

MINI AND SIMPLE BOOK FOR IMPROVING GROWTH AND DEVELOPMENT CHILDREN IN THE END OF GOLDEN AGE PERIOD FROM LOW EDUCATED MOTHER IN VILLAGE

(Studi in Sragen, Central Java)

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Abstract

Introduction: Three years old was end of golden age period and 80% of child's brain grows and develops. Children need best health care from their mothers to optimization potential in this term. However, this study found mothers with low education in village and they have children in undernutrition. They should get nutrition education every month in integrated service post for children, but it was rare to do by health workers. Malnutrition in this term would make growth and development disorders. Media was needed to improve maternal knowledge in order to repair growth and development their children.

Method: Quasi experimental study with a non randomized pre-post test control group was used in this study. Total subjects included 67 children and their mom were respondent. Intervention group received education with those books. Participants in the intervention group (n=33) and control group (n=34) measured growth and development 4 times (before intervention, 3 times every month sequentially). Growth was measured by index WAZ and development was measured by measured early childhood education standards from Indonesia government and focus in cognitive development. Data analysis with mann whitney and independent t test.

Results: Post intervention increase growth (p=0.0001) and development in intervention group (p = 0.0001). However, this study show different data in control group. Growth and development in control group were not increase (p=0,69 dan p=0,63). A short term intervention with mini and simple book improved growth and development in the end of golden age period.

Keywords: Mini and simple book (MSB), growth, development, children, golden age period

Introduction

When the child was in the age of 3 year, the brain of the $\frac{3}{4}$ adult brain and also the end of the golden age period. Children this age have a huge potential, but that it was optimization if intervention of food, health, care, affection and adequate education (Santrock JW, 2007). Brain tissue with normal children who grow up to 80% of the weight of the adult brain before the age of 3 years. So that malnutrition will cause abnormalities in physical function, mental and motor function (Satoto, 1999).

National prevalence of malnutrition were 13%, stunted children were 36%, and 13.6% underweight children in the toddler. While in Central Java prevalence of malnutrition were 12%, amounting to 18.6% of stunted children, and child underweight were 7.1% (Primary Health Care Report, 2008). Nutritional status of the people in the regency in 2000 that good nutrition 78.69%, 2.54% and 0.14% malnutrition. Nutritional state of children with protein energy malnutrition (PEM) 8.41%. The study area was selected Pendem, District of Sumberlawang because PEM percentage indicator scores idetifikasi village nutrition situation over 3 therefore are on the map red (Pudjianto DJ, 2006). Several attempts have been made in improving the nutritional status of children, including counseling every month at integrated service pos. However, implementation was not as expected, the counseling is often not enabled. Efforts to monitor the development of the child is not possible except with the card to health (KMS) on which the image shown what to do children according to age. However, mothers often do not pay attention to the purpose of the image (Primary Health Care Report, 2008).

One of way to improve the growth and cognitive development of children in the end golden age period was nutrition and health education with a atractive media (Saidah N, 2010). Nutrition and health education improve the mother knowledge and will got changing behavior. Maternal knowledge greatly affect nutritional status and development of the child that malnutrition. Children in one of group that one of nutrition vulnerable group (Siregar MA, 2004). Conventional extension in integrated service post only give a lecture material through. Though it was not enough, so the need plus other efforts such as encouraging mothers to provide stimulation to their children. One of the efforts made to provide a medium of education is a booklet (Content IR, 2010). Widjanti research results, et al (2004) showed that comics could improve knowledge and attitudes of primary school children about IDD (Widajanti L, et al, 2004). Comics was one of the book containing the text and draw pictures. Education need to be more effective if coupled with educational media. The booklet was a media that convey health messages in book form (Ghasal PL, 2008). The booklet provided contains material development of the child from various literature sources for guidance when counseling takes place and is also used to guide everyday. The booklet called mini and simple book.

Method

The research was conducted in the District Sragen, Central Java in a health center in the region to take 2 villages namely Pendem as the location with the number of subjects intervention group as many as 33 children and Ngandul as the location of the control group with the number of subjects as much as 34 children. Participant retrieval techniques with purposive sampling. Subjects in this study were all children aged 36-44 months with criteria for inclusion of children cared for by her mother, birth weight 2500-4000 grams, born at term, has not been received early childhood education, no congenital defects, do not suffer from chronic diseases, residing in the village Pendem. Respondents were mothers of children (the subject). Inclusion of respondents was junior and high school education, no work, no color blindness, and willing to be the subject of research. Design research was a quasi experimental with a non randomized pre-post test control group. The intervention group was given nutrition and health education in the form of mini and simple book and the control group did not receive it until the study finished. Before implemented intervention, early study has been done. This was to make mini and simple book. The study was conducted for 3 months. Measured WAZ and cognitive function as independent variables, and mini and simple book as dependent variable, and maternal knowledge, energy and protein intake, maternal stimulation as confounding variables Data analysis was performed by descriptive and bivariate. Bivariate analysis using independent t test and Mann Whitney.

