

## The PrimaKu Application is Effective in Monitoring Early Childhood Growth and Development Through Parental Assistance

Exsos Grend Dais<sup>1\*</sup>, Emmy Putri Wahyuni<sup>1</sup>, Junita Lusty<sup>1</sup>, Ruriwinita<sup>1</sup>, Fitriyati<sup>1</sup>, Mursiah<sup>1</sup>, Anantusia Fitriana<sup>1</sup>, Eti Karwati<sup>1</sup>, Evi Sofyan<sup>1</sup>, Nyimas Heny Purwati<sup>2</sup>, Titin Sutini<sup>2</sup>, Anita Apriliawati<sup>2</sup>

<sup>1</sup> Department of Pediatric Nursing, Faculty of Nursing, University of Muhammadiyah Jakarta, Indonesia

<sup>2</sup> Faculty of Nursing, University of Muhammadiyah Jakarta, Indonesia

\*Corresponding author's email: [exsosgrenddais@gmail.com](mailto:exsosgrenddais@gmail.com)

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### Abstract

**Background:** Early childhood growth and development disorders are still a concern for parents today, especially stunting. Monitoring early childhood growth and development is still a difficulty for parents today. Lack of access to digital-based information about children's health information makes it easy for parents to underestimate this so that it is too late to take care of it. So, it is necessary to have an application for monitoring the growth and development of early childhood based on digital.

**Objectives:** This study aims to determine the effect of the PrimaKu application on the assessment of early childhood growth and development through parental assistance.

**Methods:** This study is a quantitative study with the type of Pre-Experiment, using the One Group Pretest-Posttest research design by providing parental assistance intervention using the PrimaKu Application in one meeting. The effect of the intervention was measured by comparing pre-test and post-test scores. Bivariate analysis was performed using the Wilcoxon Test.

**Results:** The results of the analysis obtained a p-value: 0.001 ( $p < 0.05$ ) with a median pre-test > post-test value, namely 80.00 > 50.00 with a difference of 30.00. The minimum pre-test > post-test value, namely 50 > 30 with a difference of 20. The maximum pre-test > post-test value, namely 100 > 90 with a difference of 10.

**Conclusion:** There is an effect of the PrimaKu application on the assessment of early childhood growth and development through parental assistance. So, that the use of the PrimaKu application is highly recommended for parents to use in assessing early childhood growth and development.

**Keywords:** Early Childhood; Growth and Development; Parent Assistance; PrimaKu Application

### INTRODUCTION

Children are the next generation of the Indonesia nation who have an important role in maintaining and continuing the ideals of the nation. The development of Indonesian children is something that is a priority to achieve the Sustainable Development Goals (SDGs) in order to realize the demographic bonus (1). Demographic bonus is a condition where the productive age population (aged 15-64 years) dominates the age structure of the population compared to the unproductive age population (aged under 15 years and over 64 years). This can be an opportunity as well as a challenge for Indonesia to utilize and

optimize the demographic bonus to improve the achievement of SDGs (2).

The Sustainable Development Goals are global and national commitments in an effort to improve the welfare of society, including 17 global goals and targets by 2030, especially in the second target with the aim of ending all forms of hunger (3). But in reality, according to the Global Hunger Index (GHI) 2024, Indonesia is ranked 77th out of 127 countries that have sufficient data to calculate the GHI 2024 score with a score of 16.9 which is classified as a moderate level of hunger (4). This is also a threat to Indonesia in the midst of the food security budget continuing to increase and various food security programs

becoming a priority sector of development, especially in early childhood (5).

Early childhood is a child from the fetus in the womb until the age of 6 years, which is grouped into the fetus in the womb until birth, birth until the age of 28 days, age 1-24 months, and age 2-6 years (6). The results of the *Survei Sosial Ekonomi Nasional (SUSENAS)* in 2023 estimated that there were around 30.2 million people or 10.91 percent of the total population of Indonesia who were early childhood aged 0-6 years with the highest distribution of early childhood population, including East Nusa Tenggara (13.76%), West Papua (13.16%), Southeast Sulawesi (13.11%), West Sulawesi (13.08%), and Banten (11.22%) ranked 20th out of 34 provinces in Indonesia (7). Early childhood brain development is very rapid and the fastest in absorbing information and is very important in a cycle. This age is known as the golden age period (8).

