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Original Article

Maternal Stimulation in Optimising Child Development

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Abstract

Introduction: Development is a process of psychological change as a result of the maturation of psychic and physical functions in a child. Growth and development disorders are serious problems for both developed and developing countries. Growth can be seen from body weight, height, and head circumference, while development can be seen from autonomic, social, emotional, language, and cognitive abilities. **Objectives:** This study aimed to analyse maternal stimulation in optimising child development. **Methods:** This study was conducted in Puton Village, Diwek District, Jombang Regency. The study was conducted in August-September 2022. The research design used was observational analytic. The population in this study consisted of toddlers in Puton Village, Diwek District, and Jombang Regency, totaling 63 toddlers obtained by purposive sampling technique. The sample of this study was some toddlers in Puton Village, Diwek District, Jombang Regency. The dependent variable in this study is toddler development, and the independent variable is stimulation. This study uses the Pre-Screening Development Questionnaire (KPSP) to interpret toddler development. This analysis is used to find a comparison between two variables in nominal and ordinal form using the Spearmen rank test. **Results:** Most (59%) of toddler mothers stimulate their children, and almost all (91%) of toddlers' development is following their age stage. Not all toddler mothers provide stimulation to their toddlers due to their educational background and employment responsibilities. Increased knowledge or information is required for toddler mothers, especially regarding stimulation. **Conclusion:** This can be done by providing education or counseling in groups or individually to toddler mothers or caregivers to prevent deviations in child development.

Keywords: *Child Development; Maternal Stimulation; Optimisation*

Introduction

Development is a process of psychological change as a result of the maturation of psychic and physical functions in a child. The development that occurs in children is influenced by many factors, such as nutrition, heredity, neuroendocrine factors, interpersonal relationships, stress, love and affection, chemicals, and so on. One of the postnatal environmental factors, namely stimulation, is no less important in the growth and development of children. A child who receives targeted and regular stimulation will experience faster development than children who receive less or no stimulation (Hong, 2025). Nutrition is the main factor affecting child development. Good nutrition during the late fetal and early neonatal periods significantly influences development across the entire human lifespan (Georgieff, Ramel & Cusick, 2018).

Growth and development disorders are a serious problem for both developed and developing countries in the world. Growth can be seen from weight, height, and head circumference, while development can be seen from autonomic, social, emotional, language, and cognitive abilities. Every child will go through

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a growth and development process according to their age, but many factors influence it. Children are the nation's next generation and deserve attention, with every child having the right to achieve optimal cognitive, social, and emotional development. Thus, good-quality children are needed to achieve a promising future for the nation (Sugeng, Tarigan & Sari, 2019). Danielle *et al*.'s study reveals that nutritional inadequacies impede children's ability to attain their physical, cognitive, and psychosocial potential. Consequently, a significant relationship exists between nutrition and suboptimal child development, underscoring the importance of improving and broadening current educational knowledge to tackle the underlying causes of nutritional deficiencies (Gallegos *et al*., 2021).

The number of toddlers in Puton Village, Diwek District, Jombang Regency is 4 infants, 14 toddlers, and 17 preschoolers. From the initial observations, there were growth and development problems where a 4-year-old child experienced developmental delays. At that age, the child could not colour pictures neatly, imitate animal movements, lack confidence when asking others for something, and stutter speech. These indicate that the child experiences growth and development stimulation problems.

Developmental assessment in children is crucial so that if there is a suspicion of deviation, stimulation, and early intervention can be carried out immediately before the abnormality occurs. Prevention efforts must be carried out as early as possible to reduce developmental problems by conducting early detection. Early detection can occur every three months in children aged 0-12 months and every six months in children aged 12-72 months. It can be carried out at all levels of health services. One of the early detection efforts can be carried out starting from the basic health level, namely the integrated health post (Posyandu) (Sugeng, Tarigan & Sari, 2019) Detecting developmental disorders in children, such as ADHD, ASD, and LD, requires early intervention. Luis' research emphasises the need for efficient screening instruments in basic education, particularly in areas with limited access to early childhood educational opportunities (Llanos & Martínez de Anguita, 2025).

