Implementation of Stimulation, Early Detection, and Intervention Programs for Monitoring the Growth and Development of Children Aged 2-3 Years

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ABSTRACT: Starting from growth that supports development, in the end growth and development go hand in hand. An important period in a child's growth and development begins in infancy because basic growth is what will influence and determine the child's subsequent development. The aim of this research is to detect deviations in the development of early childhood children aged 2-3 years at the ECCE Rahmah El Yunusiyyah Padang Panjang through the Stimulation, Detection and Early Intervention of Child Growth and Development (SDICGD) instruments in the Android feature. This research was conducted using a cross-sectional approach. Participants in this study were 26 children aged 2-3 years using a consecutive sampling technique of 10 children whose growth and development were monitored using the SDICGD android application. The results of this study showed that several partisipants experienced malnutrition, one partisipant out of nine normal partisipants. The Developmental Pre-Screening Questionnaire (DPSQ) instrument of the ten child participants contained nine children (90%) who were according to the developmental stage aged 24-36 months, and one child was not according to the developmental stage. The results of the Attention Deficit and Hyperactivity Disorder (ADHD) test showed that three children (60%) were normal, and two children (40%) were hyperactive. Early detection of children's growth and development must be carried out regularly every month, and according to the child's age. For further research, it is hoped that early detection will also be carried out on the development of children's mental health, not just growth and development which is common and widely researched. Schools and parents must play an active role in children's growth and development so that no developmental stages are missed, and children grow and develop according to their age.

Keywords: simulation, detection, early intervention, child growth and development, development of children aged 2-3 years

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1 INTRODUCTION

Growth and development are different concepts, but they are related to each other and cannot be separated. Starting from growth that supports development, growth and development continue hand in hand. Children differ from each other due to a combination of factors within the child, such as genes, gender, and temperament, as well as external factors, such as the treatment received by family and parents, school, and society. The first year of life is the fastest time in the growth and development phase of a child. Therefore, it is very important for children to receive direction and stimulation from then on (IDAI, 2013). An important period in a child's growth and development is starting from infancy, because it is basic growth that will influence and determine the child's subsequent development. Language development, creativity, social, emotional and intelligence development greatly develop during this infancy.

Even though early detection of growth and development is very important, research shows that there are still few areas that utilize early detection (Nesy & Pujaningsih, 2023). In fact, what happens in the field of early detection of child growth and development is often ignored, except for early childhood education institutions which attach great importance to this program. SDICGD activity services are not only carried out for children who are suspected of having problems, but must be carried out routinely for all toddlers and preschool children, so that the child's growth and development optimal (Soetjiningsih, 2014). SDICGD activities can be carried out by anyone who is skilled and able to carry them out according to the structure, such as health workers, health cadres, early childhood teachers and parents. SDICGD is an effort that needs to be supported, because it is one way to prepare quality future generations.

Media is a tool in implementing health education. With media, complex and unclear learning material can be conveyed to the target more easily and more easily understood (Marwasariaty et al., 2019). This research was intended to detect the growth and development of early childhood children aged 2-3 years at ECCE Rahmah El Yunusiyyah Padang Panjang using the SDICGD instrument (Inggriani, 2019). Early detection through SDICGD activities is very necessary to find early children who experience deviations in growth and development so that intervention can be carried out as early as possible, so that the deviations in growth and development experienced do not become permanent disabilities. SDICGD activity services are not only carried out for children who are suspected of having problems, but must be carried out routinely for all toddlers and preschool children, so that the child's growth and development is optimal (Kozier, Erb, Berman, 2015). ECCE Rahmah El Yunusiyyah has one nurse assigned to check the health and growth of children. Children's height and weight measurements are not carried out routinely, preferably at least once a month. And the implementation of stimulation, detection and early intervention in children's growth and development has not been carried out at ECCE Rahmah El Yunusiyyah.

Children is the future pillar of our Nation, children need is important to be fulfilled. Physical, mental, and emotional conditions of mothers during gestation period play an

important role in growth and development of children. Child growth of under 3 years old is directly affected by birthweight and family income, and indirectly affected by some other factors. Child development is directly affected by marital age, family stimulation, and birthweight, and indirectly affected by some other factors (Wulandari et al., 2017).

Providing stimulation, detection and early intervention in the growth and development of early childhood in a sustainable manner through applications on Android, through the SDICGD application makes it easier for parents and teachers to have more awareness well about the importance of early detection of children's growth and development as an effort to optimize children's development. The purpose of this study is to use the Stimulation, Detection and Early Intervention of Child Growth and Development (SDICGD) instruments in the Android in SDICGD application to identify abnormalities in the development of young children, ages 2-3, at the ECCE Rahmah El Yunusiyyah Padang Panjang.

