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THE LEVEL OF MATERNAL KNOWLEDGE ON CHILDHOOD STIMULATION AND ITS ASSOCIATION WITH CHILD DEVELOPMENT IN THE WORKING AREA OF PUSKESMAS BANDA RAYA, BANDA ACEH

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Abstract

Introduction: The future of a nation depends on the success of children in achieving optimal growth and development. The first years of life, especially the period from the fetus in the womb until the child is 2 years old, is a very important period in child development. Approximately 16% of toddlers in Indonesia experience developmental disorders which include brain development disorders, hearing disorders, and motor disorders.

Methods: This study was conducted using an *analytical descriptive* method with a *cross sectiona*l. The sample used in this study was 81 mothers and toddlers in the working area of Puskesmas Banda Raya. Bivariate analysis using Kendall Tau with 95% *confidence interval*.

Result: *Kendall-Tau* test showed that there was an association between maternal knowledge of childhood stimulation with child development.

Conclusion: Mothers with good knowledge of stimulating child growth and development are likely to have children with age-appropriate development.

Keywords: Knowledge, Childhood Stimulation, Child Development, Toddlers.

Introduction

The future of a nation depends on the success of children in achieving optimal growth and development. The first years of life, especially the period from the fetus in the womb until the child is 2 years old, is a very important period in child development. It is a golden period yet vulnerable to negative influences. Good and sufficient nutrition, good health status, proper parenting, and proper stimulation during this period will help children to grow healthy and reach their optimal abilities, thus contributing better to society.[1] Development is the increase in abilities (*skills*) in more complex body structures and functions in a regular and predictable pattern, as a result of the maturation process.[2]

Among several factors, stimulation is considered one of the important indicators in contributing to the optimal growth and development of children. Children who receive direct, regular, and early stimulation will develop faster than children who receive less or late stimulation.[3] A study in Tugu Kebayoran Village has indicated that 67% of mothers had high knowledge of speech and language development in children.

High knowledge of child development should be accompanied by good stimulating behavior resulting from good development in children. Furthermore, a study in Tegal Regency has discovered that there was an association between the level of knowledge on childhood stimulation and the development of children aged 48-60 months.[5]

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Children at the golden age of 0-5 years need to get their parents' attention, especially regarding their growth and development. At this age, children who have good growth are usually measured by normal weight and height. Gross and fine motor development, speech development, cognitive, and social behavior also need equal attention. In monitoring children's development, parents can actually detect early sensory motor disorders in children. Hence the child has developmental delays; appropriate interventions can be carried out, either stimulation at home or getting therapy from an expert doctor. There are some common signs of developmental disorders. Early symptoms can be seen from a six-month-old baby. Immediate intervention is required when the baby does not show social interaction at an early age. In older children, the first sign can be seen when children are incapable of interacting with their friends.[6]

Lack of stimulation will lead to developmental delays in children. Most children with developmental delays are not identified until preschool or school age, thus difficult for them to develop their potential.[7] Various problems in child development such as motor, language, and behavioral delays have increased in recent years, the prevalence in the United States was 12-16%, Thailand was 24%, Argentina was 22%, and in Indonesia was 13%-18%. Similarly, in 2011, UNICEF reported that approximately 3 million (27.5%) toddlers had development disorders. This indicates that growth and development disorders in toddlers are still high. Furthermore, based on the National Data of the Indonesian Ministry in 2010, it was reported that 11.5% of Indonesian toddlers had growth and development disorders.[8]

Approximately 16% of toddlers in Indonesia have developmental disorders, which include brain development disorders, hearing disorders, and motor disorders, and in 2010, it reached 35.7%, which can be seen from the high prevalence of speech and language disorders in children (2, 3% - 24.6%) and the prevalence of speech and language delay in school children (5% - 10%).[9] According to the Riskesdas data in 2018, it was reported that child development at the age of 36-59 months includes literacy development reached 64.6%, physical development reached 97.8%, social-emotional development reached 69.9%, and learning development reached 95.2% with a total development index of 88.3%. [10]

Factors contributing to the growth and development of children are internal factors (internal) and external factors (external or environmental). External factors include prenatal factors, labor factors and post-natal factors.[11] Based on the results of interviews, among 10 samples that were taken randomly attenuskesmas Banda Raya, there were 7 of toddler's mothers who 7 of toddler's mothers were that could stimulate the development of toddlers.

They assumed that every healthy child would likely develop well.

