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RELATIONSHIP OF THREE BASIC NEEDS BY MOTHER WITH GROWTH AND DEVELOPMENT OF CHILDREN AGE 3-5 YEARS IN MULYOREJO, SURABAYA

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ABSTRACT

Introduction: Fulfilling the basic needs of children (education, love and care) can influence the growth and development of children in a positive direction. This study was aimed to analyze the relationship between the patterns of education, love, and care given by mothers with the growth and development of children at 3-5 years in the Mulyorejo Sub-District, Surabaya. **Method:** This study was cross-sectional design with 72 children aged 3-5 years old as sample and selected using simple random sampling. The data were collected from primary sources by interviewing mothers of children about her knowledge and the pattern of education, love, and care, measuring children's anthropometry and interviewing Pre-Screening Questionnaire Test with children. The data were analyzed using the Spearman correlation test. **Result:** showed there was no relationship between education pattern (p = 0.122) and love pattern (p = 0.56) with child development. There was a correlation between consumption pattern (as a care pattern) of animal side dish with weight for age (p = 0.041; OR = -0.242), fruit consumption with weight for age (p = 0.010; OR = -0.301), and fruit consumption with weight for height (p = 0.025; OR = -0.264). **Conclusion:** Although there is no relationship between education and love patterns with child development, in the care pattern, the consumption pattern of animal and fruit side dishes is proven to be related to the growth of children.

Keywords: Education Pattern, Love Pattern, Care Pattern, Growth, Development

INTRODUCTION

Children's growth and development is a process of forming individuals physically and psychologically (Fristi, Indriati and Erwin, 2014). Growth is a quantitative change, namely an increase in the number and size of cells which will result in an increase in the size and weight of all or part of the cells, whereas development is a qualitative change in body functions that occur gradually from that level lowest to highest level through the process of maturity and study (Wong, 2009).

Children's growth can be seen based on nutritional status (Robertson et al., 2019). World Health Organization reports that 51 million children under five are wasted (7.5%) and another 151 million are stunted (22.2%) (World Health Organization, 2017). Data in Indonesia (2018) show that 17.7% of children under five still experience nutritional problems (Health Research and Development Agency, 2018). Apart from growth problems, developmental problems are also common. Approximately 16% of children in Indonesia have developmental disorders, both nerves and brain (Probosiwi, Huriyati and Ismail, 2017). The growth and development of children can be influenced by several factors, for example family income, parents' education and nutritional knowledge, parents' occupation, parenting patterns (education, love, care), food availability, sanitation and infectious diseases. (Suhardjo, 2003; Baliwati, 2005; Supariasa, 2012; Soetjiningsih and Ranuh, 2013).

Education patterns are activities to stimulate the basic abilities of child to be optimal (Arifah, Rahmawati and Dewi, 2013). The love pattern is giving love and affection by parents to provide a sense of security and comfort to their children (Soedjatmiko, 2009). The care pattern is the ability to take care, protect and educate children to achieve optimal physical growth and health status (Yogi, 2017). According to research by Adriani and Maria (2009), there is a relationship between care patterns such as nutrition, healthcare and housing; education patterns such as stimulation; and

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love patterns which are giving love to growth and development in toddlers in Gresik. (Adriani and Maria, 2009). For toddlers with nutritional status below the red line, the provision of basic needs by parents is related to their development (Arifah, 2013). Environmental exposure that does not support stimulation of child development as an education pattern in the first years of life can cause negative impacts in the later stages of life related to IQ, academic achievement, social behavior, and income. (Heckman and Masterov, 2007). Research on love patterns suggests that a mother's hug provides a sense of security and promotes child's growth and development, especially in regard to personality and emotionality (Gentzler, Ramsey and Black, 2015; Altschul, Lee and Gershoff, 2016). Nutritional deficiency from food as a care pattern can be a trigger factor for the decline in linear growth of children (Millward, 2017)

Mulyorejo is one of the areas with a high risk of malnutrition in children, even entering tenth place in Surabaya (Central Bureau of Statistics, 2016; Miranti and Purhadi, 2016). Therefore, based on the previous explanation, the researcher is interested in seeing the relationship between the patterns of education, love, and care given by mothers with the growth and development of children age 3-5 years in Mulyorejo, Surabaya.