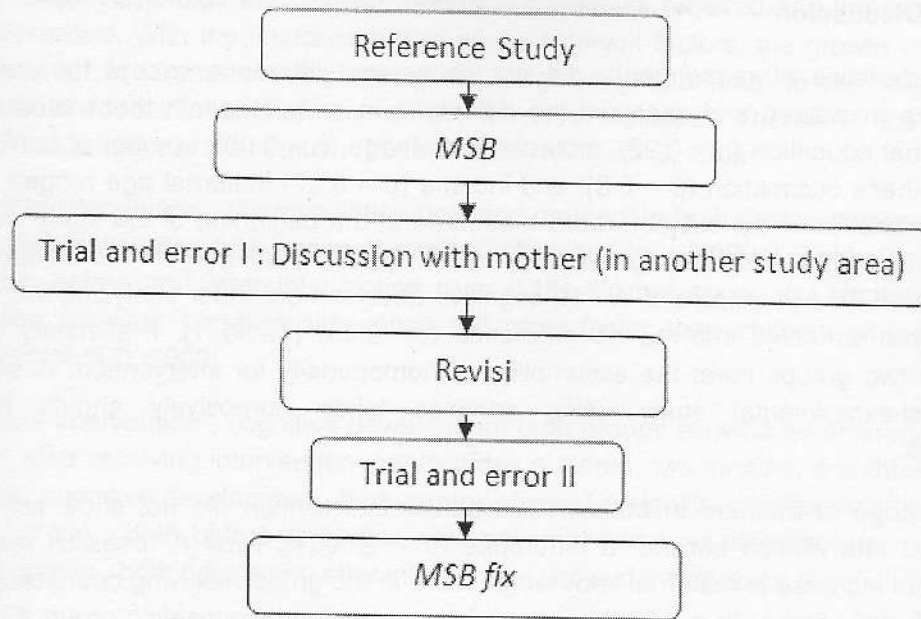


Figure 1. Early study flow chart

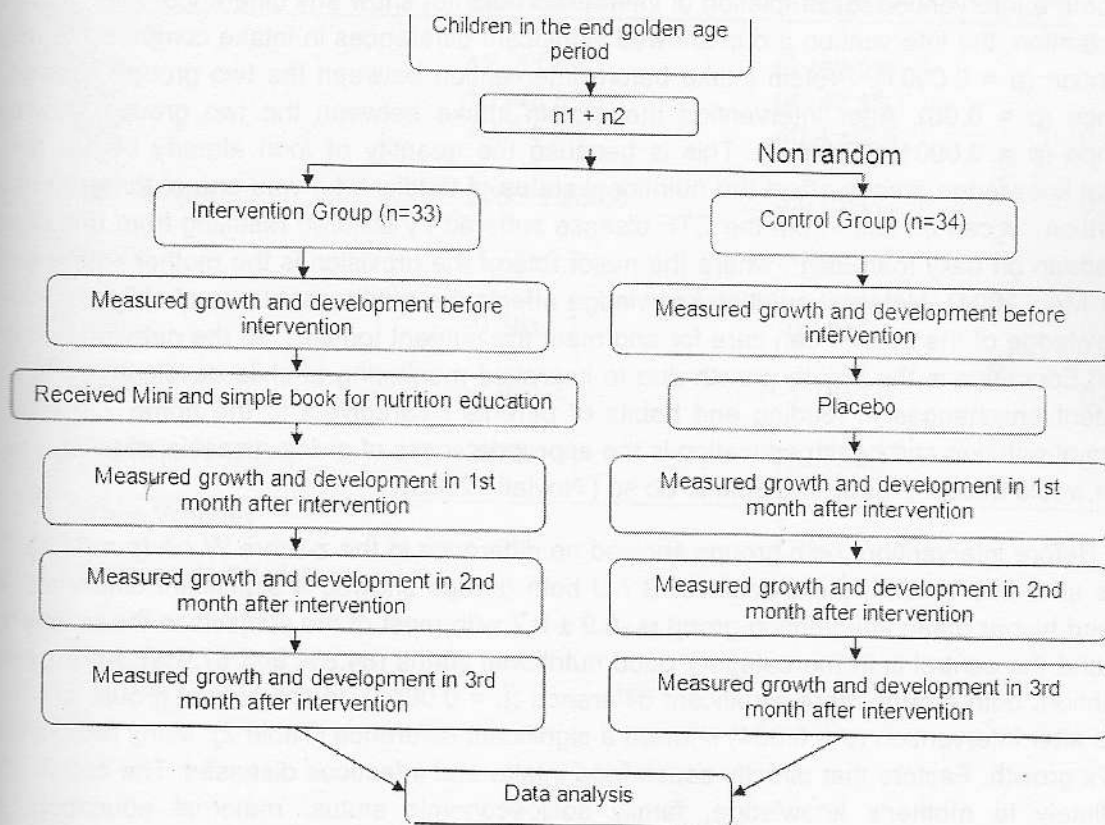


Figure 2. Study flow chart

Results and Discussion

Characteristics of respondents did not show any difference except for maternal age. Variables were measured and analyzed the difference in early research that maternal age ($p = 0.042$), maternal education ($p = 0.92$), maternal knowledge ($p = 0.09$), number of family members ($p = 0.25$), father's occupation ($p = 0.8$), and income ($p = 0.97$). Maternal age ranged from 23-45 years. Characteristics of the subjects were measured at the beginning of the study were gender, age, child, birth weight, weight, height, energy intake, protein intake, infectious diseases, z-score W / A, z-score of TB / U, z score of W / H, cognitive development. After analyzing the differences of all measured variables showed no difference ($p > 0.05$) (Table 1). Preliminary conclusions obtained, the two groups meet the assumption of homogeneity for intervention. According Murti (1995), quasi-experimental study using samples taken purposively should have equal characteristics.

Knowledge of mothers in both groups before intervention did not show any difference. Whereas after intervention showed a difference ($p = 0.0001$). Amir A research results (2008) showed that an increase in maternal knowledge score in the group receiving counseling mentoring models significantly higher ($p = 0.001$) compared to conventional counseling group. Energy intake of both groups showed no significant difference in the time before intervention ($p = 0.79$). Whereas after intervention showed significantly the difference ($p = 0.0001$). Energy intake in the control group before intervention to completion of intervention did not show any difference. After 3 months of intervention, the intervention group showed significant differences in intake compared to before intervention ($p = 0.0001$). Protein intake before intervention between the two groups showed no difference ($p = 0.06$). After intervention the protein intake between the two groups showed a difference ($p = 0.0001$) (Table 2). This is because the quantity of food already begun added. Maternal knowledge greatly affect the nutritional status of toddler who was one of the groups the malnutrition. It can be seen from the CTF disease suffered by children resulting from unbalanced food kadaan on daily food dish, where the major role of the provision is the mother - housewife (Siregar MA, 2004). Maternal nutrition knowledge affects the nutritional status of children, due to the knowledge of the mother can care for and meet the nutrient toddler, so the nutritional state is assured. Education is the key to growth due to improved monitoring of child development is often dependent on changes in feeding and habits of parents / caregivers in the home. Key to the success of nutrition and health education is the appropriateness of giving a special message at the time he would accept, ready and able to do so (Noviati, 2005).

Before intervention, both groups showed no difference in the z-score W / A ($p = 0.11$). Two months after intervention, the z score of B / U both groups showed a significant difference ($p = 0.03$) and higher mean intervention group is -0.9 ± 0.7 with most of the subjects in the intervention group and the control is in the category good nutritional status (84.8% and 67.6%). At the end of intervention, both groups more significant difference ($p = 0.0001$). In the control group, and three months after intervention ($p = 0.004$) showed a significant difference (Table 2). Many factors affect a child's growth. Factors that directly cause food intake and infectious diseases. The cause is not immediately ie mother's knowledge, family socioeconomic status, maternal education, and parenting (Supariasa, 2002). In normal circumstances, the weight will be directly proportional to age. If there is improvement of food intake, then the weight will also meingkat. Z-scores were divided into WAZ, WHZ, HAZ. Of all z-scores, chosen WAZ for the most sensitive in the change considering the period of only 3 months of treatment. The indirect influence, since the intervention given to women to improve their knowledge. Knowledge mother changed by giving booklet is expected to be a daily guide in improving child growth. Directly associated with factors related to nutritional status, knowledge gives the impact of increased provision of food intake and child care.

so that the intake of energy and protein treatment groups as required and the frequency of sick children decreased. With the improvement of all the relevant factors, the growth in the treatment group increased. In normal circumstances, the weight is proportional to the height. If there is improvement of food intake, then the weight will also meingkat. Therefore, the index W / A sensitive to indicate acute malnutrition (Pujiadi, 2005). (Pujiadi S, 2005).