The golden age period is the age of children in the early days of their life in the world where children age when they are 0 to 5 years old. This golden period of early childhood is an important period to optimize the best development for the physical and intelligence of early childhood. That first experience will be recorded strongly in their subconscious. Development in this golden period requires the role of parents in supporting early childhood growth and development in order to be maximized (9).

The role of parents is very important in optimizing the golden age period in early childhood which starts from *1000 HPK (Seribu Hari Pertama Kehidupan)* until the child reaches the age of 2 years by providing motor stimulation that affects brain development and function (10). Brain development is a development that is not as visible as the physical development of early childhood, therefore early childhood brain development is often ignored by parents. In early childhood brain development in this golden period, parents' participation is needed in supporting early childhood development so that brain development becomes optimal. In addition, exclusive breastfeeding, complementary foods, and nutritional intake to meet balanced

nutritional needs are the main factors that play a role in increasing brain intelligence optimally. If children do not get their nutritional needs at this time, the deficiencies will not be able to be met again in the future. So that it can cause early childhood growth and development disorders. One of the growth and development disorders in early childhood that is a concern for parents today is stunting (8).

Stunting is one of the severe nutritional and infectious problems in *1000 HPK* experienced by children under five years old characterized by stunted height or failure to grow for their age. Stunting has an impact that can affect health and even intelligence levels. The long-term impact of stunting is decreased learning achievement, reduced cognitive abilities, decreased immunity, poor work quality, and a high risk of various diseases. This impact makes parents worry about their children's growth and development in the future (9).

Parents' concerns in dealing with stunting in early childhood are currently evident from the combined data of UNICEF, WHO, and the World Bank Group in 2023 there are children under the age of 5 worldwide affected by stunting in 2022 of 148.1 million (22.3%). Almost all stunted children live in Asia (52% of the global number) and Africa (43% of the global number). However, this number has been declining steadily over the past decade, with a 2012 rate of 26.3% or a current trend annual average rate of decline of 1.65% per year. And by 2030, if current trends continue, stunting is projected to be 128.5 million children (19.5%), until WHO targets the prevalence of stunting to decrease to 88.9 million children (13.5%) (11).

According to the *Survei Kesehatan Indonesia (SKI)* in 2023, the five provinces with the highest prevalence of nutritional status at the age of 0-59 months with stunting in Indonesia are Central Papua (39.3%), East Nusa Tenggara (37.9%), Papua Mountains (37.3%), Southwest Papua (31%), West Sulawesi (30.4%). In contrast, the prevalence of nutritional status in children aged 5-12 years with stunting is highest in Indonesia,

namely Central Papua (32.8%), East Nusa Tenggara (31.9%), West Sulawesi (28.4%), West Papua (27.3%), Southwest Papua (27%) (12).

The prevalence of nutritional status in children in Indonesia in 2023 based on the age of 0-59 months is 21.5% stunting including 5.7% severe stunting and 15.8% stunting. Meanwhile, children aged 5-12 years were 18.7% stunted, including 4.6% severely stunted and 14.1% stunted (12). This is different from the results of the *Survei Status Gizi Indonesia (SSGI)* in 2022, the prevalence of nutritional status in children aged 0-59 months was 21.6% stunting. This means that there was a decrease in stunting by 0.1%(13).

Banten Province, a province located in the western part of Java known by the slogan Iman Taqwa, has the 18th highest prevalence of nutritional status with stunting at the age of 0-59 months at 23.9% and at the age of 5-12 years at the 23rd highest at 20.1% out of 38 provinces in Indonesia in 2023 (12). In contrast to 2022, the prevalence of nutritional status with stunting at the age of 0-59 months was the 22nd highest at 20% from 33 provinces in Indonesia. This means that there was an increase in stunting of 3.9% (13). Based on the prevalence of nutritional status with stunting in 2023 from 8 districts/cities in Banten Province at the age of 0-59 months the highest, namely Lebak District (35.5%), Pandeglan District (28.6%), and Tangerang District (26.4%) (12). Meanwhile, in 2022, the highest prevalence of stunted nutritional status among 8 districts/cities in Banten Province at the age of 0-59 months were Pandeglan District (29.4%), Serang District (26.4%), Lebak District (26.2%), Serang City (23.8%), and Tangerang District (21.1%) (13).

