The Influence of Exclusive Breastfeeding to Emotional Development of Children Aged 48-60 Months

Pengaruh Pemberian ASI Eksklusif terhadap Perkembangan Emosi Anak Usia 48-60 Bulan

Yuni Kusmiyati*, Sumarah*, Nurul Dwiawati*, Hesty Widyasih*, Yani Widyastuti*, Khadizah Haji Abdul Mumin**
*Department of Midwifery, Yogyakarta Health Polytechnic of Health Ministry, Yogyakarta, Indonesia, **Institute of Health Sciences, Universiti Brunei Darussalam, Brunei Darussalam

Abstract
Impaired emotional development is a problem faced by children and this can negatively impact on function, development and readiness of their school. Exclusive breastfeeding can meet brain development needs that affect child development. This study aimed to determine correlation between exclusive breastfeeding and emotional development of children aged 48-60 months. This study used historical cohort. The subjects of this study were 7-12-month old infants living in area of Borobudur Primary Health, Central Java Province, Indonesia in 2011-2012. Independent variable of exclusive breastfeeding was when infants received only breast milk without any supplementary food or drink including water since birth until the age of 6 months. Data were obtained from medical records of children. The emotional development was assessed directly by using questionnaires on emotional and mental problems. Data analysis used Cox regression. This study found that provision of exclusive breast feeding was evidently correlated with the child’s emotional development. Infants who did not receive exclusive breastfeeding had 2.96 higher risk of having abnormal emotional development than infants who received exclusive breastfeeding. Exclusive breastfeeding greatly influences emotional development of the children.

Keywords: Children aged 48-60 months, emotional development, exclusive breastfeeding


Correspondence: Yuni Kusmiyati, Department of Midwifery Yogyakarta Health Polytechnic of Health Ministry, Mangkudayan Street MJ III/304, Yogyakarta, Indonesia, Phone: +62274-374531, E-mail: yuni_kusmiyati@yahoo.co.id
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Introduction

Development refers to the process of maturity interaction between central nervous system and organs by which greatly affected, such as neuromuscular system, speaking ability, emotion and socialization. Early age is ‘golden age period’, and it refers to a golden age for the human development aspect including physical, cognitive, emotional and social development. One of most important child development is emotional aspect. With their emotional state, children can focus their attention, energize their body, and organize their thought to deal with their needs. World Health Organization (WHO) study in 2001 showed that 20% of children until the age of adolescents were suffering from mental disorders. Based on 2013 National Basic Health Research using Self-Reporting Questionnaire (SRQ) to assess mental health of population, the prevalence of emotional mental disorders in Indonesian population aged over 15 years was at 6.0%.

Emotional and behavioral problems are influenced by multiple factors which can stand alone or affect each other. The provision of adequate stimulation and nutrition as the basis of child development must be optimal. One of good nutrition for an optimal fulfillment is exclusive breastfeeding provided to infants from 0 to 6 months. According to Lind et al., breastfeeding heightens interaction between mother and infant. Breastfeeding improves the mother- and child interaction which is important for cognitive and socio-emotional development of the infants.

Based on data from 2013 National Basic Health Research, there was a decrease in exclusive breastfeeding (0-6 months) for infants as the age increases. Prevalence of exclusive breastfeeding in infants aged 0 month was 52.7%, 1 month at 48.7%, 2 months at 46%, 3 months at 42.2%, 4 months at 41.9%, 5 months at 36.6%, and infants aged 6 months at 30.2%. Studies showed that coverage of exclusive breastfeeding rate in Indonesia was very low. Scope of exclusive breastfeeding in Central Java in 2014 reached 60.7%, while Borobudur Primary Health Care in 2014 reached 79%. According to data from Health Research Association in 2015, the prevalence of mental and emotional disorder in Indonesia reached 6%, while Central Java reached the prevalence at 4.7%. Based on a preliminary study in Borobudur Primary Health Care in 2015, the number of children who joined the emotional examination by using a questionnaire of emotional and mental problems was 246 children aged 3-6 years in which 46 of 246 children (18.7%) suffered from emotional distress, and 12 children (26%) got services in advanced health facilities.