2 THEORITICAL STUDY

2.1 Early Detection of Growth and Development

Early childhood growth and development plays a very important role in a child's growth and development. Growth is an increase in the number and size of cells in all parts of the body which can be quantitatively measured, while development is an increase in the function of the body's organs which can be achieved through growing maturity and learning (Shofiyati, 2022). Every child will experience a series of developmental stages that are regular and sequential. All children will experience growth and development in stages, so they will not reach the next stage of development before passing the previous stage (Windiyani & Wahyuni, 2020).

Early detection is an effort to determine whether there are abnormalities or physical damage or mental or behavioral development disorders in children that cause early disability by using child development methods (Arinny, 2023). Early detection of child growth and development is an examination activity to detect early any deviations in growth and development in toddlers and preschool children (Wahyuni, 2019). By finding deviations in a child's growth and development early, intervention will be easier to carry out, health workers will also have time to make appropriate action plans, especially when it comes to involving the mother/family. If deviations are discovered too late, intervention will be more difficult and will affect the child's growth and development, the statement from Indonesian Ministry of Health.

Types of early detection of child growth and development that can be carried out by health workers at the community health center, ECCE and network levels, in the form of: Early Detection of Growth Deviations, Early Detection of Developmental Deviations, Early Detection of Mental-Emotional Deviations (SDICGD (*SDIDTK*), 2016)

Stimulation of children's growth and development is an effort by parents or families to invite children to play in an atmosphere full of joy and affection (Rantina & Rahmanela,

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2021). It can be concluded that early detection of child growth and development is an effort to identify potential or problems with a child's development from an early age so that appropriate intervention or stimulation can be immediately provided. This aims to ensure that children receive optimal development in various aspects, such as physical, cognitive, language, social and emotional (Wahyudin, 2021). Early detection of growth is carried out at all levels of service, namely family, community and Community Health Centers (Rahayu et al., 2021). Weight/Height measurements aim to determine a child's nutritional status, including normal, thin, very thin or fat. The weight/height measurement schedule is adjusted to the early detection schedule for toddler growth and development (Nursalam, 2014). Measurements are carried out by trained health workers or ECCE teachers if they are in the ECCE environment. Body weight measurement using a Dacin scale, body length or height measurement using an infant meter, and microtome (Tanuwijaya, 2014).

2.2 Early Childhood 2-3 years

Preschool plays an important role in shaping children's futures. It is the time when the foundations of their social, emotional, cognitive, and physical development are built. Paying great attention to children during this stage is crucial to ensure their growth and development is optimized (Suprayitno et al., 2021). This includes providing a safe, stimulating and supportive environment at home and at school, as well as facilitating healthy social interactions and age-appropriate learning (Inggriani et al., 2019). By paying proper attention and ensuring that children's needs are met during the preschool years, we can help them build a strong foundation for a successful future. Early childhood is a crucial or vulnerable period that requires education and teaching as early as possible. Early Childhood Growth and Development is a continuous, regular and sequential process that is influenced by maturational, environmental and genetic factors (Kozhevnikov, 2007). The increase in physical size in an early childhood child's body will be accompanied by an increase in the child's abilities.

Factors that influence growth and development include, an increase in physical size will be accompanied by an increase in the child's abilities (development). Basically, growth and development has principles that apply generally, including: Growth and development is a continuous process from conception to adulthood (Endo, 2014). The pattern of growth and development in all children is generally the same, only the speed of the process is different. The process of growth and development starts from the head to all parts of the body, for example starting to see, starting to smile, lifting the body, lying face down, sitting, standing, walking, running, and so on (Nursalam, 2013). Factors that influence children's growth and development are grouped into two, genetic (Internal) factors include differences in race, ethnicity, nationality, chromosomal abnormalities, and the influence of hormones from parents. Environmental (External) factors are broadly divided into environmental factors that influence the child while he is still in the womb (prenatal factors) and environmental factors that influence the child's growth and development at birth (post-natal) (Rantina & Rahmanela, 2021).

Early detection application for child growth and development will be used as a tool that can be used more easily and efficiently by local ECCE teachers/nurses in monitoring children's growth and development and detecting growth and development disorders in children on a regular and periodic basis in accordance with the recommendations of the Indonesian Ministry of Health (Hibana & Surahman, 2021). Tt can be concluded that in fact the SDICGD application on Android is very good for every teacher, ECCE health worker, to make it easier to detect children's growth and development every month. Through the counseling method on early detection of child growth and development, parents are expected to have awareness, sensitivity, and expertise in carrying out early detection of growth and development in children (Intan Fajrin, et al, 2018). The role of parents is very important in the growth and development of children. Because parents first know whether there are obstacles or not in the child's growth and development process as an effort to optimize the child's development.

