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Early Detection of Early Childhood Growth and Development

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Abstract

The purpose of this study was to analyze the detection of early childhood growth and development at Wulele Sangula Kindergarten. Preventing developmental disorders in early childhood is essential because early childhood is a vulnerable period to negative influences. This type of research is a field survey that collects and analyzes the growth results of early childhood. Data collection techniques were conducted using anthropometric measurements of early childhood, interviews, and documentation studies. The sample of this study was 61 students enrolled in Wulele Sangula Kindergarten. The study found that most early childhood at Wulele Sangula Kindergarten have normal growth and development. However, some early childhood are at risk of malnutrition, some are overweight or obese, and a few show symptoms of microcephaly and macrocephaly. There is a need for psychoeducation for parents of early childhood and early childhood education units regarding Early Detection of Child Growth and ways to address and minimize growth disorders.

Keywords: early childhood; early detection; growth.

INTRODUCTION

The future of a nation depends on the success of its early childhood in achieving optimal growth and development. Early childhood, or the period from birth to six years old, is a crucial phase in a child's growth and development. This period is both a golden opportunity and a time when early childhood are vulnerable to negative influences on their growth and development. Adequate nutrition, good health status, proper caregiving, and appropriate stimulation during these years will help early childhood grow up healthy and reach their optimal development, enabling them to contribute more effectively to society (Andinawati, 2022; Kemenkes, 2016).

Stimulation activities, early detection, and early intervention for developmental deviations in toddlers that are comprehensive and coordinated are carried out through partnerships between families (parents, caregivers, and other family members), the community (volunteers, community leaders, professional organizations, non-governmental organizations, etc.), and professionals (healthcare, education, and social workers). These partnerships will enhance the quality of early childhood growth and development, as well as readiness for formal education. Indicators of successful child development are not only reflected in improved health and

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nutritional status but also in the optimal development of the child's mental, emotional, social, and independence skills (Kemenkes, 2016).

Routine growth monitoring has been conducted at the integrated health posts (posyandu) by the Community Health Centers (Puskesmas), including in Kambu District. However, in practice, this monitoring activity often only involves measurement, and the analysis is still somewhat lacking compared to the appropriate standards. At both the Early Childhood Education Development Center (BP-PAUD) and early childhood education institutions, it is rare to find documents analyzing the growth and development of early childhood. Such documents should exist for the purposes of preventing and addressing issues in child growth and development. There must be policies regarding tactical steps taken by the three institutions responsible for early childhood, based on the results of the Early Detection of Child Growth (DDTK) analysis, including the Puskesmas through posyandu, BP-PAUD, and early childhood institutions at Wulele Sangula Kindergarten in Kendari City.

The results of early childhood growth detection analysis will be highly beneficial for the community in understanding the importance of early childhood nutrition. Naturally, the findings from the early growth detection analysis must be communicated to the public to facilitate the prevention of nutritional disorders in early childhood. This will also encourage the government to promote the importance of health and nutrition education for early childhood. Furthermore, by effectively communicating the results of early childhood growth detection, communities can be better informed about potential risks and the necessary steps to take in ensuring proper nutrition and overall health for their children. This proactive approach can lead to earlier interventions, reducing the likelihood of long-term health issues. Additionally, it emphasizes the need for ongoing collaboration between parents, educators, and healthcare providers to create a supportive environment that fosters healthy growth and development. As awareness increases, it also drives policy makers to prioritize and allocate resources towards comprehensive health and nutrition programs, ensuring that all children have the opportunity to thrive during these critical early years.

According to experts, early childhood refers to individuals aged between 0 and 6 years old (Badan Pengembangan dan Pembinaan Bahasa, 2016; Jairin & Anhar, 2023; Putri, 2021; Rohmani, 2020). Accordeing (Uce, 2017) states that early childhood refers to early childhood between the ages of one and five years old who experience rapid development and growth. In line with this, Hastuti (2016) states that early childhood refers to a group of early childhood who are undergoing a unique process of growth and development.

Early Detection of Child Growth (DDTK) is an activity aimed at identifying deviations in growth in toddlers or preschool-aged early childhood (Saurina, 2016). The purpose of this is to identify deviations at an early stage (Nutricia Indonesia, 2022). Growth and development are two distinct but inseparable processes. Growth refers to measurable physical changes, such as height, weight, and head circumference. Development, on the other hand, pertains to the maturation of bodily functions, which is typically divided into five aspects (Yayasan Suryakanti, 2020), these aspects include: (a) gross motor skills, which involve the ability to perform movements using large muscle groups, requiring effort, such as crawling, running, and jumping; (b) fine motor skills, which involve the ability to perform movements using small muscles, requiring coordination but not much effort, such as writing and buttoning a shirt; (c) observation, which is the ability to notice and understand what is seen, touched, and heard, such as recognizing colors, pitch of sounds, and body parts; (d) speech, which is the ability to express desires or thoughts through words spoken aloud, such as saying "want"; and (e)

socialization, which is the ability to interact or relate to others, such as playing together and making friends.

