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Psyche of Asian Society

Edited by
Aradhana Shukla, Anubhuti Dubey
Narendra Singh Thagunna

Concept

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Every culture has its own values and, of course, they are different in every walk of life with more or less magnitude. We can see a lot of variation in two cultures in regard to their way of thought, way of behaviour parameters and so many other things. Asia is a big continent and it covers fourty eight countries in its roof. These countries are somehow similar in traditions and behaviour performance and vice versa in some other respects of life. But it is quite sure that there is a common thread that links them in one single garland.

The aim of this volume is to collect the gems from entire Asia and bring them on one platform. There are twenty four articles in this volume. They reveal various aspects of the particular country where the work is done. Chapters are in theoretical and /or in empirical mode and we hope that they will provide good insight to the readers to move on their interest and research.

Psyche of Asian Society

About the Editors

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In our regular course of life we believe in our observations and dealing with different society we see that every culture has its own values and, of course, they are different in every walk of life with more or less magnitude. We can see a lot of variation in two cultures in regard to their way of thought, way of behaviour parameters and so many other things.

Keeping these views in consideration, this piece of work is planned and it deals with culture and psyche of Asian society. We have taken ample support and co-operation from many people. We are thankful to them and want to place our gratitude on records.

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24-Oct-2018

Aradhana Shukla
Anubhuti Dubey
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22

Exclusive Breastfeeding and Motor Development of Children Under Five

Comparative Studies in Toddlers in the Region of Central Java, Indonesia

Dinie Ratri Desiningrum, Narendra Singh Thagunna and *Anggun Resdasari Prasetyo*

Introduction

Children are the most valuable asset to any nation as they are the future. If children are not in good health (both physical and mental), it is certain that the nation will suffer. It is, therefore, important to pay attention to and prioritize the child's developmental needs. Many children experience disturbance in their development process for some reason or other. For example, children might experience speech delay, motor skills disturbance or in establishing social relations. All these phenomena show the need for a comprehensive understanding of the child's development (Pusponegoro, 2006).

Child's development is any changes that happen at the time of: infancy toddlerhood (age 0-3 years), early childhood (ages 3-6 years) and middle childhood (ages 6-11 years) (Santrock, 2011). The development of early childhood (ages 3-6 years) is different from the other ages. At this developmental period, the children are in the active mode with high exploration tendency, and a lot of movement, hence it needs to give the most appropriate stimulation. At this time, the closest environment is very important in determining the optimization of child's development (Soetjiningsih, 2001).

Early childhood is a time when children begin to be sensitive/ insensitive to receive a variety of stimuli (Arya, 2008). Sensitive period for each child is different, along with the rate of growth and development of child individually. Sensitive period is a period in which both the physical and psychological maturity functions are ready to respond to the stimulation provided by the environment. This period is also the time of the foundational basis to develop cognitive, motor, language, socio-emotional, religious and moral skills. The first year of a childhood is a crucial time that will affect the subsequent development phase (Berk, 2005).

Children aged less than five years endlessly explore the house, the surrounding yard, as well as schools and public facilities. Such activities that seem tireless make toddlers prone to accidents; that are still in the early growth and development stage. There are risk factors, such as burns, commonly happen to children under five, if the parents off guard, and it should be worried (Stewart *et al.,* 2016).

Children carry their parents' genetic make-up, so, that quite a lot of children have developmental disturbances due to lack of nutritional factors and in many cases children might also suffer from the disease and obesity due to genetic factor (Capelle *et al.,* 2017). Motor skills of children are also supported by nutritional factors. Motor skills are essential components of the various daily activities such as dressing, eating or playing. Lack of fine motor skills can cause the difficulties in academic achievement, the increasing of anxiety and the lowness of self-esteem in children (Gaul, & Issartel, 2016). Children's motor skills are associated with writing skills and reading ability speed (Julius, Rivka Meir, Nissim, & Japha, 2016). Physical ability, motor and intellectual development of preschool children are correlated (Dordić, Tubić, & Jakšić, 2016), that is why it is important to consider the children's motor condition in general.

