

# THE CORRELATION BETWEEN THE QUALITY OF HOME ENVIRONMENT AND COGNITIVE DEVELOPMENT OF PRESCHOOL AGED CHILDREN IN LOW INCOME FAMILIES

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## THE CORRELATION BETWEEN THE QUALITY OF HOME ENVIRONMENT AND COGNITIVE DEVELOPMENT OF PRESCHOOL AGED CHILDREN IN LOW INCOME FAMILIES

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### Abstract

17 This study aims to analyze the relationship between the quality of home environment and the cognitive development of preschool aged children in low income families. This research conducted in Jambi City, Jambi Province, Indonesia. The study involved 140 families who were selected purposively. Data were collected through interviews, observations, and measurements of children. The data collected were analyzed using descriptive analysis and correlation test. Most parents in low income families had provided quality of home environment in less category. The quality of home environment was significantly related to the cognitive development of preschool aged children. Most of preschool aged children from low income families also had cognitive development in less category. Therefore, the quality of home environment needs to be improved in an effort to optimize the cognitive development of preschool aged children, especially children from low income families.

Keywords: cognitive development, home environment, preschool children, socioeconomic status

### Introduction

The family is the first and foremost environment responsible for optimizing child development. One of the problems faced by families is poverty. Poverty is at the root of various problems that occur in families. The problem of poverty makes families difficult

to provide good quality of parenting, child abuse, violence, and divorce (Lee, 2009; Lee & Kim, 2007).

The impact of poverty on children's development depends on the time of poverty. Children who experience poverty since preschool age have lower quality of development compared to children who experience poverty in their teens or adults (Brooks-Gunn and Duncan, 1997). Poverty has a negative impact on children's health and development (Aber, et al., 1997; Bradley & Corwyn, 2002; Hackman & Farah, 2009). Children from poor families have a higher risk of developmental problems across cognitive, language, social and motor domains and then these appear to be significantly associated with low academic performance, behavior problems, school dropouts, and juvenile delinquency (Brooks-Gunn & Duncan, 1997; Chung, 2003). In the preschool age period, the impact of poverty is greater on cognitive development compared to other areas of development (Cunha & Heckman, 2008). Children from low income families have low cognitive development (Feinstein, 2003; Kim et al, 2012). Low cognitive development has a negative impact on other aspects of development, such as language and social development (Kim et al, 2012). Low cognitive development also results in low achievement of children's education at a later stage because optimal cognitive development in preschool age becomes one of the main determinants of children's school success at a later stage (Grantham-McGregor, 2007).

Poverty makes families experience difficulties in providing a quality home environment (Klebanov et al., 1994; Eamon, 2001; Pachter et al., 2006; Dearing & Taylor, 2007). In addition, poverty also makes families apply negative parenting (Dearing & Taylor 2007). The application of negative and non-quality parenting can reduce the amount of stimulation that can be given to a child so that it has an adverse effect on the child's development. Based on the explanation, this study aims to analyze the relationship between quality of home environment and cognitive development of preschoolers in low income families.

## Method

This study uses a cross sectional design. The location of the study was selected purposively in Jambi City, Jambi Province, Indonesia. Data was collected from June to November 2017.

This study involved 140 low-income families who had preschool aged children. Samples in this research was selected purposively on condition that the family has less income from the poverty line of Jambi Province in 2017 for urban areas (IDR457,818.00/capita/month), families have preschool aged children, and families give permission to researchers to observe home, interviewing mothers, and also measuring aspects of cognitive development in children.

Data consist of child characteristics, family characteristics, <sup>5</sup> quality of home environment, and children's cognitive development. Characteristics of children consist of child's age, gender, birth order, and children's participation in early childhood education. Family characteristics consist of family type, number of family members, <sup>4</sup> parental age, parental education, parental occupation, and family income.

The quality of the home environment <sup>6</sup> was collected by observing the house where the child lives and interviewing the mother. The quality of the home environment was measured using the Home Observation for Measurement of the Environment (HOME) <sup>2</sup> Inventory compiled by Caldwell and Bradley (2003). This instrument consists of eight subscales namely learning materials, language stimulation, physical environment, responsiveness, academic stimulation, modeling, variety, and acceptance. The HOME Inventory consists of 55 indicators with two answer choices, yes (score 1) and no (score 0). The score obtained is summed based on the subscale (subscale score) and total (scale score). Based on the median, the scores obtained were categorized into two categories: less (score lower than median) and good (score same or higher than median).

Data of children's cognitive development was collected by measuring the child. The questionnaire used to measure children's cognitive development is a cognitive development questionnaire compiled by the Ministry of National Education in Indonesia (2004). The questionnaire consists of 13 questions. The score <sup>20</sup> obtained was summed and then the score was changed in the form of an index. Based on the index, cognitive development of preschool aged children was categorized into two categories, namely less category (index lower than 80,0) and good (index higher than or same with 80,0).