METHODS

This study used a cross-sectional research design. Researchers observed and analyzed relationships giving patterns of three basic needs such as education, loving, and caring pattern done by the mother with growth and development in toddlers. The population in this study were all children aged 36-60 months in Mulyorejo Sub District Surabaya because children aged 36-60 months are in their most active period and already can communicate with other people, including their parents. So that it is easier to find out how parents hone children's abilities and measure the growth and development of the children. Samples were taken using simple random sampling method and Lemeshow formula (d = 0.05; p = 8.26%; N = 185), then it determined a sample size of 72 toddlers. The inclusion criteria included domicile in Mulyorejo in the past three months, willingness to be the study sample, not being sick during the study, being mainly cared for by the mother, living with the main family, and not receiving additional recovery food. And the exclusion criteria were respondents not willing to be interviewed, children under 36-60 aged and children who were sick during the study.

Data collection was carried out from August to September 2020 in the Mulyorejo Sub-District. Data on the characteristics of respondents that were observed included mother's age, mother's education, mother's knowledge, mother's occupation, father's occupation, family income, number of family members, number of children, gender of children, and age of children. The identified knowledge of mothers related to child nutrition, education, love and care patterns, were then grouped into good (7-10 score), moderate (4-6 score), and low levels (0-3 score).

The independent variables to be identified include the pattern of education, love, and mother care, while the dependent variable was the growth and development of the children. Education patterns are carried out to hone soft, motoric and language skills in children (Hidayat, 2007). The pattern of love can be seen from two aspects, namely the interaction of mother and child, and the role of parents (Soetjiningsih and Ranuh, 2013). Both variables were obtained through the developed and modified questionnaire from other research questionnaires that also relate to education and love pattern of children and the validity of which has been tested. Education and love pattern classified into three categories; each has a different cut-off for education pattern, namely good (13-15 score), moderate (7-12 score), and low (1-6 score). While for love pattern it is

namely good (21-30 score), moderate (11-20 score), and low (1-10 score). One of the care patterns can be seen through the consumption patterns of children identified using the Food Frequency Questionnaire, then divided into often (score > mean) and rare (score < mean) categories for each type of food (Arifah, 2013). Characteristics and three basic needs questionnaire were asked to mother's children.

Child development is identified using the Developmental Pre-Screening Questionnaire which will be categorized into three, namely appropriate (9-10 answered yes), confuse (7-8 answered yes), and irrelevance (<6 answered yes) (Department of Health, 2010). Children's growth is seen through three indicators, namely weight / age, height / age, and weight / height. Measurement of children's anthropometry (weight and height) was carried out directly by the researcher herself using calibrated digital bathroom scale and microtoise. For children's weight measurement, it is done by asking children to stand on a digital scale without footwear and then repeated twice. While for height measurement, it is done by asking the children to stand with their back under the microtoise then pulling down the microtoise mounted on the wall 2 meters high to the surface of the children's head. Analysis used SPSS ver. 21.0 and the Spearman Correlation test with a significance value of P <0.05. The implementation of this research has received a certificate of research ethics by Universitas Airlangga Faculty Of Dental Medicine Health Research Ethical Clearance Commission with Number 307/HRECC.FODM/VI/2020.

RESULTS

Characteristics of mothers as respondent and information about family can be seen in Table 1. Half of children's mothers were 20-30 years old (50%) with an average of 31.4 ± 6.29 years. Most of the respondents also graduated from senior high school (40.2%) with a moderate level of knowledge (61.1%). Only five mothers are college graduates. The majority of mothers do not work (79.2%), while the majority of fathers are private employees (81.9%). Only a quarter of the respondent's families earn more than the minimum wage, the rest is less. The average income of respondents is IDR 3,129,166 ± 1,796,353. Most of the respondents had no more than two children (73.6%) with the highest total of family members not more than four (55.6%). The number of boys and girls was not too different (55.6 vs 44.4) with the lowest number at 42-47 months (13.8%) and the average age is 47.4 ± 8.33 month.