Tangerang Regency, known as the City of a Thousand Industries, experienced an increase in stunting of 5.3% in 2023. This became the reason for the researcher to conduct research in one of the health centers in Tangerang Regency, precisely in the Bojong Nangka Tangerang Health Center Working Area. In February 2022, researchers conducted a preliminary study to examine body weight based on the age of 0-59 months,

and obtained data on the deficient category as many as 95 respondents and the very deficient category as many as 19 respondents. While height based on the age of 0-59 months obtained data in the short category as many as 45 respondents and very short as many as 23 respondents.

Stunting is still a major nutritional problem that must be eradicated immediately because it has the potential to disrupt human resource potential and is related to health levels, even child mortality. The Indonesian government continues to strive and targets the stunting rate to drop to 14% by 2024 (14). Indonesia Emas 2045 is an idea that is intensively voiced by the current Indonesian government. Preparing for the golden generation of 2045 is not easy. Every effort to accelerate stunting reduction includes specific and sensitive interventions that are implemented convergently, holistically, integratively, and with quality through multi-sector cooperation at the center, regions, and villages. The National Strategy for Accelerating Stunting Reduction is a step in the form of 5 pillars containing activities to accelerate stunting reduction in the context of achieving sustainable development goals through achieving the national target of stunting prevalence measured in children under 5 years of age (15).

Efforts to accelerate stunting reduction can be carried out by monitoring early childhood growth and development. The main role is the role of parents because parents are the closest environment and the place where children spend time together, so parents know more about the child's growth and development journey. However, not all parents can monitor children's growth and development optimally due to various things, such as lack of time with children, lack of knowledge, and the socioeconomic situation of the family (16).

Monitoring children's growth and development is still a difficulty for parents today. Some of these difficulties include the loss of the *Kesehatan Ibu dan Anak (KIA)* book, having to wait for *Pos Pelayanan Terpadu (Posyandu)* activities to consult, the absence of notification of *Posyandu*

schedules on the smartphone system makes mothers of toddlers who are outside the scope of the village unaware of this information, and the lack of understanding of child health information makes it easy for parents to underestimate this so that it is late to treat. Therefore, an application for monitoring early childhood growth and development based on Android mobile is needed, such as a history of children's growth and development, information on *Posyandu* activities, consultation, and health news (17).

The results of an interview with one of the *Posyandu* cadres in the Bojong Nangka Tangerang Health Center Working Area suggested that so far they had never been exposed to health applications related to assessing and monitoring children's growth and development. So far, the activities of assessing and monitoring growth and development have only been recorded using the *KIA* and *Kartu Menuju Sehat (KMS)* books during *Posyandu*.

The rapid adoption of Digital Health (DH) technologies has transformed healthcare delivery in recent years. The World Health Organization (WHO)'s Global Strategy on Digital Health 2020-2025 (GSDH) guides national Digital Health Strategies (DHSs) (18). In order to improve effective health services as a form of commitment in improving the lives of Indonesian children to produce a superior and quality generation, *PT Cipta Medika Informasi (PrimaKu)* in exclusive collaboration with the Indonesian Pediatric Association officially launched the PrimaKu Application on July 23, 2018 to coincide with National Children's Day. This application aims to invite all parents to play an active role in monitoring children's growth and health regularly, so that growth and development disorders can be detected early (19).

