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Developmental Stimulation of Gross Motor Skills, Fine Motor Skills, Socialization, and Language in Stunted Children

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A B S T R A C T

Brain development may be impacted by nutritional deficits prior to birth and in the first year of life. Pregnancy and the early years of life are periods of fast developmental growth. Newborns have over 100 billion brain cells, according to research. From birth through early childhood, the development of brain connections and the process of maturation happen gradually. This study sought to ascertain how developmental stimulation affected stunted children's gross motor, fine motor, sociability, and language abilities. An observational analytical technique combined with a cross-sectional approach was the research design employed. All of the stunted toddlers in Puton Village, Diwek District, Jombang Regency, made up the study's population. Stunted toddlers in Puton Village, Diwek District, Jombang Regency, ages 0–72 months, made up the study's sample. The majority of toddler moms (59%) stimulated their kids, according to the study's findings. A Sig (2-tailed) value <0.05 showed a correlation between developmental stimulation and toddler development in fine motor abilities, gross motor skills, socializing, independence, and language, and nearly half of toddlers (40%) developed in accordance with their age. According to the study, parents should monitor their child's development through integrated health post (Posyandu) activities and provide stimulation appropriate to the child's age as part of an early detection effort. Children can develop through a variety of activities with parental guidance.

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INTRODUCTION

A kid is considered stunted if their height relative to their age is more than 2 standard deviations below the WHO child growth standards. According to 3M Food Safety (2010), stunting is a sign of infections and nutritional deficits that occurred either before or during a child's birth over an extended period of time.

Brain development can be impacted by nutritional inadequacies prior to birth and in the first year of life. Pregnancy is a time of accelerated brain development, which continues through early infancy. According to research, a newborn's brain contains about 100 billion cells. From birth to early childhood, the development of neural system connections and the process of maturity happen gradually (United Nations Children's Fund & World Health Organization, 2012). Neurological problems and impaired brain development that impact motor, cognitive, linguistic, socioemotional, and mental development can result from nutritional inadequacies during pregnancy and early childhood (Hanani, Ruth, 2016).

For both developed and emerging nations, growth and developmental disorders are major issues. Weight, height, and head circumference are indicators of growth, whereas motor skills, social and emotional development, linguistic skills, and cognitive ability are indicators of development. Every child will, in essence, go through a growth and development process that is appropriate for their age, although a variety of circumstances affect this. Every kid has the right to the best possible cognitive, social, and emotional development because they are the country's future. For the country to have a bright future, children with favorable traits are therefore necessary (Sugeng et al., 2019).

LITERATURE REVIEW

The frequency of stunting in Indonesia dropped from 24.4% in 2021 to 21.6% in 2022, according to data from the Indonesian Nutritional Status Survey (SSGI) presented at the National Working Meeting of the National Population and Family Planning Board (BKKBN). Stunting is still a major issue in Indonesia, with a prevalence of over 20%, notwithstanding this decline. To lower stunting rates and comply with WHO guidelines, stunting is still a major issue that needs to be addressed right away (Ruswati, Leksono et al., 2021). In Jombang Regency, 22.1% of toddlers were stunted in 2022.

Stunting affects children's verbal, motor, and cognitive development, resulting in less-than-ideal growth. Children who are stunted are more likely to develop obesity and other illnesses in the future. Children's performance and ability to learn, as well as their productivity and work capacity, are also impacted. Stunting has detrimental effects on reproductive health as well (Ministry of Health of the Republic of Indonesia, 2018).

METHODOLOGY

Observational analytical study using a cross-sectional approach—a method that is conducted concurrently and only once—was the research strategy employed. The toddler's mother provided stimulation in this study,

and the toddler's growth was subsequently assessed. All of the stunted toddlers in Puton Village, Diwek District, Jombang Regency, made up the study's population. The study's sample consisted of all stunted children in Puton Village, Diwek District, Jombang Regency, ages 0–72 months. Development was the study's dependent variable. Developmental stimulation served as the study's independent variable. Toddler development was interpreted in this study using the Pre-Screening Development Questionnaire (KPSP). The Spearman rank test was employed in this analysis to identify nominal and ordinal comparisons between two variables.