Table 1. Characteristics of Respondents

Variable	n	%
Mother's Age (years)		
20-30	36	50
31-40	32	44.4
41-50	4	5.56
Mother's Education		
None	1	1.4
Elementary school and equivalent	14	19.4
Junior high school and equivalent	23	31.9
Senior high school and equivalent	29	40.2
Diploma/Bachelor and equivalent	5	7
Mother's Knowledge level		
Good	25	34.7
Moderate	44	61.1

Variable	n	%
Low	3	4.2
Mother's Occupation		
None	57	79.2
Merchant or Entrepreneur	4	5.6
Private employees	10	13.9
Government employees	1	1.4
Father's Occupation		
None	0	0
Merchant or Entrepreneur	13	18.1
Private employees	59	81.9
Government employees	0	0
Family's income		
< minimum wage (Surabaya min. wage Rp4.200.000)	54	75
≥ minimum wage (Surabaya min. wage Rp4.200.000)	18	25
Number of family members at home (persons)		
≤ 4	40	55.6
5 – 6	25	34.7
> 6	7	9.7
Total of children		
≤ 2	53	73.6
3 – 4	18	25
> 4	1	1.4
Gender of children		
Boys	40	55.6
Girls	32	44.4
Age of children (month)		
36 – 41	23	31.9
42 – 47	10	13.8
48 – 53	18	25
54 – 60	21	29.2

The basic needs of children are obtained from the parenting style which includes education, love, and care pattern (Table 2). The education and love patterns performed by mothers are divided into three categories, namely good, moderate and low. In this study it is known that both education (94.4%) and love pattern (93.1%) of respondents are in good level, and the rest had moderate levels of education pattern (5.5%) and love pattern (6.9%), there are none in the low category. Based on the results of interviews with mothers of children, the form of education patterns are such as chatting with children, accompanying children play and always responding to children's words. While the form of love pattern is such as always giving understanding and explanation to children when they are fussy, always there when the child needs something and always supporting and giving appreciation when children achieve something.

Interacting and playing together with children is good for honing motor skills and thinking ability of children, but, based on research, most parents only provided toys that can hone children's motor skills. There were some parents who still didn't use educational toys such as posters / picture cards, story books, puzzle toys and other toys that can help improve speaking and language skills in children.

Table 2. Three Basic Needs by Mother to Child

Variable	n	%
Education pattern level		
Good (score of 13-15)	68	94.4
Moderate (score of (7-12)	4	5.5
Low (score of 1-6)	0	0
Love pattern level		
Good (score of 21-30)	67	93.1
Moderate (score of 11-20)	5	6.9
Low (score of 1-10)	0	0
Care pattern of consumption		
Staple food		
Often (> mean)	44	61.1
Rarely (< mean)	28	38.9
Animal side dish		
Often (> mean)	34	47.2
Rarely (< mean)	38	52.8
Vegetable side dish		
Often (> mean)	35	48.6
Rarely (< mean)	37	51.4
Vegetables		
Often (> mean)	31	43.1
Rarely (< mean)	41	56.9
Fruits		
Often (> mean)	38	52.8
Rarely (< mean)	34	47.2
Milk and processed		
Often (> mean)	39	54.2
Rarely (< mean)	33	45.8
Others		
Often (> mean)	27	37.5
Rarely (< mean)	45	62.5

Different from the education and love pattern, care pattern is seen from the consumption pattern of children and there are only two categories, namely often and rarely. Based on the results of interview using the Food Frequency Questionnaire (FFQ) the types of food that are consumed frequently by children are staple food, fruits, milk, and processed, while animal side dish, vegetable side dish, vegetables, and others are classified as rarely consumed. Staple food which is most often consumed by children are rice, animal side dishes are egg and chicken, vegetable side dishes are tofu, vegetables are carrot, fruits are banana and melon, milk and processed products often consumed are formula milk or UHT milk, and then the other foods that are often consumed are namely snacks.

Based on the researcher's observation, the environmental condition of the respondent's houses was not in accordance with the criteria for housing hygiene and sanitation. This is because the conditions around the respondent's houses are quite slum and narrow, so the access is not easy. The ventilation and lighting of the respondent's houses are also quite lacking. This can affect the health and nutritional status of children who live in those houses and also will affect their growth and development.