Several opinions state that in order to monitor child growth and development, screening and early detection of developmental deviations are very necessary. In general, developmental screening aims to screen the entire population to identify children at risk. An assessment is then carried out on identified children to find children who may need more comprehensive intervention. Screening is not only carried out on children suspected of having developmental problems but must be routinely on all children (Hanum & Safitri, 2018; Indrayani, Tedjasulaksana & Darmapatni, 2023). According to Luis' study, effective screening tools are crucial for basic education, especially in regions with restricted access to early childhood education (Llanos & Martínez de Anguita, 2025).

Methodology

Research design

This research was conducted in Puton Village, Diwek District, Jombang Regency. The research was conducted in August-September 2022. The research design used was observational analytic. In this study, stimulation was carried out by the toddler's mother, and then the toddler's development was interpreted.

Population and Sample

The population in this study consisted of toddlers in Puton Village, Diwek District, and Jombang Regency, totaling 63 toddlers. The sample included toddlers from Puton Village, Diwek District, Jombang Regency. The sampling technique used in this study was purposive sampling.

Data Collection

The data measured in this study were maternal stimulation and toddler development. The dependent variable in this study was toddler development. The independent variable in this study was stimulation. This study used the Pre-Screening Development Questionnaire (KPSP) to interpret toddler development.

Data Analysis

The collected data were analysed using SPSS. This analysis is used to find a comparison between two variables in nominal and ordinal form using the Spearmen rank test.

Results

Table 1: Respondent Characteristics

Characteristics	Frequency	Percentage (%)
Maternal Age		
Early adulthood	0	0
Middle adulthood	34	100
Late adulthood	0	0
Education		
Elementary	12	35
Secondary	20	59
Higher	2	6
Occupation		
Employed	10	29
Not working	24	71
Toddler Age		
Infant	6	18
Toddler	11	32
Pre school	**17**	**50**

Table 1 shows that all (100%) of toddler mothers are in the middle adulthood stage. Most (59%) of toddler mothers have secondary education. Most (71%) of toddler mothers are unemployed. Half (50%) of respondents (toddlers) are in the pre-school age stage.

Table 2: Maternal Stimulation

Maternal Stimulation	Frequency	Percentage (%)
Performed	20	59
Not performed	14	41
Total	**34**	**100**

Table 2 shows that the majority (59%) of mothers of toddlers stimulate their children.

Table 3: Child Development

Toddler Development	Frequency	Percentage (%)
Appropriate	31	91
Doubtful	3	9
Abnormally	0	0
Total	**34**	**100**

Table 3 shows that almost all (91%) toddlers develop by their age stage.

Based on the analysis test between stimulation and toddler development, with the Spearman rank statistical test results, a p-value of 0.044 was obtained. Based on the analysis results, an OR value of 4.593 was also obtained, meaning that mothers who provide good stimulation have a 4.593 times greater chance of their toddlers' development according to their age group.

Discussion

Maternal Stimulation

Table 2 shows that most (59%) of toddler mothers stimulate their children. Child development will continue and be continuous, especially in childhood. At this age, children begin to experience relatively rapid development because children at this age show the ability to move more, develop curiosity, and explore objects around them (Soedjatmiko, 2016). The developmental aspects that can be assessed in developmental monitoring are divided into four parts, namely personal social development, fine and gross motor skills, and language. These developments are interrelated, but a developmental disorder in one aspect of development can affect other aspects of development. For this reason, developmental monitoring needs to be carried out early to immediately recognise developmental disorders in children

so that the development of motor skills, speech and language, socialisation, and independence in children optimally according to the child's age (Wang *et al*., 2014). The results of research by Farida on stimulation show that stimulation given by mothers or caregivers influences the development of toddlers' language with p = 0.019 and the development of fine motor skills with p = 0.003 (Panggabean, Lumbantobing & Farida, 2022; Maududi, 2024). There is currently insufficient evidence to determine the impact of parent-mediated interventions on improving language and communication in children with Down syndrome. It was found only three small studies of very low quality. This review highlights the need for well-designed trials, including RCTs, to evaluate the effectiveness of parent-mediated interventions. Trials should use valid, reliable, and similar measures of language development, and should include secondary outcome measures that are distal to the intervention, such as family well-being. Treatment fidelity, particularly the dosage of parent intervention beyond the prescribed sessions, should also be documented (O'Toole, 2018). This study's results align with Putra's 2018 study, which stated that parental stimulation has a significant influence on toddlers' language development (Putra, Yudiernawati & Maemunah, 2018; Rahma & Nopriansyah, 2024). Research conducted by Febrina on stimulation by mothers of toddlers aged 1-3 years, namely stimulation of growth and development by mothers with development in toddlers aged 1-3 years. Stimulation given by parents will have a 3.37 times chance of increasing the development of children aged 1-3 years (Hati & Lestari, 2016). The results of our study indicate a significant positive correlation between maternal stimulation and child development (Onyango *et al*., 2023).

