

## Factors associated with toddler development

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### ABSTRACT

**Introduction:** Children are the nation's next generation; therefore, they need quality children to achieve a promising future for the country. Growth and development experience a rapid increase at an early age, namely from 0-5 years.

**Objective:** This study knows the factors related to toddler development.

**Method:** The research design uses correlational with a cross-sectional approach. The population of this study was all toddlers, as many as 250 toddlers. The sample of 71 toddlers used the sampling technique of proportionate random sampling. Test data analysis using the chi-square test, continue correction, and alternative Fisher's exact test.

**Results:** This study showed a significant association between nutritional status ( $p = 0.04$ ), history of chronic disease ( $p = 0.01$ ), education ( $p = 0.04$ ), history of childbirth ( $p = 0.03$ ), stimulation ( $p = 0.04$ ) with toddler development and there was no significant relationship between socioeconomic ( $p = 0.71$ ) and toddler development.

**Conclusion:** there is a relationship between nutritional status, history of chronic disease, education, history of childbirth, and stimulation with toddler development. Health workers should be advised to detect child growth and development early by looking at the history of chronic diseases suffered and stimulating toddlers for optimal development.

**Keywords:** education; history of chronic diseases; history of childbirth.



## INTRODUCTION

Children are the nation's next generation; therefore, they need quality children to achieve a promising future for the country. To get quality children, it must be ensured that the growth and development of children is also good. Toddler development is a complex process and is influenced by various factors. At this stage, the child experiences rapid physical growth and significant cognitive, emotional, and social development (Suprpto, Mulat, and Hartaty, 2022). Factors related to toddler development are essential to understand to ensure they can grow and develop optimally. One factor that significantly influences the development of toddlers is nutritional status (Norris *et al.*, 2022). Malnutrition or malnutrition can hinder physical growth and cognitive development, while adequate and balanced nutrition can support good development. In addition, a history of chronic diseases such as recurrent infections, respiratory disorders, or other diseases can also affect the development of toddlers. Maternal education also has a vital role in the development of toddlers (Ekholuenetale *et al.*, 2020). A mother's knowledge and understanding of healthy parenting, proper stimulation, and the importance of health care can positively impact a child's development. Nutritional status is a significant thing that parents must know, especially those with toddlers, because it is a golden age related to growth and development in the future (Arda, Lalla, and Suprpto, 2023).

In addition, the stimulation given to toddlers also plays a crucial role in their development. Adequate and diverse stimulation can stimulate toddlers' cognitive, motor, and language development. Toddler development is significant in the growth stage of children (Taneja *et al.*, 2020). This process is influenced by various complex factors, including nutritional status, history of chronic disease, maternal education, and stimulation given to toddlers. Health development as part of human development efforts in general, including efforts in the field of child health, is carried out as early as possible when the child is still in the womb (Ali, 2021). Children need to be prepared for optimal growth and development by the ability to organise quality human resources. This period is often referred to as the "Golden Age." The golden period is a significant time for monitoring children's growth and development so that abnormalities can be detected as early as possible. Common health problems in toddlers related to growth and development (Saleh *et al.*, 2021).

Children generally have standard development patterns due to the interaction of many factors that influence children's growth and development. These genetic and environmental factors, including physiological-psychological-social factors, can inhibit and optimize children's development (Gibson, 2021). However, not all children can go through an optimal growth and development period because they experience disturbances in their growth and development. And development process. These disorders include physical growth disorders, motor development disorders, language development disorders, and emotional and behavioural disorders (Hynes, 2020). Many factors influence a child's growth and development. Based on the period of growth and development, factors that affect development can be divided into prenatal, natal, and postnatal factors. Generally, the factors that influence child development are internal factors (genetics) and external factors (environment). Children's growth and development can also be influenced by factors such as parental stimulation, nutrition, and gender (Sahariah, Purwati, and Apriliawati, 2024). Nutrition and parental stimulation are needed to continue the child's growth and development. Children with adequate nutritional needs and targeted parental stimulation will have optimal growth and development. The child's environment must stimulate their development and learning because growth requires stimulation (Garcia *et al.*, 2022).

This can be achieved through play or physical exercise. Children need to interact with their environment from an early age. Intelligence is created by the environment and internal aspects of the individual (Mufid *et al.*, 2023). Family dynamics and beliefs, as well as beliefs and customs adopted in the family. The growth and development of children cannot be separated from the role of parents. Parents with relatively low levels of education and socioeconomic status will affect their children's growth and development because, according to them, if the child is not sick, it

means that the child does not experience health problems, including growth and development. Parents usually understand growth and development to mean the same thing. Gender also affects children's development, with girls making more significant progress than boys (Saracho, 2023). This development lasts from birth to late adolescence. The age of five is a critical period in the child's development. Because essential development at this time will affect and determine the further development of children. Language skills, creativity, social awareness, emotions, and intelligence develop rapidly in this toddler period and become the basis for further development so that the slightest abnormality or deviation, if not detected or mishandled, will reduce the quality of human resources in the future. Child development monitoring helps detect deviations or obstacles to child development early so that prevention work, stimulation and care work, and recovery work can be carried out as early as possible at critical times of child development, and clear instructions can be given. From this description, it can be concluded that in Bulukumba Regency, toddlers still have developmental problems. If this problem is not addressed, it can result in persistent developmental deviation disorders that can affect the child's further development. This study aims to find out more about factors related to toddler development.