Table 3. Growth and Development of Children

Variable	n	%
Weight for Age		
Severe underweight	3	4.2
Underweight	13	18.1
Normal	45	62.5
Risk of overweight	11	15.3
Height for Age		
Severe stunting	3	4.2
Stunting	10	13.9
Normal	57	72.9
High	2	2.8
Weight for Height		
Severe wasting	2	2.8
Wasting	10	13.9
Normal	46	63.9
Risk of overweight	7	9.7
Overweight	2	2.8
Obese	5	6.9
Development of children		
Appropriate (score 9-10)	18	25
Confuse (score 7-8)	25	34.7
Irrelevance (score <6)	29	40.2

Table 3 shows the growth and development of children. Overall, most of the respondents had normal nutritional status. However, not a few respondents also experienced malnutrition or excess problems. Nutritional status based on weight / age shows that the number of respondents with underweight (22.3%) is more than those at risk of being overweight (15.3%). This is in contrast to the weight / height indicator which shows that the amount of wasting (16.7%) is slightly lower than the amount above normal (19.4%). If the growth of children is seen from the nutritional status, most of them show normal conditions, different from the conditions of children's development. Most of the children received a score <6 which indicates developmental irrelevance. In this study, it is known that motor and sensory development in most children are good enough, but for speech and language it is still lacking because there are still quite a lot of children who find it difficult to carry out orders on the Developmental Pre-Screening Questionnaire Test.

Table 4. Relationship of Education and Love Pattern with Children's Development Level

Variable	Development of Children						p-value	OR
	Appropriate		Confuse		Irrelevance			
	n	%	n	%	n	%		
Education pattern								
Good	18	25	24	33.3	26	36.1	0,122	0.184
Moderate	0	0	1	1.4	3	4.2		
Low	0	0	0	0	0	0		
Love pattern								
Good	18	25	24	33.3	25	34.7	0,056	0.226
Moderate	0	0	1	1.4	4	5.6		

Variable	Development of Children						p-value	OR
	Appropriate		Confuse		Irrelevance			
	n	%	n	%	n	%		
Low	0	0	0	0	0	0		

Table 5. Relationship of Care Pattern with Toddler's Growth Level

Indicator of Nutritional Status	OR						
	Staple food	Animal side dish	Vegetable side dish	Vegetables	Fruits	Milk and processed	Others
Weight for age	-0.013	-0,242*	0.002	-0.085	-0.301*	-0.130	-0.177
Height for age	-0.168	0.051	-0.059	-0.057	-0.193	-0.062	-0.003
Weight for height	0.056	-0.197	0.020	-0.093	-0.264*	-0.072	-0.156

*significance <0.05

The relationship between education and love patterns with child development can be seen in Table 4. Between the two variables, there was no relationship with the development of children (p = 0.122 and p = 0.056). The relationship between care patterns and child growth is shown in Table 5. There was no correlation between consumption patterns and height for age. However, it was found that there was a relationship between the consumption patterns of animal side dishes (p = 0.041; OR = -0.242) and fruits (p = 0.010; OR = -0.301) and the indicator of weight for age. The pattern of fruit consumption was also known to have relationship with the growth (weight for height) for children (p = 0.025; OR = -0.264).

DISCUSSION

Respondents' Characteristics

The characteristics of the parents can influence the growth and development of the child (Mitchell et al., 2013). Level of mother's education greatly affects the quality of child development (Abuya, Ciera and Kimani-Murage, 2012). According to Dessie et al. (2019), the higher the mother's education will increase her ability to absorb information and apply a positive parenting style to the child (Dessie et al., 2019). In fact, according to Gimenez-Nadal and Molina (2013), father's education is less influential on children than mothers. In line with the educational level, most of the mothers are senior high school graduates, the majority of mothers' knowledge of three basic needs for children is also at a moderate level. The mother acts as the first educator in the child's growth and development, so that knowledge is very important in order to provide positive information to the child (Cahyanti and Zulaikha, 2020).

Most fathers work as private employees and mothers as housewife. The type of work can affect family income and free time provided, especially by mothers, for children (Milkie et al., 2010; Noble et al., 2015). The less free time parents have, the less interaction and stimulation the child has (Arifah, 2013). The economic condition of respondents was classified as low because most of them have income less than the minimum wage (75%). Economic conditions affect the ability to buy family's daily needs, one of which is nutritious food, which can affect the patterns and variations of children's eating (Bekelman, Bellows and Johnson, 2017). A longitudinal study reports that families with low income are more at risk of experiencing malnutrition, such as

overweight and obese as the child grows (Demment, Haas and Olson, 2014). The large number of children in the family can influence the focus of mother's attention in caring for her children (Nurapriyanti, Sarwinanti and Satriandari, 2016). Families with low economic status and having many children result in a lack of attention, affection, and also the provision of primary needs such as food to be more limited. Thus, it can affect children's growth and development to be less than optimal. (Hidayah, 2010).