The aim of this study was to determine effect of exclusive breastfeeding to emotional development of 48-60 month-old children in Borobudur Primary Health Care in 2016. This study can be useful for decision-making basis on exclusive breastfeeding and early detection of developmental disorders in children, especially in the emotional development of all children.

Method

This study is observational studies with a historical cohort design. Study subjects included 369 children in the range of 7-12 months of age. The study coverage was in Borobudur Primary Health Care, Central Java in 2011-2012. As many as 196 children received exclusive breastfeeding, and 173 children did not receive exclusive breastfeeding. Sampling was conducted with simple random sampling technique for subjects who met the inclusion criteria that were willing to be the subject of study, and living in the coverage of Borobudur Primary Health Care. The exclusion criteria were children suffering from chronic pain for the past one month and congenital disability. The sample size was calculated based on the formula of samples for the study cohort with a power of 90%, and the samples obtained were 178 children (89 children who received exclusive breastfeeding versus 89 children who did not receive exclusive breastfeeding).

The independent variable was provision of exclusive breastfeeding without any additional food or drink, including water, except for medicine, vitamins, and minerals provided to infants within the range from 0 to 6 months of age. Data were obtained from medical records of children in Borobudur Primary Health Care, Central Java. The dependent variable of child emotional development was a process of maturation of organs, including interaction of developing mental/intelligence and physiological and psychological behaviour of children. This skill is used to respond to the surrounding environment, and it was assessed by using a questionnaire of emotional and mental problems. External variables studied were sex, maternal education, father’s education, maternal employment status, father’s employment status, and the parents’ income. The study was conducted in 2016. Data were analyzed by using chi-square test and cox regression for multivariate analysis. Cox regression for odds ratio (OR) was applied to assess the association between exposure and outcome in logistic regression, which is considered the same as risk ratio (RR) in cohort studies, that can lead to overestimates. Use of OR was acceptable if the results were relatively rare (<10%). Therefore, cox regression was recommended as a suitable method to estimate the RR cohort study using multivariate time constant (number 1). Multivariate analysis was performed on variables with p value < 0.250. Model was fit if the model significance was 0.05 and partial significance was 0.1.
Results

This study was conducted in Borobudur Primary Health Care, Central Java in 2016. The total sample of 178 respondents consisted of 89 children who received exclusive breastfeeding and 89 children who did not receive exclusive breastfeeding. The main independent variable was exclusive breastfeeding, and dependent variable was emotional development of children and external variables included sex, maternal education, father’s education, parents’ employment status, and parents’ income. Table 1 presents the results of analysis on description of subjects’ characteristics and the effect on emotional development.

Table 1 shows that characteristics of variables related to the emotional development were maternal education, father’s education, father’s employment status, and parents’ income (p value < 0.05). The boys had 1.8 times higher risk of having abnormal emotional development than girls, but it was not statistically significant (p value 0.06 > 0.05). Children with low-educated mothers had a risk of 4.8 times (95% CI = 1.97-11.86) to have abnormal emotional development than children with high-educated mothers. Children with low-educated fathers had a risk of 6.8 times (95% CI = 2.76-16.64) to have abnormal emotional development than children with high-educated father. Unemployed mother was a protective factor for child to have abnormal emotional development, but this was not statistically significant. Children with jobless fathers had 2.4 times (95% CI = 1.29-4.34) risk of having abnormal emotional development than children with working fathers. Children whose parents’ incomes were below the regional minimum wage had 7 times risk (95% CI = 3.26-15.14) of having abnormal emotional development than children whose parents’ incomes were above the regional minimum wage. The effect of exclusive breastfeeding to the child emotional development can be seen in Table 2.

Table 2 shows that exclusive breastfeeding had influence to the child emotional development without considering external variables. Infants who did not receive exclusive breastfeeding had 2.6 times higher risk (95% CI = 1.33-5.07) of having abnormal emotional development than infants who received exclusive breastfeeding.

The effect of exclusive breastfeeding to child emotional development by including other external factors was
analyzed by using cox regression. The fix model is presented in Table 3.

