



# How Do Parenting, Parent Education and Family Income Effect on the Cognitive Development of Toddlers?

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**Abstract.** Children who are raised in good parenting have the possibility to develop optimally, even though their parents' education and family income is low. This study aims to analyze the effect of parenting, parental education and family income on the cognitive intelligence of toddlers. This research method is quantitative with a cross sectional study design in 70 families with children under five in Koto Tengah District, Padang City. The sample was determined purposively, namely toddlers, children under five aged 3–5 years, having complete parents and mothers of toddler as respondents in this study. Data on parents' education and family income were collected using a questionnaire. Parenting data using the HOME Inventory instrument and cognitive development using a standardized questionnaire by the Curriculum Center. The data was processed descriptively and using simple and multiple linear regression analysis with the help of SPSS. The results showed that the care of toddlers was categorized as moderate with an average score of 34.2. The average cognitive development score is 13.7 points (low). Parenting has a significant effect on children's cognitive development with  $R\text{-square} = 0.726$ ,  $\text{sig} = 0.000$ . Another factor that significantly influences the cognitive development of toddlers is family income with an  $R\text{-square}$  value ( $\text{Adj } R\text{-square}$ ) = 0.775 (0.747).

**Keywords:** parenting · cognitive development · toddlers · family income

## 1 Introduction

The national development paradigm, which is globally oriented and oriented towards science and technology, will not be implemented without improving the quality of human resources (HR). Conditions in a person's early life will affect cognitive abilities in childhood and cognitive function as adults [1]. Therefore, early childhood education and care has been recognized globally as one of the important indicators of human resource development [2].

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Early childhood, also known as toddlers, are children aged one to five years. The development of children under five is a psychophysical change resulting from the process of maturation of the child's psychic and physical functions supported by environmental factors and the learning process within a certain period of time towards maturity [3]. This age is often referred to as the golden age because at this time a child will develop various potentials, both physically and mentally, as well as build knowledge and personality. At this time too, the child will be very responsive in accepting new things and internalizing it within himself so that it will affect the development of the child's personality [4].

Cognitive ability is one of the important aspects to be developed in childhood. Cognitive ability is the child's ability to think more complexly and do reasoning and problem solving, the development of cognitive abilities will make it easier for children to master broader general knowledge [5]. Cognitive abilities in childhood have been shown to predict important components in future life including academic achievement, job success and social adjustment [6]. The lack of parental understanding of the child's cognitive development, of course, will have an impact on the child's development, namely it can precipitate "the hidden potential" that has been owned by the child, which in turn has an impact on the quality of human resources. [7] applied HOME (Home Observation Measure for Environment) to study children's cognitive development in the context of the home environment, and found that maternal responses, mother's acceptance of children, mother's involvement, language stimulation, and encouragement of social maturity were correlated with cognitive development. And children's language [8].

During the growth period, toddlers cannot be separated from the guidance and care of their parents. Parenting can be interpreted as everything that includes everything that parents must do in carrying out their duties and responsibilities for the growth and development of children [9]. The role and responsibility of parents in the process of nurturing and mentoring children under five is very large, especially in helping children go through important periods in that age range. The study of parenting for children under five is sufficient to provide evidence of how important parental care is in optimizing the full potential of children in order to create quality future generations and be able to compete in the global arena of this millennium [10]. In a study, it was found that parents who have attended parenting classes will stimulate their children's language and cognitive development so that these children will have higher cognitive test results than children of parents who have never attended parenting classes [12]. Sharif (2015) also suggests that parents who have received education/training related to parenting tend to respond to their children in a way that reflects their understanding of child growth theory that is developing and appropriate for children [13]. In addition to parenting and education patterns owned by parents, family income has also been shown to influence most of the cognitive outcomes for children [14].

Parental education should be the basis of children's cognitive development. So it is no exaggeration to say that the key to nation building lies in how families/parents can educate their children according to the needs and stages of child development. However, most parents do not yet have the knowledge, skills and support in the task of nurturing and educating children. In addition, many parents and the community have the mindset that parenting is entirely the responsibility of the caregiver at home or only at school/educational institutions, so many parents have registered their children with

playground educational institutions since the age of two and consider it sufficient. In fact, the family/parents have an important role in children's education, among others, as a form of self-concept, role model, and a stimulus for children's development. Parents also have physical and psychological closeness with their children, not only because of nature but also because most of the time for toddlers is spent in the family environment.

The diversity of parenting models received by toddler, may have a direct effect on their cognitive development. Likewise, differences in family income can result in differences in buying facilities to stimulate children's development. To prove this allegation, it is imperative to conduct research with the aim of analyzing the effect of parenting, parental education and family income on the cognitive development of toddlers.

## 2 Methods

The design of this research is a Cross Sectional Study with quantitative research methods. The research was conducted in Koto Tengah District, Padang City. A total of 70 families with children under five were selected purposively with the criteria of 3–5 years old, having complete parents and mothers of children under five as respondents in this study. Data on parents' education and family income were collected using a questionnaire. Parenting data using the HOME Inventory instrument and cognitive development using tests that have been standardized by the Curriculum Center. The data were processed descriptively and analyzed using simple and multiple linear regression with the help of SPSS.