## MATERIALS AND METHODS

This research is descriptive with quantitative research methods and a cross-sectional research design. The study will be conducted in July - August 2023, located in Tanuntung Village, Bulukumba Regency. The population of all toddlers in Tanuntung Village, Herlang Health Center working area, Bulukumba Regency in 2023 is 250 toddlers with proportionate random sampling techniques of 71 respondents, with sample criteria: Inclusion criteria: toddlers aged 3 -60 months, Willing to be sampled by filling out the consent sheet into a sample. Exclusion Criteria: not willing to be a sample by filling out the consent sheet into a sample prepared by the researcher and Nalita, who was sick at the time of the study. The sampling method used was the Slovin formula. Data collection techniques using questionnaire instruments and observation sheets from KPSP child development detection tools for children under five. Data analysis using univariate and bivariate analysis with the test used in this study is the chi-square test presented in tables and descriptions.

## RESULTS

**Table 1. Frequency distribution of infant nutritional status, history of chronic diseases, maternal education, socioeconomics, history of childbirth, stimulation, and development**

Data	Frequency	Percentage (%)
<b>Nutritional status</b>		
Not enough	8	11,3
Good	62	87,3
Obesity	1	1,4
<b>History of Chronic Disease</b>		
Yes	4	5,6
No	67	94,4
<b>Education</b>		
Base	21	29,6
Intermediate	20	28,2
Tall	30	42,3
<b>Socioeconomic</b>		
< Minimum wage	10	14,1
≥ Minimum wage	61	85,9
<b>Childbirth History</b>		
BBL ≥ 2500 grams	64	90,1
BBL < 2500 grams	7	9,9
<b>Stimulation</b>		

Not enough	41	57,7
Good	30	42,3
<b>Development</b>		
Deviation	3	4,2
Doubtful	15	21,1
In accordance	53	74,6

Table 1 shows that most of the nutritional status of toddlers is good. As many as 62 respondents (87.3%) did not have a history of chronic diseases, as many as 67 respondents (94.4%) had higher education, as many as 30 respondents (42.3%), socioeconomic mothers under five  $\geq$  UMR, as many as 61 respondents (85.9%), childbirth history as many as 64 respondents (90.1%), and toddler development according to 53 respondents (74.6%).

**Table 2. Bivariate analysis of factors associated with toddler development**

Nutritional status	Development		Total			P-value
	Not Compliant	Compliant				
	%	f	%	f	%	
Good	83,3	47	88,7	62	87,3	0,040
Not good	16,7	6	11,3	9	12,7	
<b>History of Chronic Disease</b>						
Yes	1,4	3	4,2	4	5,6	0,018
No	23,9	50	70,4	67	94,4	
<b>Mother's Education</b>						
Base	66,7	21	39,6	33	46,5	0,047
Tall	33,3	32	60,4	38	53,5	
<b>Socioeconomic</b>						
< Minimum wage	16,7	7	13,2	10	14,1	0,715
$\geq$ Minimum wage	83,3	46	86,8	61	85,9	
<b>Childbirth History</b>						
BBL $\geq$ 2500 grams	88,9	48	90,6	64	90,1	0,038
BBL < 2500 grams	11,1	5	9,4	7	9,9	
<b>Stimulation</b>						
Not enough	83,3	10	18,9	25	35,2	0,048
Good	16,7	43	81,1	46	64,8	

The chi-square test results have an expected value of  $<5$ , so they do not meet the requirements. Then a Fisher's exact test is carried out, and a nutritional status value of  $p = 0.040$  is obtained; history of chronic disease  $p=0.018$ ; maternal education value  $p=0.047$ ; Toddler stimulation value  $p = 0.048 < \alpha = 0.05$ , so there is a significant relationship with toddler development, While the results of the chi-square test have an expected value of  $<5$  so they do not meet the requirements of the chi-square test then fisher's exact test is carried out and socioeconomic value  $p = 0.715$ ; history of childbirth with a value of  $p = 0.038$ ;  $> \alpha = 0.05$  so there is no significant relationship with toddler development.

## DISCUSSION

Researchers revealed a significant relationship between nutritional status, history of chronic diseases, maternal education, toddler stimulation, and development. These factors can directly or indirectly impact a toddler's physical growth, cognitive development, and emotional development (Nunes Cauduro et al., 2021). Poor nutritional status can hinder physical growth and brain development, while a history of chronic disease can affect a toddler's overall health and

quality of life. In addition, the level of maternal education and stimulation given to toddlers also have an essential role in shaping their development (Saitadze and Lalayants, [2021](#)). Good nutritional status provides a solid foundation for toddler growth and development. Adequate nutrition ensures the toddler's body gets the necessary nutrients to develop its cells and organs. Meanwhile, a history of chronic diseases can affect the development of toddlers by disrupting body functions or resulting in nutritional deficiencies (Sartika, Ismail, and Rosyida, [2021](#)).

