

## 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 sectional*. 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.<sup>1</sup> 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.<sup>2</sup>

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.<sup>3</sup> 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.<sup>5</sup>

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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

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%.<sup>10</sup>

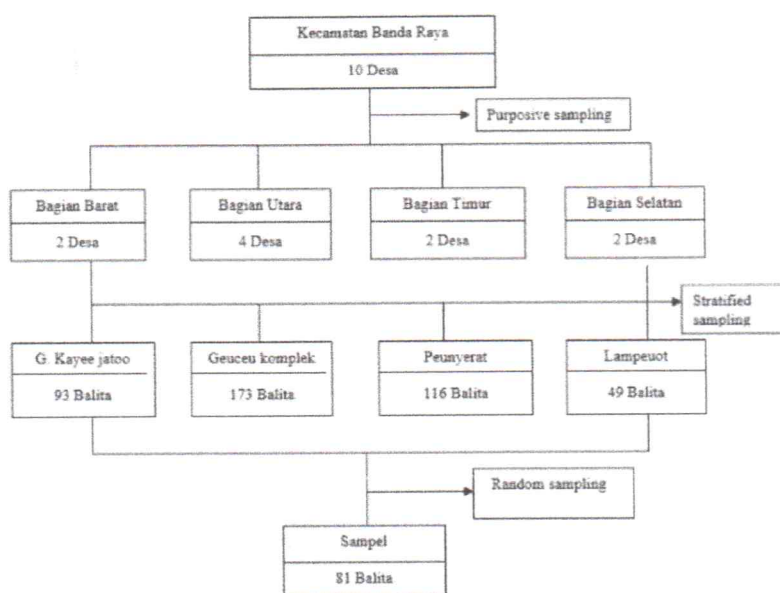
Factors contributing to the growth and development of children are internal factors (internal) and external factors (external).

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*<sup>28</sup> 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 1 Frequency distribution of respondents' characteristics by age, education and maternal knowledge

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



| No.   | Characteristic of mother           | f  | %    |
|-------|------------------------------------|----|------|
| 2     | <b>Education</b>                   |    |      |
|       | High School                        | 45 | 55.6 |
|       | Diploma                            | 20 | 24.7 |
|       | Bachelor                           | 16 | 19.8 |
| Total |                                    | 81 | 100  |
| 3     | <b>Level of Maternal Knowledge</b> |    |      |
|       | 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     | <b>Age Category</b>               |    |       |
|       | 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     | <b>Gender</b>                     |    |       |
|       | Boy                               | 35 | 43.2  |
|       | Girl                              | 46 | 56.8  |
| Total |                                   | 81 | 100   |
| 3     | <b>Childbirth Delivery Method</b> |    |       |
|       | Normal                            | 54 | 66.7  |
|       | Caesarean                         | 27 | 33.3  |
| Total |                                   | 81 | 100   |
| 4     | <b>Child Development</b>          |    |       |
|       | 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    | %     |                         |         |
| Appropriate         | 60                 | 74,0 | 4          | 4,93 | 0   | 0    | 64    | 100   | 0,707                   | 0,000   |
| 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.<sup>12</sup>

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.<sup>13</sup>

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.<sup>14</sup>

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.<sup>15</sup> 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.<sup>11</sup>

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.<sup>16</sup> Mothers with high level of knowledge is likely to seek information more actively to improve skills in childcare.<sup>17</sup> 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.<sup>18</sup>

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.<sup>12</sup> 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.<sup>14</sup> 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.<sup>11</sup>

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.<sup>19</sup>

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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