The data collected in this study consisted of data on children and families. Resumes of variables, methods and data processing are shown in Table 1.

Data were analyzed using SPSS (Statistical Package for Social Sciences) version 16.0 software. Analysis of the data used is to identify children's cognitive development, father's education, mother's education, father's occupation, mother's occupation, family income, family size and parenting using elementary statistical analysis (elementary

**Table 1.** Variables, Methods, and Data Processing

No	Variables	Methods	Data Processing
1.	Child Development Data (cognitive)	Child development test	Score
2.	Father's Education	Questionnaire	Deskriptif
3.	Mother's Education	Questionnaire	Deskriptif
4.	Father Job	Questionnaire	Deskriptif
5.	Father Job	Questionnaire	Deskriptif
6.	Family income	Questionnaire	Deskriptif
7.	Family Size	Questionnaire	Deskriptif
8.	Parenting	Questionnaire	Percentile: Height: 46–55 Medium: 30–45 Low: 0–29

statistical analysis). For the purpose of analyzing the effect of parenting on the cognitive development of children under five, simple linear regression analysis was used, and to identify the factors that influence the cognitive development of children, multiple regression analysis was performed.

### 3 Results

#### 3.1 Development of Toddlers

The development of toddlers can be defined by many different terms depending on the program or institution concerned. Toddler development refers to the physical, cognitive, linguistic, and social-emotional development of a child from the prenatal stage to the age of five. Although the United Nations definition of toddlers includes early childhood which refers to the period up to 8 years of age, most official statistics collect data for children under 5 years of age [15]. In this study, the term toddlers is used to refer to early childhood who are in the age range of 1–5 years.

There are many aspects of development that need to be nurtured in the face of a child's future. All these aspects of development influence each other. In this study, the developmental aspect that was analyzed was cognitive development. The average score of the level of cognitive development is 13.7 points. The results of the assessment indicate that the level of cognitive development of children is low, because of the 34 points of maximum cognitive score, less than 50% are mastered by children. Table 2 shows the distribution of children according to the level of cognitive development.

#### 3.2 Family Characteristics

Family size is seen from the number of family members living in one family resource management. Family size ranges from 3 people to 8 people with an average number of family members is 5 people (up to 2 people. If this family size is grouped based on the criteria for the Small Happy and Prosperous Family Norm (SHPFN), which consists of a father, mother and two people children, as many as 74.3% (52 families) belonged to that group, while the others were classified as medium and large families. The large number of families with less than 4 family members was due to the fact that in the study area the family already lived in their own home. Located next to other close family.

The father's age ranged from 26 years to 48 years with a mean age of 34.7 years (standard deviation/sd = 9.7 years), and the mother's age ranged from 20 years to 46 years

**Table 2.** Distribution of Aspect of Development

Development Aspect	Category	n	%
Cognitive	Low	54	77,1
	Medium	16	22,9
	Total	70	100,0

with a mean age of 33.1 years ( $SD = 6.6$  years). When viewed from the age group, the largest percentage (41.4%) of the father's age ranged from 30–35 years, and the mother's age also ranged from 36–40 years, namely 44.3%. Thus, some fathers and mothers are included in the category of early adulthood and those of working age are included in the productive age group.

Education is one of the important aspects in supporting human quality. The high level of education of the father and mother greatly affects the type of work which then also affects the level of family income. Based on the level of formal education that has been taken, the largest percentage (48.6%/34 people) of fathers has a high school education. As many as 22.9% have undergraduate education, and the others have elementary education (4.35%), junior high school (12.9%), diploma (8.6%) and postgraduate education as much as 2.9%. Likewise, mothers, that the largest percentage of mothers with high school education/equivalent is 50.0%, and others have elementary, junior high, diploma, undergraduate education and one post-graduate education. Based on the research data, it can be seen that most of the education levels of fathers and mothers are secondary education.

In general, the variation of father's main occupation is as civil servant (civil servant), private sector (factory/store employee), farmer/breeder/fisherman, entrepreneur (trade), laborer and service department (driver/ojek driver). As many as 21 people (30.0%) fathers have a main job in the field of entrepreneurship, the others work as civil servants, private, or labor/services. Only a small proportion of fathers work as farmers/breeders/fishermen. In terms of the type of mother's main occupation, most of the mothers are housewives (48.6%), as shown in Table 4. Employment opportunities in the region.

Total family income is obtained from the income of the head of the family, wife and income from other family members such as: children and working parents which are included in one financial management as well as income from other sources such as giving bonuses and gifts. The average family income per month is Rp. 1,279,023 ( $sd = Rp. 95,240$ ).

If the total family income is divided by the size of the family, then the per capita income of the family is obtained. The average income per capita is Rp. 305,105 (up to 258,609) and in rural areas it is Rp. 344,845 ( $sd = Rp. 267,113$ ). The National poverty line limit for the Province of West Sumatra according to the BPS West Sumatra in 2013 which is seen from the average per capita income per month is Rp. 217,649. Based on these limits, in general the family is above the poverty line. With high income, the ability to buy food will be higher. On the other hand, low incomes result in limited ability to buy food, both in quantity and quality.

