100%)	20 (95.2%)	0.368*
2	Mono babble (AE 5)	28 (77.8%)	12 (57.1%)	0.100
3	Polysyllabic babble (AE 6)	12 (33.3%)	2 (9.5%)	0.044
4	Mama/Dada; any (AE 7)	8 (22.2%)	3 (14.3%)	0.729*
5	Bell (AR 5)	34 (94.4%)	16 (76.2%)	0.088*
6	Inhibits to 'No'; (AR 6)	15 (41.7%)	2 (9.5%)	0.011
7	Imitation gesture games (V7)	29 (80.6%)	17 (81.0%)	1.000*
8	1 step communication and gesture (V80)	3 (8.3%)	4 (19.0%)	0.404*

* were analyzed by using Fisher Exact Score.

facilitates the infants to make repetitive sounds such as "da-dada-da". Receptive language usually develops more rapidly than expressive language. Word comprehension begins to increase at age 9 months.⁵

This study found that exclusive breastfeeding infants have more percentage on the ability of receptive and expressive language compare to the non-breastfeeding infants. A cross sectional study found that the length of breastfeeding has positive impact in preventing the speech delay on infant.⁴ Breastfeeding has been associated with neurodevelopmental advantage. It has been believed that the long chain polyunsaturated fatty acid (LCPUFA) has positive advantage on infant motor development.⁶

Apart from the physiologic benefit of breastmilk, the psychological benefit of breastfeeding also contributes to the infant early language development. The mother–infant interaction during breastfeeding promotes bonding and stimulation which beneficial for infant limbic system and the cortical connection.¹

The process of early development of speech and language begins with the reflex mechanism as a basic stimulation for brain maturation, including primitive reflexes or long life reflexes which over time will disappear with increasing age.⁷ Reflex movement is a special ability possessed by babies from birth in the form of spontaneous movements that are active. Reflect rooting is the initial process of breastfeeding where the baby looks for the nipple, which is then followed by swallowing reflecting and reflecting. These reflexes arise during breastfeeding.⁸ The effect of breastfeeding is very influential on the development of children's speech abilities. Reflexes suck and swallow involving sound-forming muscles and play an important role in the development of speech and language skills.⁹

Several limitations need to be taken into account. This study has not consider the length of exclusive breastfeeding duration into account. The correlation only made into two basis exclusive breastfeeding group and non-exclusive breastfeeding group without considering the pre dominant

breastfeeding group. The language assessment only performed at a single time at Posyandu that might be affected the result.

Conclusions

This study found that exclusive breastfeeding has a correlation in infant language milestone. However due to small sampling size, further study needed to be done to assess the effect of breastfeeding for infants with the bigger scale of population.

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