RESULTS AND DISCUSSION

Table 1. Mothers of Toddlers with Secondary Education Made Up Nearly All Respondents (87%)

Sample Characteristics	**Frequency**	**(%)**
Mother's age:		
Early adulthood	3	20
Middle adulthood	5	33
Late adulthood	7	47
Education:		
Basic	2	13
Intermediate	13	87
High	0	0
Job:		
Work	7	47
Doesn't work	8	53
Toddler age:		
Baby	0	0
Toddler	14	93
Pre school	1	7

Nearly half of the respondents (47%) were middle-aged moms of toddlers, according to Table 1. Mothers of toddlers with secondary education made up nearly all respondents (87%). The majority of mothers (53%) did not have a job. Fifty percent of those surveyed were in the toddler stage.

Table 2. Most Mothers of Toddlers (59%) Excite Their Children

Nutritional status	**f**	%
Done	9	60
Are not done	6	40
Amount	15	100

Table 3. Shows That Nearly Half of Toddlers (40%) Develop According to Their Age

Toddler Development	**F**	%
In Accordance	6	40
Doubtful	5	33
Deviation	4	27
Amount	15	100

The Spearman rank test produced a p-value of 0.044 based on the examination of toddler development and stimulation. Additionally, the research produced an OR of 4.593, indicating that mothers who provide their toddlers with enough stimulation had a 4.593 times higher likelihood of their toddlers developing in accordance with their age group.

Table 2 demonstrates that most mothers of toddlers (59%) provide their kids with stimulation. Mothers in particular should focus mainly on the process of growth and development. They are vital because of their capacity to stimulate. Stimulation is one outside influence affecting a baby's growth and development (Merryana Adriani, 2012). Maternal education, stimulation, and socioeconomic position are all closely related to child development (Barros et al., 2010).

The majority of women stimulate their kids. The success of stimulation depends on the mother's age, occupation, and level of education. 87% of those surveyed had completed secondary school. When it comes to maternal education, a lot of moms already know what kind of stimulation is best for their young children. Integrated health service stations (Posyandu) educate the majority of moms about stimulation. Local health workers frequently give them pamphlets (Puskesmas). According to Kurniawan et al. (2011), education is a lifelong process that embodies holistic self-development, which is the development of all capacities to fulfill all human commitments as individuals, social beings, and creatures of God. Young adult mothers are more understanding and informed about stimulating their children. When the marriage reaches the age of 25 to 35, this secondary schooling takes place. Middle-aged couples that have been married for at least 25 years often range in age from 45 to 60 (Levinson, 2004). Most mothers of toddlers (53%) do not have a job. Mothers who work leave their kids at home to be looked after by others. As a result, the majority of moms cease nursing their infants before they are six months old (Leo, Subagyo, & Kartasurya, 2018). This is consistent with Wicaksono's 2020 study, which discovered that 60% of farm laborers, or 12 out of 20 respondents, had stunted children (Wicaksono & Alfianto, 2020). However, due to a lack of knowledge regarding developmental stimulation, some mothers of toddlers continue to deprive their kids of stimulation.

Nonetheless, some mothers of toddlers continue to neglect to stimulate their kids since they don't know enough about developmental stimulation. According to Table 3, 40% of toddlers develop in accordance with their age.

According to the Ministry of Health of the Republic of Indonesia (2016), development is the growth of increasingly complex bodily structures and

functions, such as speech and language, fine and gross motor abilities, socialization, and independence.

Age-appropriate stimulation is one of several factors that influence a child's development. Additionally, the provider—that is, the mother or caregiver—is responsible for providing stimulation. A mother's level of education has a big impact on how stimulating her child is. The better the stimulation, the more educated the mother is. Children can reach age-appropriate growth with the right kind of stimulation. According to World Health Organization (WHO) guidelines, a height-for-age (H/U) z-score < 2 standard deviations (SD) indicates stunting, a growth problem brought on by chronic malnutrition and/or recurring or chronic viral illnesses.

CONCLUSIONS AND RECOMMENDATIONS

The likelihood of a child growing at a normal age increases with the quality and intensity of stimulus. For language development, fine and gross motor skills, and brain development, early stimulation (0–6 years) is essential.

In order to provide youngsters with stimulation, it is intended that moms of toddlers and health professionals, particularly the Village Consultative Body (BPD) and village health workers, along with cadres, will collaborate more closely. In order to prevent developmental delays, it is possible to increase the knowledge and information of mothers of toddlers, particularly with regard to stimulation, by offering education or counseling, either individually or in groups.

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