The results of research conducted by Sahariah et al. (2023) found that there was a significant effect in using the PrimaKu application on the knowledge (p-value: 0.0001), attitudes (p-value: 0.0001), and actions (p-value: 0.0001) of parents in monitoring the growth and development of toddlers, there were differences in the

average knowledge (p-value: 0.007), attitudes (p-value: 0.007), and actions (p-value: 0.028) of parents in the intervention group and control group (p-value: 0.0001) (20). Another study conducted by Yanti et al., (2023) found an increase in the knowledge and ability of cadres in analyzing the results of monitoring the growth and development of infants under five. Cadres have been able to apply developmental assessments using *Kuesioner Pra Skrining Perkembangan (KPSP)* and have tried to socialize the "PrimaKu" application to parents when they come to the *Posyandu* (21).

The urgency of this study is to analyze the effect of parental assistance through the PrimaKu application on the assessment of early childhood growth and development in the Bojong Nangka Tangerang Health Center Working Area.

## METHOD

### Research Design

The research design used is quantitative with a Pre-Experiment research design with a One Group Pretest-Posttest Design approach. The method of determining the sample is non-probability sampling with sampling techniques using purposive sampling and accidental sampling. The research instrument used a questionnaire to determine the description of parents' knowledge in assessing early childhood growth and development. The questionnaire used was filled in by parents and was closed. The questionnaire consists of the characteristics of parents and early childhood, as well as parental knowledge in assessing early childhood growth and development. This pre-test and post-test study was only conducted in one group, namely the intervention group without involving the control group.

### Location, Population, and Research Sample

This research was conducted at *Posyandu Rajawali* in the Bojong Nangka Tangerang Health Center Working Area on July 24, 2022. The population in this study were parents who had early childhood in the

Rajawali Posyandu of the Bojong Nangka Tangerang Health Center Working Area. The population of this study amounted to 44 people who were present and eligible to become respondents. Inclusion criteria in this study include mothers who have early childhood, mothers who have gadgets, and are able to use them.

### Collection or Research Stages

The implementation of this study was carried out in two stages, namely the preparation stage and the data collection stage to measure parents' ability to assess early childhood growth and development. In the preparation stage, the initial steps taken by researchers in preparing a mini research proposal and taking care of research permits. At the data collection stage, several stages were carried out, namely giving an explanation to the respondent regarding the purpose and objectives of the study in order to establish good cooperation between the researcher and the respondent, the respondent filled out a questionnaire before being given the intervention (pre-test), providing intervention in the form of assistance using the Primaku application to the respondent for one meeting, and after being given the intervention, the respondent was given a questionnaire again (post-test). According to Nursalam (2020), the effectiveness of the intervention is done by comparing the pre-test and post-test values (22).

### Data Analysis

IBM SPSS Statistics 24.0 was used to generate various kinds of trend analysis and descriptive statistics. The variables in this study were described using frequency tables, relative frequency (percent), median, minimum value, and maximum value. To obtain an overview of the frequency distribution of each variable observed, univariate analysis was used. Before testing the effect of parental assistance through the PrimaKu application on the assessment of early childhood growth and development, a normality test was first conducted.

The normality test used in this study is the Shapiro Wilk test which shows that the data is distributed abnormally with the results of the significance of the parental knowledge score data before and after the intervention shows a value of  $p < 0.05$ . Univariate analysis was conducted on each research variable to see the frequency distribution. Where data on age, mother's latest education, family income in a month, and early childhood are presented in the form of a frequency distribution table. Bivariate analysis was carried out using the Wilcoxon Test because the assumption was not met, namely that the data were statistically distributed abnormally.

### Ethical Clearance

This research has been declared to have passed the ethical test with the Statement of Passing the Ethical Review from the Health Research Ethics Commission of the Health Polytechnic of the Ministry of Health of East Kalimantan with number: DP.04.03/7.1/10444/2022.

### RESULTS

According to table 1, of the 44 respondents, the characteristics of respondents based on the age of the mother were almost partly in the age category 26-35 years as many as 20 (45.5%) respondents and a small proportion in the age category 17-25 years as many as 7 (15.9%) respondents. The characteristics of respondents based on the latest education of the mother were partly high school graduates/equivalent as many as 24 (54.5%) respondents and a small proportion were junior high school graduates/equivalent as many as 2 (4.5%) respondents. Characteristics of respondents based on family income in a month, almost most of them earn  $>Rp3,000,000$  as many as 18 (40.9%) respondents and a small proportion earn  $<Rp1,500,000$  as many as 10 (22.7%) respondents. Characteristics of respondents based on early childhood almost partly in the Toddler category (1-3 years) as many as 20 (45.5%) respondents and a small portion in the Preschool age category (4-6 years) as many as 10 (22.7%) respondents.