Education Pattern in Toddler Development

This study shows no relationship between education patterns and child development. The majority of children experience irrelevant development despite getting a good education pattern from their mothers. This may be due to other environmental factors that affect child development. According to Hawa and Spanoudis (2014), children's development can be influenced by intrinsic and extrinsic factors including heritability, communicative interaction with parents, parental stress, and family socioeconomic status. Even sleep regulation can also affect child development (Bathory and Tomopoulos, 2017). Based on the Developmental Pre-Screening Questionnaire, it is known that the motor and movement development of toddlers is quite good, but speech and language development is still lacking. Mothers of children often interact with toddlers, but without using tools that can support the child's vocabulary increase.

The results of this study are different from research by Hidayah (2010) which shows a relationship between stimulation and toddler development. The more frequent interactions that are carried out by the mother, the children's abilities will increase and their development will increase (Lestari, 2019). The cluster-randomized field trial research showed that learning programs that focus on modeling and practice can improve good stimulation for language development in children. (Aboud and Akhter, 2011). The stimulating effect of mothers, even with low education, was proven to be 1.7 times more effective on child development (Barros et al., 2010).

Love Pattern in Toddler Development

During the study, quite a number of children were still shy, lacking confidence and fussy because they were afraid to interact with other people, especially with researchers. This can be caused by several factors, including mothers who do not give their children time to learn independently in playing activities and do not teach socialization with the environment. (Ruauw, Rompas and Gannika, 2019). According to Liao (2012), children need to be loved. Every child needs affection, which can have an impact on the child's physical and mental development (Wall, 2018). Children who grow up with warm affection from their parents have a higher sensitivity to surroundings (Adriani and Maria, 2009). Among the disorders caused by abnormal development are psychosocial and behavioral disorders, for example the child becomes irritable and difficult to manage (Ruauw, Rompas and Gannika, 2019).

Care Pattern in Toddler Growth

One of the ways to identify care patterns is through consumption patterns. Children in the study mostly ate staple foods. Research by Stevens and Nelson (2011) reports that children with low income families tend to consume lots of food sources of carbohydrates, fats and oils .

Based on the results of the Spearman correlation test between consumption patterns and nutritional status of body weight for age, it was found that there was a significant relationship between consumption of animal side dishes (OR = -0,242) and consumption of fruit (-0,301) with the nutritional status of children’s weight for age. This means that the two variables have a strong but unidirectional

relationship. The results showed that most children who often consume animal side dishes tend to have normal nutritional status according to the weight for age index (33.3%). However, there were also children who had a risk of over nutrition (11.1%). According to Ardhyati (2015) regarding the relationship between animal food and the nutritional status of elementary school children in Sukoharjo, the more types of animal food are consumed, the better the child's nutritional status is. Even though the consumption of animal side dishes is needed by the body, the amount needs to be limited, because the cholesterol and saturated fat content is higher than vegetable side dishes, which can lead to obesity. (Triandhini, Kinasih and Sriwijayanti, 2018). Rachmi et al. (2016) explained that. in Indonesia, the prevalence rate of stunting and underweight has decreased in children aged 3-5 years. However, the number of "at risk," overweight, and obese have increased (Rachmi et al., 2016).

Similar to the weight for age indicator, fruit consumption patterns were also shown to be associated with child growth (OR = -0.264). The coefficient correlation shows a strong enough relationship, but not in the same direction. So, the more often children consume fruit, then their nutritional status tends to be normal. Consuming adequate amounts of fruit can prevent obesity, because fruit is rich in fiber which contains relatively low energy and calories, and creates a feeling of fullness longer so it can reduce hunger but does not cause fat (Nepper and Chai, 2017). In addition, fruit also contains vitamins, minerals and antioxidants that are useful to immune system or keeping the body's defense system from free radicals (Wang et al., 2011). Low consumption of fruit can cause constipation and in the long run can cause various diseases such as cardiovascular disease, stroke, obesity, diabetes mellitus, colon cancer and dyslipidemia (Damayanti, Murbawani and Fitranti, 2018).

CONCLUSION

Children's development can be influenced by many factors. Although there has not been found a relationship between education and love patterns with children's development, the practice of these two variables is believed to optimally influence the improvement of child's development. On the other hand, a relationship was found between consumption patterns and children's growth, especially consumption of animal side dishes and fruit. Children's mothers need to provide regular stimulation to their child as well as a more varied diet to support optimal development and growth.

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