Based on the explanation, the process of a child's growth is always associated with physical changes, while the process of a child's development is related to brain development. Brain development begins during pregnancy. At birth, the brain is not yet fully developed. The brain undergoes rapid development during the ages of 0-6 years, often referred to as the golden period or golden age (Sulistianingsih, 2022; Vinayastri, 2015). When a child receives stimulation, neural connections are formed. Although brain development continues beyond this period, it will not be as rapid as during the golden period. Therefore, early stimulation is crucial for a child's growth and development.

Growth is the increase in the size and number of body cells, resulting in physical growth. Measuring a child's growth aims to determine and assess the nutritional status of early childhood. Early growth detection is conducted by using measurements such as Weight-for-Height (W/H) and Head Circumference (HC) relative to age, and then plotting these measurements on a growth curve (Afifa et al., 2016).

Early detection of child growth can be assessed by checking if a one-year-old baby's weight has tripled from birth, if body length has increased by 50 percent from birth length, and if head circumference has grown by about 10 cm. However, since each child has a different growth rate, regular measurements are necessary to ensure there are no abnormalities. A child with normal growth up to a certain age can still experience growth issues later on. Therefore, to ensure growth is on track, parents should take their child regularly to a healthcare center. Many parents believe that being short or thin is normal and that these issues can be caught up during puberty. In reality, the early stages of life, especially the first 1000 days, are the most critical (Nutricia Indonesia, 2022).

Based on the above description, the author is interested in conducting research titled Early Childhood Growth Detection Analysis at Wulele Sangula Kindergarten. This study aims to analyze the early detection of growth and development in early childhood at Wulele Sangula Kindergarten.

METHOD

This type of research is a field survey with descriptive analysis. Field survey research is a method aimed at collecting a large amount of data in the form of variables, units, or individuals simultaneously. The data is gathered from specific individuals or physical samples to allow for generalization of the findings (Heriyanto, 2023; Syahza & Riau, 2021). In descriptive survey research, the study is aimed at describing or outlining a situation within a community or society (Resnhaleksmana, 2014). This research was conducted at Wulele Sangula Kindergarten in Kendari City. The study population included all students in the first semester, with a sample size of 61 students selected using the total sampling technique. According to (Rohmin et al., 2017), total sampling is a sampling technique where all members of the population are used as the sample.

Data were collected by directly measuring the research sample. In this study, the measurements included the child's weight, height, and head circumference. The data were then analyzed to determine the percentages of weight-for-age, height-for-age, head circumference-for-age, and weight-for-height. Subsequently, the data were analyzed using quantitative descriptive methods.

RESULTS AND DISCUSSION

The data were analyzed using Excel. The data analysis employed was descriptive analysis and percentage analysis.

Table 1. Data on Active Early Childhood Education Units (PAUD) in Kambu District

Type of PAUD	Quantity	%
TPA	0	0%
KB	3	17%
TK	11	61%
RA	4	22%
SPS	0	0%
Total	18	100%

(Sources: Emis, 2022; Dapodik, 2022)

Based on Table 1, the information shows that in Kambu District, there are no Early Childhood Education Units (PAUD) in the form of Taman Pendidikan Anak (TPA) or Satuan PAUD Sejenis (SPS). The distribution of other PAUD types is as follows: Kelompok Bermain (KB) accounts for 3 units (17%), Taman Kanak-Kanak (TK) comprises 11 units (61%), and Raudhatul Athfal (RA) includes 4 units (22%) out of a total of 18 PAUD units.

Table 2. Characteristics and Results of Early Detection of Child Growth (DDTK) Measurements in Early Childhood at Wulele Sangula Kindergarten Based On Age & Weight

Age	Quantity	%	Weight (kg)	Quantity	%
4 years	18	29.51%	10-15kg	35	57.38%
5 yesrs	33	54.10%	16-21kg	20	32.78%
6 years	10	16.39%	22-27kg	4	6.56%
			> 27	2	3.28%
Total	61	100%	Total	61	100%

Table 3. Characteristics and Results of Early Detection of Child Growth (DDTK) Measurements in Early Childhood at Wulele Sangula Kindergarten Based On Heigth & Head Circumference

Heigth (cm)	Quantity	%	Head Circumference (cm)	Quantity	%
90-100	5	8.20%	40-50	35	57.38%
101-111	42	68.85%	51-60	26	42.62%
> 111	14	22.95%	> 60	0	0%
Total	61	100%	Total	61	100%

Based on Table 2 and Table 3 the characteristics of the early childhood sample at Wulele Sangula Kindergarten show that 18 children, or 29.51%, are 3 years old. There are 33 children, or 54.10%, who are 5 years old, and 10 children, or 16.39%, who are 6 years old. The most common weight category is between 10-15 kg, accounting for 57.38%. The most frequent

height category is between 101-111 cm, representing 68.85% of the total sample. The most common head circumference falls within the range of 40-50 cm, comprising 57.38%.