**Table 1. Distribution of Respondent Characteristics**

Characteristics of Respondents	Frequency (n=44)	Percentage (%)
<b>Mother's Age (Years)</b>		
17-25	7	15,9
26-35	20	45,5
36-45	17	38,6
<b>Mother's Last Education</b>		
Junior High School	2	4,5
Graduate/Equivalent High School	24	54,5
Graduate/Equivalent College Graduates	18	40,9
<b>Family Income in a Month</b>		
< Rp1,500,000	10	22,7
Rp1,500,000 - Rp3,000,000	16	36,4
> Rp3,000,000	18	40,9
<b>Early Childhood</b>		
Infant (0-12 months)	14	31,8
Toddler (1-3 years)	20	45,5
Preschool (4-6 years)	10	22,7

Table 2 above shows the results of the Shapiro Wilk Test normality test for pre-test and post-test scores. After the analysis, it was obtained that the pre-test and post-test score variables of parents' knowledge in assessing early childhood growth and development were distributed abnormally. This can be seen from the pre-test p value of 0.015 < 0.05 and the post-test p value of 0.001 < 0.05 so that the data analysis used is the Wilcoxon test by looking at the median, minimum, and maximum values.

**Table 2. Normality Test Results of Parents' Knowledge Score in Assessing Early Childhood Growth and Development**

Score of Parents' Knowledge in Assessing Early Childhood Growth and Development	Shapiro Wilk $\rho$ -value
Pre-Test Score	0,015
Post-Test Score	0,001

Table 3 shows an increase in the median, minimum, and maximum values on the score of parents' knowledge in assessing early childhood growth and development before and after the intervention of assistance using the PrimaKu application. From the results of the Wilcoxon Test, the median value after being given an intervention of 80.00 is greater than before being given an intervention of 50.00, there is a difference in value of 30.00. The minimum value after being given an intervention of 50 is greater than the minimum value before being given an intervention of 30, there is a difference in value of 20. While the maximum value after being given an intervention of 100, is greater than the maximum value before being given an intervention of 90, there is a difference in value of 10.

**Table 3. Results of Wilcoxon Test Analysis of Parents' Knowledge Score in Assessing Early Childhood Growth and Development**

Score of Parents' Knowledge in Assessing Early Childhood Growth and Development	Median	Min	Max	$\rho$
Before Intervention	50,00	30	90	0,001
After Intervention	80,00	50	100	

Based on table 3, it is obtained that the median, minimum, and maximum values have changed, namely an increase after the intervention. The Wilcoxon Test results obtained a p-value of 0.001 < 0.05, which means  $H_0$  is rejected and  $H_a$  is accepted. Statistically there is an effect of parental assistance through the PrimaKu application on the assessment of early childhood growth and development in the Bojong Nangka Tangerang Health Center Working Area.

## DISCUSSION

The results of the analysis showed an increase in parents' knowledge in assessing early childhood growth and development before and after the intervention, so it can be concluded that there is an effect of parental assistance through the PrimaKu application

on assessing early childhood growth and development in the Bojong Nangka Tangerang Health Center Working Area.

The results of this study are in line with research conducted by Anugerahwati et al., (2024) states that the PrimaKu application has an effect on increasing mothers' knowledge about child growth and development. The results showed that there were differences in maternal knowledge after being given the PrimaKu application with an average post-test knowledge of 88.05 in the application group and 57.43 in the non-application group ( $p: 0.005, \alpha: 0.05$ ) (23). Another study conducted by Makrifah (2021), stated that there was an effect of PrimaKu application utilization on knowledge in monitoring and detecting the growth and development of toddlers in *Posyandu*. The PrimaKu application can be used as a companion to the *KIA* book in *Posyandu* activities, especially in monitoring the growth and development of toddlers (24).