3 METHOD

This research was conducted using a cross-sectional approach. Cross-sectional research is research to study the dynamics of the correlation between risk factors and effects, using an observational, data collection or approach. Cross-sectional research only observes once, and measurements are carried out on subject variables at the time of the research. The method used in this study was exploratory qualitative research design presented in descriptive analytic. Data analysis technique used were data collection and categorization of data reduction, draw conclusions verification and presentation of data (Fitriani & Oktobriariani, 2017).

3.1 Participant

This research was conducted at ECCE Rahmah EL Yunusiyyah Padang Panjang in January 2024. The population in this study was 26 children aged 2-3 years using conscientious sampling of 10 children whose growth and development were monitored using SDICGD on the Android application.

3.2 Data Collection and Research Instrument

This type of research data is secondary data. Data was obtained from the teacher's notebook to view the data and then entered a data collector format. Researchers conducted a preliminary study at ECCE Rahmah EL Yunusiyyah Padang Panjang to obtain data on all children and see the completeness of other data. Researchers come to the classroom to conduct research and see the data needed, namely, the child's weight and height. The researcher recorded the data obtained in the data collection format as the research instrument used and processed the data using a master table.

The instrument/measuring tool in this case study is the data collection format contained in the Stimulation, detection and early intervention instrument for child growth and development in the SDICGD application on Android. This format includes data on the child's weight and height, head circumference, hearing test (TDD), vision test (TDL), pre-

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development screening questionnaire (PDSQ), early detection of emotional mental problems in preschool children, detection of attention deficit disorder and hyperactivity in preschool children. At the data reduction stage, the focus is on selecting, simplifying, and filtering raw data from the results of data collection during interviews, observation, and documentation.

4 RESULT AND DISCUSSION

4.1 Result

In the process of collecting research results regarding the Early Detection of Growth and Development of Children Aged 2-3 years at ECCE Rahmah El Yunusiyyah Padang Panjang, 100% of all participants participated in the screening from the start of the activity to the end of the activity. During the activity, all participants participated in an orderly manner and ran smoothly.

4.1.1 Nutritional Status based on Height and Age

Based on the Table 1, it can be concluded that there are 9 participants who have good nutrition (90%) out of all 10 participants, and there is 1 participant who has poor nutrition (10%).

Table 1. Nutritional Status based on height and age of ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	Malnutrition	1	10
2	Good Nutrition	9	90
3	More Nutrition	0	0
	Amount	10	100

4.1.2 Height Standards Based on Age

Based on the Table 2, it can be concluded that the standard height based on age is said to be normal with 10 children responding (100%).

Table 2. Height standards based on age of ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	Short	0	0
2	Normal	10	100
3	Tall	0	0
	Amount	10	100

4.1.3 Standard Head Circumference Based on Age

Based on the Table 3, the standard head circumference based on age is 100% normal.

Table 3. Head Circumference Standards Based on Age of ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	Microcephaly	0	0
2	Normal	10	100
3	Macrocephaly	0	0
	Amount	10	100

4.1.4 *Child Development Status Based on Age Using the Pre-Screening Development Questionnaire Test Method*

Based on the Table 4, it can be concluded that the child's KPSP is developmentally appropriate for 9 participants (90%), and 1 participant (10%) is not developmentally appropriate.

Table 4. Child Development Status Based on Age Using the Pre-Developmental Screening Questionnaire Test Method According to The Age of ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	In accordance	9	90
2	It is not in accordance with	1	10
	Amount	10	100

4.1.5 *Children's hearing abilities based on the results of the Hearing Power Test*

Based on the Table 5, the hearing of 10 children is 100% normal.

Table 5. Children's Hearing Abilities Based on The Results of The ECCE Rahmah El Yunusiyyah Children's Hearing Power Test

No	Status	Frequency	%
1	Normal	10	100
2	Not enough	0	0
	Amount	10	100

4.1.6 *Children's Mental and Emotional Development Based on Age Using the Mental Emotional Problems Questionnaire (KMME) Method*

Based on the Table 6, the Mental Emotional Problems Questionnaire for 10 children are 100% in accordance with their emotional stages.

Table 6. Mental And Emotional Development of Children Based on Age 36 Months Using the Mental Emotional Problems Questionnaire Method For ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	In accordance	5	100
2	Doubtful	0	0
Amount		5	100

4.1.7 *Appropriateness Of Children's Behavior Based on Age Using Attention Deficit and Hyperactivity Disorder (GPPH) Test Results*

Based on the Table 7, it can be concluded that the GPPH of the 10 children/participants can be said to be normal as many as 3 participants (60%), and hyperactivity as many as 2 participants (40%).