Based on this background, the question posited for this study was "Is there an association between the level of maternal knowledge on childhood stimulation and the development of toddlers in Puskesmas Banda Raya Working Area in 2019?". The objective of this study was to find the association between the level of maternal knowledge on childhood stimulation and child development in working area of Puskesmas Banda Raya in 2019.

Method

This study was conducted using an *analytical descriptive* method with a *cross sectiona*l which measured the outcome and the exposures in the study participants at the same time.

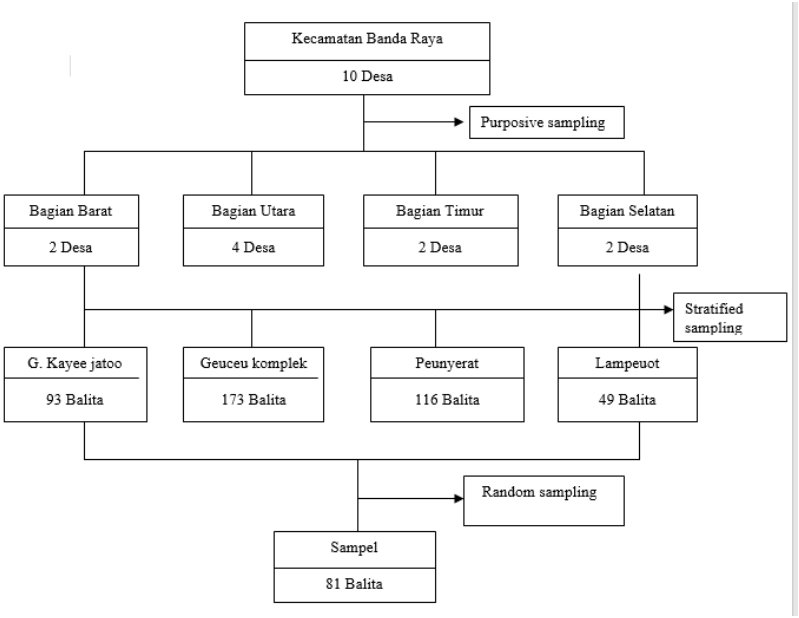
The independent variable in this study was maternal knowledge on childhood stimulation, and the dependent variable was child development. Maternal knowledge variable was defined as the result of mother being knowledgeable about activities to stimulate the basic abilities of tollers, therefore children can grow and develop optimally, which include: understanding of stimulation, the principle of optimal stimulation and stimulation of growth and development of children aged 0-5 years. Level of knowledge used an ordinal measuring scale which

classified as; *High*: score of 75%; *Sufficient:* score of <75%-56% and *Low*: score of <56%.

Child development variables were defined as the increase in body structures and functions that were more complex in the ability of gross motion, fine motion, speech, and language as well as socialization with development. The measuring scale used an ordinal which was categorized as; *Appropriate:* the answer of "Yes" to the Developmental Pre-screening Questionnaire (Kuesioner Pra Skrining Perkembangan: KPSP) was 9 or 10; *Dubious*: answer of "Yes" to the KPSP was between 7-8 and *Deviation*: answer of "Yes" to the KPSP was 6 or less.

A population size of 1288 toddlers were selected from all mothers who had toddlers aged 12-59 months in the working area of Puskesmas Banda Raya in December 2018. Subsequently, The sample of this study were selected from toddler's mothers and toddlers aged 12-59 months who received a questionnaire on maternal knowledge on childhood stimulation and KPSP yielded a total of 81 respondents.

A *multi-stage sampling.*[28] technique was used for the selection of study participants as seen in below picture :



Picture 1: Multi Stage Sampling Technique

Data analysis was performed using the univariate analysis and bivariate analysis using the chi-square test with a 90% confidence level.