Community, including parents, need to know the child's development and the factors that influence children to achieve optimization of the development. Such development is integrally powered by various factors, including biological factors, like genetic and nutrition influences, as well as psychological factors such as upbringing and playing environment (Maslihah, 2005). One of the factors that influence a child's development is nutrients obtained, including breastfeeding.

Breast milk is the best food for babies that should be specially given minimum until 6 months old. World Health Organization (WHO) conducted a study of a group of respondents in breastfeeding, and issued recommendations on the advice of breastfeeding (exclusive or partial) to

exclusive age (infants are only given breast milk without given any other fluids over 6 months). With the largest number of respondents, breastfeeding and medication for medical needs are done until the exclusive age of infants and continued breastfeeding up to 2 years (Habicht, & WHO Expert Consultation, 2004).

Breastfeeding is a multidimensional health behaviours influenced by the interaction of demographic, biological, psychological, and social factors. In the current social climate, breastfeeding is considered as the "golden standard" of infants' nutrition and optimal motherhood. This makes the most of the contemporary women begin to breastfeed after give birth (Peleg, Dardikman, Hermoni, & Ginzburg, 2015). Not all mothers are willing and able to breastfeed; the majority of post-birth mother had difficulty in providing breast milk to children, and decided to give formula milk or food additives since birth. It is influenced by many things.

There are internal factors that influence the behaviour of breastfeeding mothers; those are determination and motivation, self-prosperity, self-efficacy, anxiety and maternal affection formed (Peleg *et al.,* 2015; Charlick, Fielder, Pincombe, & McKellar, 2017; Pinto, Chaves, Duarte, Nelas, & Coutinho, 2016). Other internal factors are mother's age, parity (number of children) as adjusted by the body mass in pre-pregnancy index, body mass of pregnancy, complications of pregnancy, illness, smoking and alcohol drinking habits, the process of giving birth, and gender of the child (Kitano *et al.,* 2016; Pinto, *et al.*, 2016; Thet, Khaing, Smith, Sudhinaraset, Oo & Aung, 2016). Maternal health problems, both physical and psychological health, can influence the willingness of mothers to breastfeed. To illustrate, a mother in a state of postpartum depression can contribute to reduce the practice of exclusive breastfeeding (Silva, 2016).

In addition, there are also the external factors that influence the behaviour of breastfeeding mothers, including the support of inpatient and outpatient agencies after they gave birth and support from family members at home, especially their husband and mother (Gu Zhu, Zhang, & Wan, 2016; Thet *et al.,* 2016). Husband provides a support in nursing baby as well as facilitating the needs of mothers, including the giving of affection, so that, the mother is able to provide exclusive breastfeeding optimally. Individuals who live in the area are surely influenced by social demographic, including social and religion norms which are understood. Understood norms also affect the behaviour of breastfeeding mothers, so, they can motivate mothers to breastfeed exclusively (Charlick *et al.,* 2017; Pinto *et al.*, 2016).

In Islam, Allah commands in the *Qur'an*, Surah al-Baqarah: 233, mentions that a mother should breastfeed their babies until the age of two years, and there are virtue and goodness in it (*Qur'an*, 2010), namely optimal growth and development in children both in terms of physical, psychological and spiritual. The World Health Organization and other health organizations also recommend that mothers breastfeed their babies until the age of two years (World Health Organization, 2012) and motivate mothers to try paying attention to the time and duration of breastfeeding (United States Department of Health and Human Services, Centre for Disease Control and Prevention, 2014). Exclusive breastfeeding is important for neurological development of infants and overall (Lucas, & Judge, 2015). Exclusive breastfeeding is giving only breast milk, without formula milk or food additives, except for medical needs such as re-dehydration infants' liquid, vitamins, minerals and medications (American Academy of Pediatrics, 2012).