Before intervention , the stimulation provided mothers in both groups showed no difference ($p = 0.39$) , whereas after intervention showed a difference ($p = 0.0001$) (Table 2) . In the control group , both before and after intervention ($p = 0.18$) did not show any significant differenc . Children who received targeted stimulation will grow faster than children who lack even not stimulated (Hastuti D, 2009).

Before intervention , cognitive development both groups showed no difference ($p = 0.63$) . Meanwhile, after receiving intervention that includes a month, two months, and three months after intervention , cognitive development, both groups showed a significant difference ($p = 0.0001$) . In the control group , both before and after intervention showed no difference ($p = 0.07$) . In the intervention group , both before and after intervention showed a difference ($p = 0.0001$) (Table 2) .

Table 1. Subjects caracteristics in early research

Variables	Groups		p
	Intervention	Placebo	
Gender			0,9 ^a
- Boys	17 (51,5%)	18 (52,9%)	
- Girls	16 (48,5%)	16 (47,1%)	
Age	40,7 ± 2,9	40,4 ± 2,6	0,5
Birth weight	3055 ± 230,6	3,01 ± 0,2	8 ^a 0,4
WAZ	-1,56±0,7	-1,78±1,4	2 ^b 0,6
HAZ	-0,36±1,2	-0,55±1,1	9 ^a 0,3
WHZ	-1,96±1,1	-1,78±1,4	6 ^a 0,6
Cognitive function	38,5±10	39,7±9,1	2 ^b 0,6
			4 ^a

^aMann Whitney

^bIndependent t test

Table 2. Maternal knowledge, energy intake, protein intake, weight age z-score, stimulation, cognitive function before, and after intervention

Variables	Group		p	
	Intervention (n=33)	Placebo (n=34)		
Knowledge	Before	54,8±10,9	59,3±10,4	0,09 ^b
	After	92,7±5,2	59,9±10,5	0,0001 ^{2*}
Energy Intake	Before	835,3±126,1	827,8±111,9	0,79^a
	Deficit	6,1%	5,9%	
	Under	48,5%	47,1%	
	Moderate	33,3%	41,2%	
	Normal	12,1%	5,9%	
	After 3 months	1113,6±175,6	822,1±110,1	0,0001^{2*}
Protein Intake	Deficit		5,9%	
	Under		50%	
	Moderate	45,5%	38,2%	
	Normal	54,5%	5,9%	
	Before	19,6±0,9	20,6±1,9	0,06^a
	Deficit		2,9%	
Weight age Z-score	Under	90,9%	50%	
	Moderate	9,1%	41,2%	
	Normal		5,9%	
	After 3 months	24,5±1,1	20,8±2,03	0,0001^{2*}
	Deficit		2,9%	
	Under		47,1%	
Stimulasi	Moderate	42,4%	41,2%	
	Normal	57,6%	8,8%	
	Before	-1,6±0,7	-1,5±0,8	0,69^a
	Under	21,2%	26,5%	
Perkembangan	Normal	78,8%	73,5%	
	After 3 months	-0,9±0,7	-1,7±0,8	0,001^{2*}
	Kurang	3%	35,3%	
	Baik	97%	64,7%	
Stimulasi	Before	4,2±0,4	4,3±0,5	0,38^a
	After 3 months	8,7±0,3	4,4±0,5	0,0001^{2*}
Perkembangan	Before	38,6±10	37,9±10	0,63a
	After 3 months	76,8±4,7	45,4±8,3	0,0001a*

^aUji Mann Whitney

^bIndependent t test

Investments that started early (age children) are considered the most profitable in the development of human resources. The main factors affecting child development include nutritional factors, health and care (caring) that are related to each other. The study Zeitlin (2000) showed that children are cared for properly will have a good level of development. Likewise, children who have good nutritional status would have a good level of development (Grantham Mc - Gregg 1995). In order to prepare children to grow and develop both the necessary care of the people around him, especially his own people, that the father and mother. But the reality of family life

general in Indonesia, which serves as the primary caregiver is the mother (Gunarsa & Gunarsa 1995).

Families with low economic level give less attention to the child's behavior and lack of exercise . While on a family with sufficient economic cause more parents to guide their children punyaak time because no longer think that the economic situation was less . Grantham - McGregor (1995) states that families with low economic level , lacking in providing stimulation , little plaything and a lack of parental involvement in children's play activities .