Data in this research was analyzed by using descriptive statistic and correlation test (Pearson Product Moment). Descriptive statistic was used to calculate the number and percentage of categories, <sup>13</sup> minimum values, maximum values, mean values, and standard deviations of each research variable. Furthermore, correlation test (Pearson

Product Moment) was used to analyze the relationship <sup>8</sup> between the quality of the home environment and children's cognitive development.

## **Result and Discussion**

### **Characteristics of Childrens**

Child's characteristics are seen from the child's age, gender, birth order, and children's participation in early childhood education. This study involved 140 children. The children included in this study were aged between 42-65 months with an average age of 55 months. More than half of children (76 people or 54.3%) are boys and the rest (64 people or 45.7%) are girls. Based on the birth order, 27 children (19.3%) were the eldest child, 13 children (9.3%) were middle child, 63 children (45.0%) were the youngestchild, and 37 children (26.4%) were single child. More than half of children, 78 children (55.7%) participated in early childhood education, while 62 children (44.3%) didn't participate in early childhood education.

### **Characteristic of Families**

Family characteristics are seen from family type, parental age, parental education, parental occupation, and family income. All families involved in this study are nuclear families. Parental age is seen from the age of the father and the age of the mother. Father's age is at intervals of 25-56 years with an average age of 37 years. Meanwhile, the age of thousands is at intervals of 21-48 years with an average age of 34 years. Based on age categories, most fathers and mothers are included in the early adult category. Parent education is seen based on the length of time parents take formal education expressed in years. Education duration of parents both father and mother is at 6-16 years intervals with an average length of education of 12 years. Most parents have studied at the senior high school level. All of the fathers of the children involved in this research are working in the informal sector. Meanwhile, most of the mothers work as housewives. All the families involved in this research are families who have low income. Family <sup>24</sup> income is less than the poverty line of Jambi Province (Indonesia) for urban areas that is IDR 457,818.00/capita/month.

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### Quality of the Home Environment

The quality of the home environment was measured using HOME Inventory (Caldwell and Bradley, 2003). This instrument consists of eight subscales namely learning materials, language stimulation, physical environment, responsiveness, academic stimulation, modeling, variety, and acceptance. Score obtained is in the interval 21.0-48.0 families with an average score of 34.39. The result shows that as many as 35 children (25.0%) had a good quality of home environment. Furthermore, as many as 105 children (75.0%) had less quality of home environment.

### Cognitive Development of Children

The cognitive development index obtained by children is in the interval 41.0-100.0 with an average score of 67.5. The results showed that as many as 32 children (22.9%) had good cognitive development. However, as many as 108 children (77.1%) had less cognitive development. These results indicate that the development of preschool children in low income families is included in the not optimal category.

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### The Relationship Between the Quality of Home Environment and Cognitive Development

The relationship between the quality of home environment and cognitive development of children was analyzed by Pearson correlation test. The results of the analysis are presented in Table 1.

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Table 1. The relationship between quality of home environment and cognitive development of preschool children in low income families

Category of Quality of Home Environment	Category of Cognitive Development					
	Less		Good		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Less	100	71.4	5	3.6	105	75.0
Good	8	5.7	27	19.3	35	25.0
Total	108	77.1	32	22.9	140	100.0
Pearson Correlation	0,643**					

Note: \*\*significant for p<0,01

Based on Table 1, results showed that the quality of the home environment was significantly and positive related to children's cognitive development. These results indicate that the better quality of the home environment can improve children's cognitive development. Conversely, less quality of home environment can decrease children's cognitive development. These results support the results of previous studies that the quality of home environment was significantly and positively related to children's cognitive development (Berger, Paxson, & Waldfogel, 2009; Ronfani, 2015).

The home environment was related to the provision of stimulation for child development. The stimulation given to children can increase with increasing the quality of home environment. This stimulation can be used to improve children's cognitive development. An example is a child who is taught about color through toys by his parents able to name colors and match colors correctly. Children learn from stimulation given by their parents. For example, children learn about composing patterns after getting a toy in the form of a puzzle. Therefore, a quality home environment can improve children's cognitive development. The results of this study corroborate the results of previous studies that the quality of the home environment is significantly positively associated with children's cognitive development (Lugo-Gil and Tamis-LeMonda, 2008). The main findings from the research of Tucker-Drob and Harden (2011) also show parents' behavior as the main determinant of children's abilities so that the provision of cognitive stimulation by parents through quality of home environment can improve children's cognitive development.

### Conclusion

Most parents in low income families had provided quality of home environment in less category. The quality of home environment was significantly related to the cognitive development of preschool aged children. Most of preschool aged children from low income families also had cognitive development in less category. Therefore, the quality of home environment needs to be improved in an effort to optimize the cognitive development of preschool aged children, especially children from low income families.

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