The duration of breastfeeding is influenced by many factors. Self-efficacy, psychological adjustment, body image, motivation and self-confidence are the important psychosocial factors involved in a woman's ability to maintain the duration of exclusive breastfeeding (Jager & Broadbent, 2015). A study of 133 healthy children aged 10 months to 4 years, with the first group of at least 3 months old of exclusive breastfeeding babies; the second group was given the formula milk; the third group received a mixture of breast milk and formula milk. It was then found that the exclusively breastfed children experience the increasing development of white matter of frontal brain functions, which are anatomically consistent in cognitive and behaviour performances. Constituents of breast milk boost the healthy nerve growth and development of white matter in the brain (Deoni *et al.,* 2013). In addition to cognitive abilities, the duration of breastfeeding also affects motor development of children aged 2-3 years. Moreover, it is advisable to pay attention to the amount of breast milk given during breastfeeding so that it meets the infants need, as well as the mother-child response (communication) because breastfeeding establishes the mother-baby attachment (Bernard *et al.*, 2012).

Big and small cities environment has a variety of different influences on child's development. Central Java is one of the major provinces in Indonesia. There is quite a lot of progress in terms of education, economy, technology and culture from external influence on society. In Central Java, particularly in big cities, people including the parents are knowledgeable enough about better ways to stimulate a child's

development, including knowledge about the importance of exclusive breastfeeding. According to the Semarang City Health Office in 2004-2008, the coverage of early detection of toddlers and pre-school development in Central Java Province amounted to 1.5583 million (56.31%) of the number of children under five, in which there are as many as 27,67,378 children under five. It appears that the data obtained only reflects a small portion of the total number of children under five in Central Java (Early Detection of Child's Development, 10 April, 2012).

The purpose of this study was to find out more about the relationship between exclusive breastfeeding and motor skills of children under five. The study was conducted to determine the gross and fine motor development of children, associated with given and not-given exclusive breastfeeding.

Physical Development Aspects

Physical development pattern on children (Desiningrum, 2012) consist of:

(i) *Cephalocaudal* or *head to tail direction* (from head to toe), e.g., lifting head first, then chest and lower extremity.
(ii) *Proximodistal* or *near to far direction* (moving the closest body parts from the centre to further ones), e.g., to move arms is easier for infants than to move fingers.
(iii) *Mass to specific* or *simple to complex* (from the easiest to more difficult movement), e.g., infants move shoulder first, then move fingers or wave hands, finally play with their fingers.

Motor Development Aspects

Motor development is the development of control to body movement through central nerve activities, nerve cords, and coordinated muscles (Hurlock, 2004). Infants' motor skills consist of gross motor skill and fine motor skill. Motor skills on 4-5 years old children grow mostly on gross motor skill, fine motor skill grows more on children older than 5 years old. According to Papalia (Papalia & Olds, 2008), bones and muscles of preschool children grow stronger, and their lungs' capacity get bigger thus enable them to run, jump and climb faster and further. Children develop simple movements such as jump-up and down and run back and forth. For those simple movements, children take the risks. Children are

able to climb a ladder with one feet quickly yet they just started learning to descent with the same way (Santrock, 2011).

Children psychomotor development is the most recognizable development by parents. Yet, most parents recognize psychomotor development is only about gross motor skill. Children's psychomotor skills are not only determined by gross motor skill but also fine motor skill. Gross motor skill usually recognized by muscle and body movements. On the other hand, fine motor skills are more about coordinated movements done by children.

Motor development on preschool (2-5 years old) (Desiningrum, 2012):

(i) Gross motor skill on children develops rapidly in this age, e.g., running and jumping which require large muscles capacity.
(ii) Fine motor skill such as buttoning shirt and drawing require coordination between smaller muscles and hand-eye coordination is also developed in preschool age. With the developments of those two motor skills children are able to be responsible to their personal needs.
(iii) On age of 3, children are able to do *handedness* (do things with one hand).