Figure 1. Measurement of Child Growth

Table 4. Analysis of Children's Weight by Age

Category	Quantity	%
Very less weight	0	0%
Less weight	10	16.39%
Normal weight	46	75.41%
Risk of overweight	5	8.20%
Total	61	100%

Based on Table 4, the results indicate that there are no children in the severely underweight category. There are 10 children, or 16.39%, in the underweight category, 46 children, or 75.41%, in the normal weight category, and 5 children, or 8.20%, at risk of overweight. Children in the underweight category must be followed up with a complete evaluation through the Nutritional Care Process and screened for any underlying conditions or referred for further assessment. Meanwhile, children at risk of being overweight should be followed up with preventive interventions and management of excess nutrition in toddlers or referred for further care.

Table 5. Analysis of Children's Height by Age

Category	Quantity	%
Very short height	0	0%
Short height	0	0%
Normal height	61	10%
Tall height	0	0%
Total	61	100%

Based on Table 5, the results show that there are no children in the very short, short, or tall height categories. All children have a normal height for their age. In addition to growing taller, children will also develop new physical abilities. They will master fine and gross motor

skills and become more active in trying out new physical activities. For example, they might start pulling chairs, playing with balls, coloring, completing puzzles, and even choosing the clothes they want to wear.

Table 6. Analysis of Children's Weight by Height

Category	Quantity	%
Malnutrition	0	0%
Undernutrition	3	4.92%
Good nutrition	53	86.88%
Risk of overnutrition	3	4.92%
Overnutrition	1	1.64%
Obesity	1	1.64%
Total	61	100%

Based on Table 6, the analysis shows that no children are experiencing severe malnutrition. However, there are 3 children, or 4.92%, who are undernutrition, and another 3 children at risk of being overnutrition. Additionally, 1 child, or 1.64%, is overnutrition, and 1 child is obese. However, the majority of children have good nutrition, totaling 53 children, or 86.88%. This outcome highlights the need for special attention from Wulele Sangula Kindergarten, Kambu Health Center, and parents to closely monitor the growth of children who may be at risk of undernutrition or overnutrition.

Table 7. Analysis of Children's Head Circumference

Category	Quantity	%
Microcephaly Symptoms	4	6.56%
Normal	53	86.88%
Macrocephaly Symptoms	4	6.56%
Total	61	100%

Based on Table 7, the findings indicate that there are 4 children, or 6.56%, showing symptoms of microcephaly, and an equal number of children with symptoms of macrocephaly. Meanwhile, 53 children, or 86.88%, have a normal head circumference. If a child’s head circumference is below or above the standard range, it is necessary to evaluate potential growth and developmental disorders, measurement errors, or other medical conditions affecting the head. Abnormal head circumference can be caused by various factors, such as genetics, hormonal imbalances, the child’s nutrition, physical activity, and even the mother’s health.

The Child Anthropometry Standards issued by the government are used as a reference for assessing the nutritional status and growth trends of Indonesian children. These standards serve as a guide to identify children at risk of stunted growth before they suffer from nutritional problems and as a basis for supporting health policies and public initiatives related to the prevention of growth disorders. The establishment of child anthropometry standards provides a reference and guidelines for all stakeholders at both central and local levels, as well as for users across various healthcare facilities, in efforts to improve public nutrition (Kemenkes, 2020).

For early childhood with abnormal results in weight, height, and head circumference, parents are provided with education on appropriate growth and development stimulation according to the child’s age and the specific growth issues they are experiencing. This

education includes guidance on addressing conditions such as the risk of overweight, undernutrition, and abnormalities like macrocephaly and microcephaly. Parents are advised on how to support their child's development through targeted interventions and proper nutrition. This approach ensures that children receive the necessary support to address any growth or developmental concerns early on. Effective communication with parents is crucial to ensure they understand and implement the recommended strategies. Overall, this educational effort aims to improve the child's growth outcomes and prevent potential long-term health issues.

In fact, parents can measure their child's height and head circumference at home. This can be done using a measuring tape for both head circumference and height. Parents should use a non-elastic measuring tape. For measuring head circumference, start from above the eyebrows, pass over the top of the ears, and go to the most prominent part at the back of the head. For measuring height, measure from the heel to the top of the head. According to (Safitri, 2021), parents can measure their child's anthropometry at home, such as head circumference using a measuring tape and height using an appropriate measuring tool, to periodically monitor the child's physical growth and development.

In addition, educational institutions need to collaborate with local healthcare providers, in this case, the Kambu Health Center, to provide more in-depth education about the results of early childhood growth measurements in Kambu District. This aligns with the research findings (Ulfa, 2018) that psychoeducational activities for parents can enhance their understanding of the growth and development characteristics of preschool-aged children and also improve their skills in early detection of developmental dysfunction.

CONCLUSION

The conclusions of this study are as follows: (a) the majority of early childhood in Kambu District exhibit good growth in terms of weight, height, and head circumference; (b) there are children with undernutrition based on weight for height and others with excess weight; (c) some children show symptoms of microcephaly and macrocephaly; and (d) it is necessary for the government, specifically healthcare workers at the Kambu Health Center, to provide psychoeducation to parents of early childhood children and to continuously monitor child growth and development. Future research should further investigate early childhood development, including cognitive, physical-motor, social-emotional, and language development, which begins with early childhood growth.

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