Every child needs a balanced nutrition for optimal growth and development. Critical period of a child is aged tri mester 3 to 3 years. During the time the child grows and develops, a child accompanied by the mother or caregiver. So attached to their skills will contribute greatly to the ability of a toddler. Skills in this case is the intellectual skills are skills that serve to relate to the environment and to present the draft concept symbol (Dimiyati and Mudjiono, 2009). In theory, skills (pratices) is an action (overt behavior) in which the action was a manifestation of the attitude that needs supporting factors, among others, the facilities and the support of other parties. Skills mothers studied were maternal skills in observing the growth and development of children. Having a child with optimal growth and development is the desire of every parent. Optimal growth and development to establish the parents, especially the mother who always observe, supervise, and child care carefully. The process of child development can take place naturally, but the process is highly dependent on the parent. Based on the result showed that the majority of women have good skills as many as 77 respondents mothers (95%), it was because of good information from print and media electrolyte so that parents, especially mothers very concerned about their children's growth. In addition, because the mother has never had a previous child so that more skilled in the detection of growth and development in children. Mother skills influenced by the mother's role in accepting the child's condition, managing the child's condition and meet the needs of growth and development must be improved because it can be used for the development of children's potential. Development of the child will be optimal when the interaction is done in accordance with the needs of children at different stages of growth and development. To be able to care for and raise children to the fullest and achieve optimal growth and development, the parents, especially the mother should know a lot of things related to growth and development. Parenting skills in the early detection of growth and development will be a very valuable provision for parents, especially mothers in caring for and raising children. Results of the research skills of a good mother is to observe the development of the baby coarse motion.

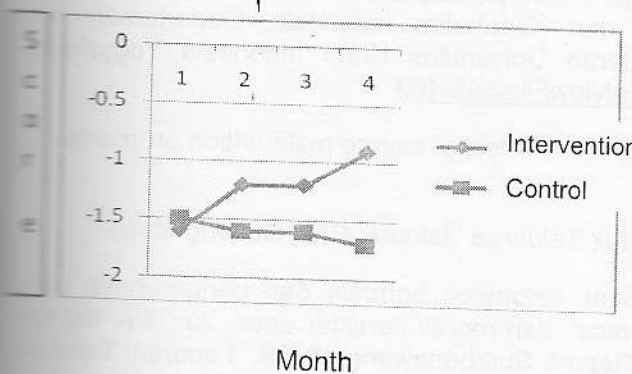


Figure 3. Growth (WAZ score)

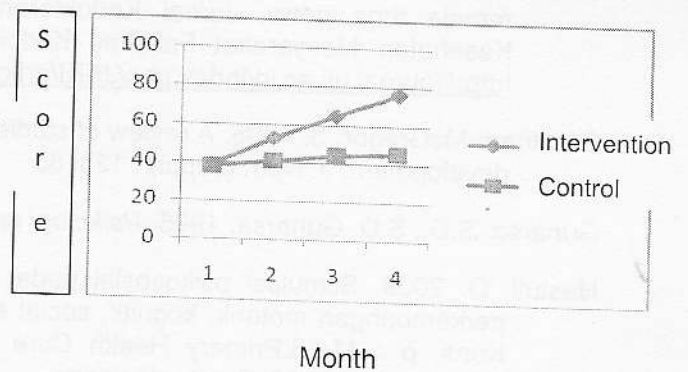


Figure 4. Development (cognitive function)

Figures 3 and 4 showed growth and development in intervention group have significant increase than control group. Preliminary studies show that mothers need educational media that can provide information about growth and development. Media that is required is an interesting print media, easy to understand, and complete other than books Maternal and Child Health (MCH). The selected media is a booklet because it can contain text and images more than any other health promotion media, such as posters or leaflets. The materials used are 100 grams of A4 paper, and printed 2 sides (back and forth). Making MSB beginning of Focused Group Discussion on community mothers baita outside the study area. The purpose of evaluation is to determine the readability of the booklet, the material and look for another input for improvement of the booklet (PL Ghazali, 2008). The objective formulation of the material and content of the booklet is to increase the knowledge of mothers in particular on growth and cognitive development of children aged 3 years refers to the signs and indicators of healthy child cognitive development for children aged 3 years according to the source text book.

Conclusion

This study showed nutrition education with mini and simple book increase the mothers knowledge, increasing energy intake, increase protein intake, decrease the incidence of infectious diseases, improving maternal stimulation, and improve cognitive function. There were different between intervention and control group. All variabel in control group did not show significant change.

Recommendation given to community to optimalization counseling in integrated service post for children in every months. To district health, they have to make attractive media for improving health knowledge, specially about growth and development.

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