Research Methodology

This research used descriptive-comparative research design, a research using comparison method by comparing similarities and differences between two or more phenomena in order to find out factors causing those phenomena. According to the research objective, this research used cross sectional approach, a research design using measurements and observations at the same time between indicators of each variable (Hidayat, 2007).

This research was conducted in 6 months period, with 3 days effective observation time for each subject. This research was conducted to 3-4 years old children, 165 children who had exclusive breastfeeding and 135 children who never had exclusive breastfeeding (formula milk and additional food), they are from Semarang, Kendal, Jepara and Solo. This research used snowball sampling after obtaining informed consent from their mothers. The data were collected using observation sheet with observation guidance from Clark and McDowel (2008) adjusted to the observed motor development.

Variables in this research are: motor development as dependent variable and exclusive breastfeeding as independent variable. Data were collected using observation sheet. The observation results are tabulated and adjusted according to children' motor development and then analysed using descriptive statistics method by finding proportion and frequencies of subject's characteristics. To determine the size of data centre, the research used the following formula:

Formula for calculating Mean:

$$\text{Mean} = \frac{\Sigma X_1}{n} \quad \ldots (1)$$

Formula for calculating Standard Deviation:

$$\text{Std. Dev.} = \frac{\Sigma\left(X_i - \bar{X}\right)^2}{n-1} \quad \ldots (2)$$

The research used SPSS software (*statistical package for social sciences*) version 21.0.

Results

Tables 22.1 and 22.2 show the differences of motor skill on observed children, where gross motor development shows more often than fine motor development.

Table 22.3 shows that child's motor skill shows more often in children who had exclusive breastfeeding than children who did not have it.

Table 22.4 shows that Semarang and Solo region have higher average motor skill appearance than Kendal and Jepara region.

According to Mann Whitney test as shown in Table 22.5, calculated $Z = -2{,}694$ with p-value =.02. Due to p-value (0.02) < α (0.05), it is confirmed that there is a significant difference between exclusive breastfeeding and formula milk toward 7-12 months old infants' nutritional status in Central Java. This difference is shown in the result of univariate analysis in Table 22.3, where children with motor skill appear more frequently on infants who had exclusive breastfeeding (62.18%) than infants who never had exclusive breastfeeding (50.84%).

Discussion

Breast milk is the best food for infants which should be exclusively given to them exclusively for the first 6 months, without any supplementary

Table 22.1: Percentage of frequency of gross motor development on 3-4 years old children

No.	*Indicators of behaviour*	*With Exclusive Breastfeeding*	*Without Exclusive Breastfeeding*
1.	Running	94%	77%
2.	Going upstairs by Walking	54%	56%
3.	Riding 3 or 4-wheeled bicycle	75%	42%
4.	Catching a ball	67%	49%
5.	Tipping	86%	58%
6.	Jumping forward (±0.5 m)	69%	70%
7.	Performing hopscotch	60%	40%
	Mean	**72.14%**	**56%**

Table 22.2: Percentage of frequency of fine motor development on 3-4 years old children

No.	*Indicators of behaviour*	*With Exclusive Breastfeeding*	*Without Exclusive Breastfeeding*
1.	Having meal	58%	39%
2.	Arranging things	39%	33%
3.	Gluing	60%	62%
4.	Cutting	47%	49%
5.	Folding paper	53%	50%
6.	Applying soap	61%	48%
7.	Holding pencil correctly	54%	40%
8.	Colouring	39%	30%
9.	Buttoning clothes	59%	60%
	Mean	**52.2%**	**45.7%**

Table 22.3: Mean and Standard Deviation of Children's Motor Skill

Motor Skills	*With Exclusive Breastfeeding*	*Without Exclusive Breastfeeding*
M	62.18	50.84
SD	1.40856	0.73044