### 3.3 Parenting

Parenting for toddlers can be defined as the process of raising, promoting, and supporting the physical, emotional, social, and cognitive development of a child into adulthood and throughout his life span [16]. One of the parenting environments that has a very strong influence on a child's growth and development is the interaction between mother and child. The involvement of mothers in caring for and raising children from infancy has a positive and negative influence on the development of children in the future [17].

**Table 3.** Distribution of Toddlers Based on Parenting

Parenting Category	n	%
Low	26	37,1
Medium	40	57,1
Well	4	5,7
Total	70	100,0
Average	34,2	
Standard Deviation	8,4	

**Table 4.** Regression Analysis Test Results on Cognitive Development

Parameter	Cognitive Development		
	B	t	Sig.
Intercept	17.681	11.713	0.000
Parenting	8.480	10.556	0.000
R-square	0.726		
Adj R-square	0.707		
F (Sig)	81.815 (000)		

Assessment of parenting for children under five was developed by Caldwell and Bradley in 1984 through a measurement of the quality of parenting at home known as HOME (Home Observation and Measurement of Environments). In general, the assessment of food parenting and children’s education is classified as moderate with an average score of 34.2.

Parenting is grouped into low, medium and good. The largest percentage is 57.1% of children classified as moderate care (quality of care is sufficient), 37.1% is classified as low (quality of care is less) and 5.7% others are classified as good (Table 3).

## 4 Discussion

The average score of the child’s cognitive development level is 13.7 points. In order to further prove that the increase in children’s cognitive development scores is influenced by parenting and education patterns, a simple linear regression analysis was carried out (Table 4). The results of the regression analysis showed that parenting had a significant effect on children’s cognitive development with a value of  $t = 10,556$ ,  $sig = 0.000$ , and  $R\text{-square} = 0.726$ .

Parenting given to children can improve children’s cognitive development through the provision of stimulation to play while learning. The integration of parenting in the form of games has a positive effect on children’s cognitive development.

**Table 5.** Test Results of Multiple Regression Analysis of Various Factors on Cognitive Development of Toddlers

Parameter	Cognitive Development		
	B	t	Sig.
Intercept	15.826	4.325	0.000
Father's education	-7.567E-02	-0.440	0.662
Mother's education	-9.768E-02	-0.433	0.666
Family income	1.959E-05	2.578	0.012*
Parenting	7.939	8.538	0.000*
R-square	0.775		
Adj R-square	0.747		
F (Sig)	20.579 (000)*		

Multiple regression analysis was also used to determine whether a child's cognitive development was due to other factors such as family characteristics. The test results show that other factors that have a significant effect on children's cognitive development are family income per capita with a value of  $t = 2.578$ ,  $\text{sig} = 0.012$ , and R-square (Adjusted R-square) = 0.775 (0.747) (Table 5).

These results are in line with findings in previous studies which showed that parental income was positively related to almost every dimension of children's well-being, including cognitive test scores [18]. Another study conducted on older children also showed that family income was directly related to school grades, cognitive abilities, and learning attitudes [19].

Based on the results of this study, regarding the effect of parenting on the cognitive development of children under five, it can be described that in caring for and stimulating children's development as developed by Caldwell and Bradley (1984) and *Puskur Diknas* (the National Education Center), parents must have adequate knowledge and skills so that they can achieve optimal results [9, 20]. In addition, family income per capita can also be a predictor of children's cognitive development.

## 5 Conclusion and Suggestion

Family characteristics seen from family size ranged from 3 people to 8 people with the average number of family members being 5 people. The average age of the father is 34.7 years (standard deviation/sd = 9.7 years), and the average age of the mother is 33.1 years (sd = 6.6 years). The level of formal education that has been taken, the largest percentage (48.6%/34 people) of fathers has a high school education. Likewise with mothers, the largest percentage of mothers with high school education/equivalent is 50.0%. In general, the variation of father's main occupation is as civil servant (civil servant), private sector (factory/store employee), farmer/breeder/fisherman, entrepreneur (trade), laborer and service department (driver/ojek driver). The main type of mother's

work, most of the mothers are housewives (48.6%). The average family income per month is Rp. 1,279,023 (up to Rp. 95,240).

Assessment of childcare is classified as moderate with an average score of 34.2. The average score of the level of cognitive development is 13.7 points (lower). Parenting has a significant effect on children's cognitive development with a value of  $t = 10,556$ ,  $\text{sig} = 0.000$ , and  $R\text{-square} = 0.726$ .

Given the low level of care provided by parents to children, while parenting has a significant effect on children's cognitive development, it is necessary for parents or caregivers to increase the quantity and quality of care, especially regarding aspects of play that support children's cognitive development.

Improving parenting or caregiving by parents or caregivers can be done by increasing the knowledge and skills of parents or caregivers which can be obtained through parenting education activities carried out at institutions where children receive educational services or at *posyandu* (Integrated Healthcare Center).

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