Table 3. The Effect of Variables to Child Emotional Development

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coef</th>
<th>p Value</th>
<th>RR</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive breastfeeding</td>
<td>1.084</td>
<td>0.005</td>
<td>2.96</td>
<td>1.38-6.52</td>
</tr>
<tr>
<td>Maternal education level</td>
<td>1.333</td>
<td>0.014</td>
<td>3.79</td>
<td>1.31-11.01</td>
</tr>
<tr>
<td>Father’s education level</td>
<td>1.091</td>
<td>0.03</td>
<td>2.98</td>
<td>1.11-7.98</td>
</tr>
<tr>
<td>Father’s employment status</td>
<td>0.791</td>
<td>0.069</td>
<td>2.21</td>
<td>0.94-5.18</td>
</tr>
<tr>
<td>Parents’ income</td>
<td>1.575</td>
<td>0.001</td>
<td>4.85</td>
<td>1.97-11.82</td>
</tr>
</tbody>
</table>

Notes:
RR= Risk Ratio; CI=Confidence Interval

The study also found that the child’s emotional development is also influenced by other factors, such as father’s and maternal educational level, father’s employment status and parents’ income status. Parental education level affects the development their children. Maternal education is often associated with the children development. Maternal education affects parenting knowledge about the fulfillment of food intake in children, the provision of stimulation and child rearing. Children with low-educated mothers had 4.8 times higher risk of having abnormal emotional development than children with high-educated mothers. The results support study by Metwally et al., showing that low-educated mothers had a higher risk to have children suffering from emotional development disorders than the high-educated mothers. Children with low-educated fathers had 6.8 times higher risk of having abnormal emotional development than children with high-educated fathers. This fact supports finding of Ribas et al., stating that parents’ high education will affect the parenting knowledge about food intake, the provision of stimulation, and child rearing.

Father’s employment status mainly relates to family income which will eventually affect the family economy. This result is line with study by Lee et al., stating that employment status affects the index of child mental and emotional development. Working parents will have a good income to provide sufficient food intake and good facilities for children.

Family economic status can be seen from family (parents) income. Poverty is associated with inadequate amount of food, bad health, bad environment, and ignorance which will hinder the children’s growth and development. The higher the income, the better the child’s development because the child get adequate supply of food (nutrition). Low income parents will have problems to provide adequate nutrition for their children, so it will affect the growth and development of the child, including her/his social and emotional develop-
ment.19 Children with low-income parents were at risk 7 times higher of having abnormal emotional development than children with high-income parents. Income of families (parents) can be a risk factor which will affect the children’s emotional and social health as well as their development.20 This supports the finding by Metwally et al.,7 stating that the higher family income results in better the emotional development of children. This condition is due to insufficient food intake (nutrition), providing facility to stimulate the child’s development and opportunities for learning and interaction in social environment.

In multivariate analysis results, factors that had a significant relation to emotional development were the income of parents, maternal education level, father’s education level, and exclusive breastfeeding. Children aged 48-60 months with low-income parents had 4.83 times risk of abnormal emotional development compared to children with high-income parents. Living in poverty is more at risk of developmental disorders because of susceptibility to infection and malnutrition, in addition to living in low financial conditions will reduce opportunities in education (learning) and social communication for children.7 Parental education can increase family resources, income, also increase time allocation for the maintenance of child health, improving productivity and effectiveness of health care, and improving the reference of family life. According to Metwally et al.,7 children with low-educated mothers tend to get insufficient food intake and less stimulation, so they will experience abnormalities of emotional development. The high parental education will affect the fulfillment of parenting knowledge about food intake, stimulation and parenting.17 Good income and education of parents will affect the fulfillment of good nutrition needs also for child growth.

Conclusion
Exclusive breastfeeding has an influence to the emotional development of 48-60 month-old children after being controlled by other factors, such as parental education level, father’s employment status and parents’ income. Infants who do not receive exclusive breastfeeding have 2.96 times risk of suffering from abnormal emotional development than infants who receive exclusive breastfeeding as controlled by variables such as parental education level, father’s employment status and parents’ income.

Recommendation
Exclusive breastfeeding greatly influences child emotional development, so it is important for health to provide health promotion and motivation to mothers, especially pregnant women to provide exclusive breastfeeding.

References