Table 7. Appropriateness Of Children's Behavior Based on Age 36 Months Using Attention Deficit and Hyperactivity Disorder Test Results For ECCE Rahmah El Yunusiyyah

No	Status	Frequency	%
1	Normal	3	60
2	Hyperactivity	2	40
	Amount	5	100

4.2 *Discussion*

The implementation of the screening program at ECCE Rahmah El Yunusiyyah has never been carried out. What is routinely done at ECCE Rahmah El Yunusiyyah is to

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measure height and weight every month to find out whether the child is normal or not. However, obesity in children is a major new health problem. Compared with children with a normal BMI, children who are obese have a greater chance of becoming obese as adults. Obesity in childhood increases the risk of developing major chronic diseases in adulthood, including type 2 diabetes, heart disease, hypertension, osteoporosis, and some types of cancer. It also has a psychological impact and can cause low self-esteem, sadness, and delays in social and intellectual development.

Therefore, the most important thing to do is to avoid childhood obesity. The main goal of obesity prevention and control strategies is to increase the consumption of foods high in fruit and vegetables and reduce the intake of sugar and high-calorie snacks. A balanced diet, home-cooked family dinners, regular nutritious breakfasts, sensible portion sizes, and reduced eating out are important. Preventing obesity in children can also be done by reducing the amount of time spent in front of screens and increasing physical activity levels (Pandita, 2016). The development of cognitive, motor, and economic capacities during infancy and adulthood is highly dependent on nutritional needs, especially in the fetal and neonatal stages (Shrestha et al., 2022). One of the biggest obstacles to human growth is child stunting, which affects around 162 million children under the age of five worldwide (Friska & Andriani, 2022). Stunting occurs more often in children aged 18 to 35 months and 36 to 59 months (Roba et al., 2021).

Therefore, implementing a Stimulation, Early Detection and Intervention Program for Monitoring the Growth and Development of Children Aged 2-3 Years is very important. Short-term stunting in children can lead to poor child development, increased morbidity and even mortality from infections, poor perinatal and neonatal outcomes, an increased risk of chronic disease in adulthood, and a decline in cognitive, motor, and verbal function. Later in life, stunting can raise the chance of developing non-communicable illnesses and developmental disabilities (Sari & Sartika, 2021). Cognitive problems in late adolescence are linked to stunting that happens in the first two years of life (Nahar et al., 2020).

The screening which was carried out in January 2024 went well and smoothly. This activity was carried out using the android application SDICGD. This research was carried out only once when collecting data, because it was only to find out or detect early child growth and development at an early stage. The participants in this study were 10 children with an age range of 2-3 years or 24 months - 36 months when the data collection activities took place at ECCE Rahmah El Yunusiyyah Padang Panjang. Of the 10 children, basic body weight, height and head circumference were checked. Growth charts need the manual recording of height and weight measurement data, which takes time and increases the possibility of instances being overlooked (Dunkel et al., 2021). Growth charts are a common component of child welfare books in many nations, serving as a means of facilitating access to clear information (Patel et al., 2019). Growth charts are a valuable tool for parents to quickly assess their child's development. It is essential to use technology to track children's development and progress. According to Langarizadeh et

al. (2021), the rise of smartphones and other mobile devices may make it easier to employ technology for monitoring purposes. Android for health interventions offers the opportunity to reach a broad community, make use of an internet connection for information search, and prioritize using the most recent scientific research when making health-related decisions (Vanderloo et al., 2021). This offers a chance to expand healthcare accessibility to a larger group of people (González-Pérez et al., 2023). A wide range of personal, leisure, and commercial needs may be met by the numerous applications that have been produced and are readily installed via app stores.

5 CONCLUSION

This study was carried out using the android application SDICGD. The screening went well and smoothly. This activity was carried out using an Android application SDICGD. This research was carried out only once when collecting data, and the data collection was carried out by the ECCE teacher concerned, because it was only to find out or detect early child growth and development at an early stage. The participants in this study were 10 children with an age range of 2-3 years or 24 months - 36 months when the data collection activities took place at ECCE Rahmah El Yunusiyyah Padang Panjang. Of the 10 children, basic body weight, height and head circumference were checked. As well as early detection instruments including hearing tests, Developmental Pre-Screening Questionnaires, Questionnaires for Mental Emotional Problems, Attention Deficit Disorders and Hyperactivity. Early detection screening of children's growth and development must be carried out routinely every month, and according to the age of the child. Schools and parents must play an active role in children's growth and development so that no developmental stages are missed, and children grow and develop according to their age. If after the screening process is complete, teachers and parents find obstacles in the child, then teachers and parents must immediately take further action, such as stimulating the delay or obstacle, and if it is too late, carry out therapy for the child or take the child to a pediatrician for follow-up.

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