Results

The results of the study on the association between the level of maternal knowledge on childhood stimulation and child development in the working area of Puskesmas Banda Raya Banda Aceh showed the following results:

1. *Univariate Analysis*
   a. Characteristics of maternal

Tabel 1Frequency distribution of respondents' characteristics by age, education and maternal knowledge

No.	Characteristic of mother	f	%
1	**Age Category**		
	<20 Years	0	0
	20-35 Years	74	91.4
	>35 Years	7	8.6
Total		81	100

No.	Characteristic of mother	f	%
2	**Education**		
	High School	45	55.6
	Diploma	20	24.7
	Bachelor	16	19.8
Total		81	100
3	**Level of Maternal Knowledge**		
	High	64	79,0
	Fair	13	16,1
	Low	4	4,9
Total		81	100

Table 1 shows that there are 72 respondents (91.4%), the age of mother's with the majority between 20-35 years old. There were 45 respondents (55.6%) of mothers who graduate from high school and 64 respondents (79.0 %) of mothers have a high level of knowledge related to childhood stimulation and development.

b. Child Characteristics

Tabel 2 Characteristics of the child by age, gender, and childbirth delivery method

No.	Characteristic of child	F	%
1	**Age Category**		
	12-23 months	21	25.93
	24-36 months	13	16.0
	37-48 months	20	24.7
	49-60 months	27	33.3
Total		81	100
2	**Gender**		
	Boy	35	43.2
	Girl	46	56.8
Total		81	100
3	**Childbirth Delivery Method**		
	Normal	54	66.7
	Caesarean	27	33.3
Total		81	100
4	**Child Development**		
	Appropriate	64	79,0
	Dubious	13	13,0
	Deviation	4	4,94
Total		81	100

Table 2 shows that there are 27 children (33,3%) aged 49-60 months, 46 children (56.8%) were girls, 54 children (66.7 %) who had a history of normal birth, and 64 children (79,0%) were appropriate child development based on the KPSP.

c. *Bivariate Analysis*

Tabel 3 Statistical Test Result (*Kendall's Tau*) The Association of Maternal Knowledge on Childhood Stimulation and Child Development

Toddler Development	Maternal Knowledge						Total		Correlation Coefficient	P-Value
	High		Sufficient		Low					
	f	%	f	%	f	%	Σf	%	0,707	0,000
Appropriate	60	74,0	4	4,93	0	0	64	100		
Dubious	4	4,93	7	8,64	2	2,46	13	16,04		
Deviation	0	0	2	2,46	2	2,46	4	4,9		

The results of Kendall's Tau analysis are displayed in Table 3. There was a significant association between maternal knowledge of childhood stimulation and child development P = 0.000 (P <0.05), with a strong correlation coefficient between maternal knowledge and child development. In conclusion, mothers who have knowledge of childhood stimulation are likely to have children with development according to their age.

Discussion

1. Level of Maternal Knowledge on Childhood Stimulation

This study yielded a total of 60 respondents (74.0%) with the majority having a high level of maternal knowledge on childhood stimulation in the Puskesmas Banda Raya working area. In line with this, a study about the level of maternal knowledge of childhood stimulation and child development in 2014, concluded that there was a significant association between maternal knowledge of childhood stimulation and child development P= 0,005 (*P<0,05*).

Knowledge is the result of being knowledgeable after sensing a certain object. Knowledge and cognition are very important domains for the formation of one's actions. A person or society can gain experience/knowledge through various kinds of information media. Yet, the tool has a different intensity in helping someone's problems based on its function as a channel of information, respectively.[12]

High level of maternal knowledge indicates that respondents receive a lot of information about childhood stimulation given to their children and also the development of toddlers according to their developmental stages. Information on the childhood stimulation and development of toddlers is obtained from various sources of information such as TV, Posyandu, and others. The more information the respondent gets, the better the level of knowledge the respondent has on childhood stimulation and the development of toddlers according to their developmental stages. [13]

In addition to information, the level of knowledge is also affected by the experience. The experience gained can increase one's knowledge, both the experience gained from oneself and others. A person's experience is likely to offer a perspective on problem solving, which notably affect someone in decision making when they encounter the same problems.[14]

We assumed that the high level of maternal knowledge on childhood stimulation is affected by the maternal level of education and experience. The higher the level of maternal education, the better the maternal knowledge on childhood stimulation.

2. Development in Toddlers Aged 12-60 Months

Based on the result of the study conducted in Puskesmas Banda Raya, we found that there were 60 respondents (74,0%) with the majority having appropriate development (S), whereas 4 respondents (4,94%) had deviated development (P). As a result, it indicated that most of the respondents had toddlers with development in accordance with the stages. In line with this, a study about the level of

maternal knowledge on childhood stimulation and child development in 2014, which concluded that there was a significant association between maternal knowledge on childhood stimulation and child development P= 0,005 (*P<0,05*).