Table 22.4: Comparison of Children's Motor Skills according to Region

Criteria	*Semarang*	*Kendal*	*Jepara*	*Solo*
With Exclusive Breastfeeding	M: 65.13 SD: 1.5098	M: 55.39 SD: 1.0071	M: 57.11 SD: 1.1059	M: 62.19 SD: 1.3096
Without Exclusive Breastfeeding	M: 54.81 SD: 0.9138	M: 35.09 SD: 0.6098	M: 48.22 SD: 0.7954	M: 51.39 SD: 0.8945

Table 22.5: Differences between Exclusive Breastfeeding group and No exclusive Breastfeeding group children

Group	*N*	*Mean Rank*	*Z*	*P-Value*
With Exclusive Breastfeeding	165	13.53	–2,694	0,020
Without Exclusive Breastfeeding	135	21.47		

food or formula milk (WHO, 2012). After that, before they are two years old, breast milk is given with supplementary food (Quran, 2010). Breast milk contains essential nutrition for infants' growth and development and it is composed based on infants' daily need. Infants, who are exclusively breastfeed, tend to have better nutrition status since breast milk provides adequate nutrition needed (Atika, Susanti, & Setyowati, 2014).

Development is the pattern of progress or transformations during one's life. Development is considered as a progressive transformation process which is functionally qualitative and can be observed in both physical and psychological aspects. One of developmental tasks related to physical and motor developments in toddlers are: balanced body proportion, gaining height proximodistally, bone and mass development according to more complex fine-gross motor, and natural fat distribution on parts of the body (Desiningrum, 2012).

Adequate nutrition status enhances children development in general (Santrock, 2011), including motor development in toddlers. In Table 22.3, it is presented that the motor development of toddlers in Central Java is clearly observed who were exclusively breastfeed, which shows M=62.18 with SD=1.408, compared to those who are not exclusively breastfeed. The research shows that toddlers who are exclusively breastfeed have better nutrition status compared to those consuming formula milk or supplementary food during their 0-6 month age, thus their motor development is also supported by exclusive breastfeeding. In line with another research, the duration of exclusive breastfeeding has positively affected the motor development in toddlers (Grace, Oddy, Bulsara, & Hands, 2017).

The fact shows that there are parents, especially mothers, who really pay attention to their infants' nutrition status, in this case, breastfeed them exclusively so that there is a 62.18 per cent accomplishment of developmental tasks in motor development in toddlers. Breast milk is the most suitable diet for infants because of its nutritional values compared to baby diet made by human or animal milk, like cow milk, buffalo milk or goat milk (Atika *et al.,* 2014).

From Tables 22.1 and 22.2, the data presents frequency distribution of fine and gross motor skills in toddlers, where the mean of gross motor skills (71.14) is greater than fine motor skills (52.22) in group of toddlers who were breastfed exclusively. The fact is in line with toddler developmental tasks which define that motor development in toddler is initiated by gross motor skill like walking (Hurlock, 2004). Table 22.1 also presents the difference between toddlers who were exclusively breastfed and those who were not, which can be observed from gross motor skill like riding a bicycle, catching a ball, tipping and jumping on one dominating leg. Fine motor skills develop in line with those toddlers' growth (Papalia & Olds, 2008). Fine motor skills related to independent action like taking a bath or eating, usually can be accomplished faster, according to the result of this research which presents higher percentage in Table 22.2.

Gross motor skill is a good sign of nerve development at the early infancy and related to micronutrient status. However, it is difficult to evaluate psychomotor in early infancy. There is no clear agreement between parents and pediatrician on reasonable delay to be evaluated and intervented. Pregnancy, breastfeeding, and infancy are a period characterized by fast development, resulting in the risk of lacking micronutrient for both mother and baby. Exclusive breastfeeding for the first 6 months provide more data for micronutrient status for both mother and baby (Lise & Monsen, 2014).