Most mothers provide stimulation to their children. The mother's age, education, and occupation determine the success of the stimulation implementation for her child. With the mother's age in young adulthood, she understands and understands more about stimulation in children. The research results in the field show that secondary education for a mother is enough to accompany toddlers in terms of providing stimulation. This is proven by the fact that the stimulation given can impact the development of toddlers even though the stimulation given is not optimal. However, toddlers get stimulation when invited to the integrated health post and gather with other toddlers during their free time, so indirectly, they get play therapy, which is mostly part of the stimulation of toddler growth and development.

Child Development

Table 3 shows that almost all (91%) toddlers' development is by their age stage. Development is the increase in more complex body structures and functions, such as gross motor skills, fine motor skills, speech and language, socialisation, and independence. (Namangdjabar & Saleh, 2020). Parental knowledge and the role of mothers are very beneficial for the overall development of children because parents can immediately recognise the advantages of development. Mothers must know the stages of child development so that the child's development is optimal and maximal. When the mother knows there is a delay in the child's development, efforts to overcome it will be easier (Rizka, Sari & Suhartin, 2023). The results of Khadijah's research show that the activity of conveying child development to parents concluded that by allowing children to convey their child's development at home, they know what should be given to children so that the child's growth and development run optimally. Teachers provide stimuli at school to improve child growth and development (Khadijah *et al*., 2022; Metwally *et al*., 2023).

The results of Eva's 2021 study showed that the measurement of the level of development and emotional behavior of the KPSP measurement results obtained a picture of child development that was appropriate for their age of 90.0%, a doubtful level of development of 7.5%, and children with developmental deviations of 2.5%. Every time and as often as possible, mothers should be taught how to intervene in child development stimulation to overcome deviations/catch up, conduct health checks to look for possible diseases that cause developmental deviations, and carry out treatment. Children with developmental deviations must be referred to a growth and development clinic for further examination. In contrast, mothers need to be given instructions to stimulate children with doubtful development more often (Prasma *et al*., 2021). Marylin’s research results our study provides the first validated measure of children’s language and cognitive development in Ghana, finding associations

with nutrition and stimulation. The Ghana Milestones Measure can be used to assess and help promote children's mental development (Ahun *et al.*, 2017).

Child development is determined by several things, including providing stimulation according to age group. The provision of stimulation also depends on the implementer of stimulation, namely the mother or caregiver. The mother's education greatly determines the provision of stimulation to her child. The higher the mother's education, the better the provision of stimulation. Child development can be achieved according to age stage by providing good stimulation. During implementation in the field, the stimulation was not optimal because several stimulations were not implemented. However, the child development results were due to the mother's non-authoritarian parenting pattern, where children often played with their peers at home or school in Early Childhood Education (PAUD). So that indirectly, children will be stimulated by the games played.

Conclusion

Most (59%) of toddler mothers provide stimulation to their children, and almost all (91%) of toddlers are developing according to their age. Not all toddler mothers provide stimulation to their toddlers because of their educational history and work that causes the toddler mother. Thus, it requires increased knowledge or information for toddler mothers, especially regarding stimulation, by providing education or counseling in groups or individually to toddler mothers or caregivers to prevent deviations in child development.

Future research should focus on exploring long-term effects of maternal stimulation on child development, specifically examining how early interventions influence cognitive and emotional growth beyond the toddler years. Additionally, studies could investigate the role of fathers and other caregivers in providing stimulation, as well as the impact of socio-economic factors on the quality and frequency of maternal stimulation. Expanding the sample size and including a broader demographic would help generalise findings and identify specific factors that may enhance the effectiveness of developmental interventions. Furthermore, the development and validation of more comprehensive tools for assessing maternal stimulation and child development would strengthen future research in this area.

Conflict of Interest

The authors affirm that there are no conflicting objectives.

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