Development is the increase in more complex body structures and functions in gross motor skills, fine motor skills, speech and language as well as socialization and independence.[15] Moreover, to achieve optimal growth and development, a child needs three basic needs such as Physical-biomedical needs (ASUH) include the fulfillment of balanced nutrition, immunization, treatment, clothing, housing, and early detection of developmental deviations.

Furthermore, emotional/affectionate needs (ASIH) include the provision of affection, security, self-esteem, support for independence, intimate and harmonious parent-child bond (especially mothers) starting from an early age and permanently, and the need for stimulation (ASAH) include stimulation from the outside, which must begin early in life as the forerunner of the child's learning process.[11]

Child development requires stimulation such as the provision of play equipment, child socialization, parental involvement at home, especially mothers and other family members in children's activities.[16] Mothers with high level of knowledge is likely to seek information more actively to improve skills in childcare.[17]
The active role of parents is required in the development of children, especially when they are under five years old. Parents, especially mothers, have a pivotal role in the developmental stage of a child. Mothers also act as the first and foremost educators in the family, hence, mothers are aware of the necessity in taking care of their children properly and in accordance with the stages of development of a child. The role of mothers in child development is very important, owing to the fact that good maternal skills is likely to allow child monitoring to be carried out properly. Parents, especially mothers, are the first to encourage children to communicate, consequently, children understand how to establish an interaction with other people using language.[18]

However, complete attention and affection needs to be given in order to support the growth and development of toddlers. The number of children in the family can also affect the interactions that occur in the family. The interaction is determined by the quality of the interaction, such as an understanding of each other's needs and optimal efforts to meet those needs based on mutual love.

We assumed that child development is strongly affected by the role of parents. The reciprocal interaction between parents and children will lead to intimacy in the family, as a result of this, positive communication in the family will be built and lead to a normal child's development.

3. The Association of Level of Maternal Knowledge on Childhood Stimulation and Toddlers Development

Referring to the results of the study which was conducted in the working area of Puskesmas Banda Raya, it was indicated that there was a significant association between maternal knowledge of childhood stimulation and child development P= 0,000 (*P<0,05*). The results of this study obtained the value of the correlation coefficient between maternal knowledge on childhood stimulation with child development, which had a strong relationship (0.707).

In line with this, a study in 2014 about the association between level of maternal knowledge on childhood stimulation and child development aged 12-36 months in Kedungbule Village, Trimurti, Srandakan, Bantul, Yogyakarta , claimed that maternal knowledge on childhood stimulation was significantly associated with child development P= 0,0005 (*P<0,05*).

Knowledge is the result of being knowledgeable after sensing a certain object. A person or society can gain experience/knowledge through various kinds of information media.[12] A person's knowledge can be influenced by several factors including age, education, experience, social, culture, environment, intelligence, or information from parents, books, and mass media.[14] Knowledge and cognition are very important domains for

the formation of one's actions. Someone with good knowledge is likely to form good behavior.

Child development is highly influenced by various factors, both environmental and genetic. Additionally, maternal knowledge on childhood stimulation is one of the environmental factors that influence child development, as mothers with this kind of knowledge are likely to provide good stimulation to their child. Hence, children who receive effective stimulation will develop faster. Rather, children who receive insufficient stimulation or unstimulated.[11]

Development is the increase in more complex body structures and functions in gross motor skills, fine motor skills, speech and language as well as socialization and independence. Growth occurs simultaneously with development. Contrary to growth, development is the result of the interaction of the maturity of the central nervous system with the organs it influences, such as the development of the neuromuscular system, speech, emotion and socialization. All of these functions play an important role in a complete human life.[19]

Furthermore, we assumed that maternal knowledge and role contribute for a beneficial effect, which play a role in the overall process of child development, as parents would be able to identify the advantages of their child's development process and provide early childhood stimulation to the child's overall growth and development in both physical and mental.

Conclusion

Based on the result of this study which was conducted in the working area of Puskesmas Banda Raya, Banda Aceh, confirms that maternal knowledge of childhood stimulation is significantly associated with child development P = 0,000 ($P<0,05$). In conclusion, mothers who have knowledge of childhood stimulation are likely to have children with development according to their age.

Conflict Of Interest

The authors declare no conflicts of interest between authors and institution

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Authors' Contribution

a. Concept & Research Question: Nurul Amalia Amir
b. Conducting Research: Nurul Amalia Amir
c. Statistical Analysis: Nurul Amalia Amir, Juliastuti Juliastuti
d. Report Writing: Nurul Amalia Amir, Putri Shanty

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