The difference in motor development in toddlers, who were breastfed and those who were not, is clearly observed in some research areas. From Table 22.4, it can be seen that the area in Semarang and Solo provide higher frequency distribution of motor skill achievement compared to two other areas, Kendal and Jepara which are assumed that the residents of those area are in different level of understanding on exclusive breastfeeding. In line with the face, it was observed that mother's level of education and socio-economic status has a negative correlation to exclusive breastfeeding (Silva *et al.,* 2016; Thet *et al.,* 2016). The virtue of exclusive breastfeeding is well acknowledged and is believed to support development in children, while for toddlers who were exclusively breastfed, yet experiencing malnutrition, it is generally caused by factors related to mothers like psychological factors or food consumed by mothers and the consumed food is closely related to their socio-economic condition (Prasetyono, 2009).

Based on Table 22.5, there is a result of Mann-Whitney Test which was used to define the differences of motor skills in toddlers aged 3-4

years old which were both breastfed and not, in Central Java, and shows the value of calculated Z = –2.694 with p-value =.02, since the p-value (.02) <(0.05), it can be concluded that there is a significant difference in exclusive breastfeeding and without exclusive breastfeeding to motor skills in toddlers aged 3-4 years old in Central Java, Indonesia, especially in Semarang, Kendal, Jepara and Solo since the calculated Z > the value of Z in the table (–1.96). It presents that exclusive breastfeeding in infants affects their growth and development, including motor skill accomplishment according to developmental skills in toddlers.

According to WHO (2012), breast milk is the only ideal diet for infants until they are 6 month old because breast milk has the most ideal composition for the growth and development of infants and breast milk is able to support infants' need for nutrition for their first 6 months and supports infants' development in the following years. The recommendation to breastfeed exclusively during the first 6 months of infants was based on scientific evidence of adequate nutrition for infants and better infant growth as well as lower morbidity. Correlation between brain and food is important since adequate oral intake is essential to prevent morbidity related to food and death (Hallowell, & Spatz, 2012). Besides that, longer duration of exclusive breastfeeding reduces the risk of toddlers suffering illness like asthma, during their first 12 years in life (Verduci, Banderali, Peroni, Lassandro & Radaelli, 2016).

There are reasons why mothers refuse to breastfeed their infants, obtained from data analysis to a group consists of 135 mothers who are not breastfeeding exclusively, which presents that 25 mothers stated that their career and health are the main obstacles. One of the factor influencing mothers' decision on breastfeeding is that their decision to pursue their career so a support from office environment is important (Gu *et al.,* 2016; Thet *et al.,* 2016). Modern culture and community decision to imitate Western culture, has influenced mothers to wean their infants earlier and provide formula milk for their 0-6 month old infants (Atika *et al.,* 2014).

Conclusion

Toddlers who were exclusively breastfed shows better motor development supported by the Mean=62.18 with SD=1.408, compared to those who were not exclusively breastfed. The data also presents that frequency distribution of fine and gross motor skills in toddlers, where the mean of gross motor skills (71.14%) is greater than fine motor skills (52.22%) in group of toddlers who were breastfed exclusively. The areas in Semarang

and Solo provide higher frequency distribution of motor skill achievement compared to two other areas, Kendal and Jepara. The result of Mann-Whitney Test which was used to define the differences of motor skills in toddlers aged 3-4 years old which were both breastfeed and not, in Central Java, and shows the value of calculated Z =–2.694 with p-value =.02, since the p-value (.02) <(0.05), it can be concluded that there is a significant difference in exclusive breastfeeding and without exclusive breastfeeding to motor skills in toddlers aged 3-4 years old in Central Java, Indonesia, especially in Semarang, Kendal, Jepara and Solo. The next finding is that gross motor skill can be observed in toddlers who were breastfed exclusively like riding a bicycle, catching a ball, tipping and jumping on one dominating leg. While, fine motor skills related to independent action like taking a bath or eating.

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