Maternal education also has a vital role in the development of toddlers. A high maternal education level is usually associated with a better understanding of the importance of appropriate stimulation for child development (de Souza Morais et al., [2021](#)). Educated mothers can provide a more stimulating and supportive environment for their children. In addition, toddler stimulation is also a critical factor in child development. Good interaction, sensory stimulation, and fun learning activities can help speed up a toddler's cognitive, social, and emotional development (Jasińska et al., [2022](#)). By paying attention to and understanding the relationship between these factors, we can take more effective steps in ensuring the optimal development of toddlers and providing the support needed for their growth. Toddlers with good nutritional status tend to experience optimal physical development, including age-appropriate weight growth, muscle development, and adequate body strength for daily activities (Peng and Kievit, [2020](#)).

Toddlers with good nutritional status tend to have optimal physical growth and better cognitive development compared to toddlers who experience dietary problems. Children with a history of chronic illnesses, such as recurrent infections or other chronic ailments, often experience delays in physical and cognitive development (Rahmadani et al., [2023](#)). The mother's education level also has a significant influence. Mothers with higher education tend to be better able to provide good stimulation to their children, which can accelerate toddlers' cognitive and emotional development. Adequate stimulation through social interaction, games, and other learning activities can improve a toddler's language, mental, and motor development (Lontaan et al., [2023](#)). Therefore, parents and caregivers of toddlers need to pay attention to these factors and provide an environment that supports the optimal development of children at this stage. Prevention efforts are also significant, such as maintaining good nutritional status and reducing the risk of chronic diseases that can affect the development of toddlers. Toddlers with a history of chronic illnesses such as recurrent infections, respiratory distress, or other health problems may experience impairments in their physical and cognitive development. Management and prevention of chronic diseases can help improve toddler development. The mother's education level has a significant impact on toddler development. Mothers with higher education tend to be better able to provide optimal care, understand the child's developmental needs, and provide stimulation appropriate to the stage of development of toddlers (Kristina et al., [2023](#)).

The stimulation given to toddlers also plays a vital role in their development. Age-appropriate cognitive, social, and motor stimulation can help improve toddlers' language skills, motor skills, and social interaction. Malnutrition is a medical condition caused by inaccurate or insufficient intake or provision of nutrients (Ballarotto et al., [2023](#)). Malnutrition is often associated with inadequate nutrient intake, usually called undernutrition (undernutrition), which can be caused by poor absorption or increased nutrient loss. Stunting occurs when infants have chronic malnutrition-related failures to thrive, causing children to grow too short for their age. Malnutrition can begin during the baby's development in the womb and the first few months after birth, but it does not manifest until the child is two years old (Slot et al., [2023](#)). The nutritional status of mothers and children is an essential element that affects children's growth and development. Dietary needs for children at the beginning of their lives are critical. Nutritional deficiencies can interfere with the growth and development of children. Based on existing data, around 19 provinces in Indonesia have an incidence of malnutrition, where the prevalence ranges from 21.2% to 33.1% per cent. The most common incidence of malnutrition experienced by toddlers is a deficiency of both macro and micronutrients. Factors that play a role in determining the nutritional status of toddlers are mainly recognized from the mother's characteristics (Gur et

al., 2023).

Good nutritional status provides a solid foundation for optimal physical growth and brain development in toddlers. Adequate intake of nutrients, including protein, healthy fats, vitamins, and minerals, is essential to ensure healthy growth (Zyśk, Stefańska and Ostrowska, 2020). A history of chronic illness, such as recurrent infections or other chronic conditions, can interfere with a toddler's growth and development process. This factor must be carefully monitored and overcome with appropriate medication and care. The mother's education level significantly impacts parenting, health knowledge, and meeting the stimulation needs of toddlers. Mothers with higher education tend to be better able to provide good care and adequate stimulation for the development of toddlers. Good stimulation, such as positive social interactions, games supporting cognitive development, and environmental exploration, are essential factors influencing toddler development. A stimulating and supportive environment provides opportunities for toddlers to learn and develop optimally. By paying attention to and optimizing these factors, it can be expected that toddler development can occur more optimally, both in physical, cognitive, and social-emotional. Therefore, a holistic approach that considers all these aspects is essential in providing care and an environment that supports toddlers' overall development.

### CONCLUSIONS

There was a significant relationship between nutritional status, history of chronic disease, maternal education, toddler stimulation, and toddler development. Good dietary status, minimal history of chronic diseases, high maternal education, and adequate stimulation can improve toddler development. Conversely, risk factors such as poor nutritional status, frequent history of chronic diseases, low maternal education, and lack of stimulation can hinder toddler development. Therefore, holistic attention to all these factors is essential to ensure optimal growth of toddlers, and greater attention to these aspects can help improve overall toddler development.

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### Conflict of Interest

None declared

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