Cognitive knowledge is a very important domain in shaping a person's actions (25). Knowledge is also the result of knowing, and this occurs after people make senses of a particular object. Sensing occurs through the five human senses, namely the senses of sight, hearing, smell, taste, and touch. Most human knowledge is obtained through the eyes and ears (26). Knowledge can also affect the mindset and understanding of the information it receives. Knowledge as a predisposing factor that will facilitate and predispose a person's behaviour (27). In general, knowledge can be obtained from various sources of information, one of which is through parental assistance in this study to assess early childhood growth and development.

Direct parental assistance in assessing early childhood growth and development is aimed at making it easier to increase parental knowledge. Maternal knowledge is very influential on child health applications, because lack of maternal knowledge can affect the limitations of new innovations such as information technology in the form of television, internet, newspapers, radio, and so on (28) (29). In today's digital era, information

technology is increasingly sophisticated, so parents can access various information easily using smartphones. One of the information that can be accessed by parents using a smartphone is children's health using the application. The child health application is able to understand, accept, and apply knowledge well, so that mothers can utilize the application to obtain information about overall child health (30). Child health application information provided to the community can make it easier for parents, especially mothers, to monitor health information and early childhood growth and development (31) (32). One of the applications for monitoring children's growth and development that can be accessed by parents is PrimaKu.

PT Cipta Medika Informasi (PrimaKu) is a pioneer of child growth and development applications in Indonesia which has a variety of complete features and a line of trusted content reviewed directly by experts to make it easier for parents to monitor children's growth, development and health easily and quickly in just one hand. PrimaKu also helps pediatricians to provide the best service by involving pediatricians in monitoring children's growth and health. PrimaKu collaborates with the Ministry of Health of the Republic of Indonesia, the Indonesian Pediatric Association, and the National Population and Family Planning Agency in providing solutions for healthier and stronger Indonesian children (33).

PrimaKu application can be downloaded on google play store for android users and app store for ios users. Existing users can log in to their account by entering their mobile number. New users can register an account first by entering their mobile number and email, then the new user will receive a verification code via whatsapp from PrimaKu. After verifying the mobile number, parents are asked to complete the data including parents' full name, email, gender, province, district/city, and upload a photo (optional). After successfully logging into the account, parents will see the application page. At the top of the account page, there is an "add child" feature. After clicking the feature,

parents can fill in data including child data (full name, date of birth, and gender), birth data (upload a photo of the child, was your child born prematurely?, weight at birth (kg), height at birth (kg), and head circumference at birth (cm)), additional profiles (blood type and allergy history), and parent height (father and mother) to measure the child's potential height as an adult. Furthermore, parents can get information about nutritional status, immunization schedules, child development questionnaires, health articles, and other features.

The increase in knowledge in mothers who use the PrimaKu application is due to the fact that the application contains information on overall child growth and development, as well as growth tests and child growth charts, and growth and development information. The knowledge, skills, and role of mothers are very beneficial for the overall child development process because parents can immediately recognize abnormalities in their child's development process and as early as possible provide stimulation to the child's overall growth and development in physical, mental, and social aspects (23). A person's knowledge about a health program will encourage that person to participate in it. This means that the higher a person's level of knowledge, the greater the awareness to stimulate early childhood growth and development (34).

Monitoring early childhood growth and development in order to obtain quality Human Resources (HR) continues to be pursued today. Optimal child growth and development does not only depend on aspects of growth, but must also pay attention to aspects of development. Children's growth and development cannot be separated from the roles and responsibilities of parents, especially mothers, who are the most familiar individuals with children's conditions and development from time to time. For this reason, it is necessary to optimize the role of parents, especially mothers, in early detection of early childhood growth and development which is expected to support the improvement of growth and development in early childhood (35).

This research is not intended to look in depth (qualitative) at the variables studied. The sampling technique in this study was purposive sampling and accidental sampling. This means that all samples in this study were taken by chance and willing to become respondents. This study was also only conducted in one group, namely the intervention group. Thus, there is no control group on parents' knowledge in assessing early childhood growth and development through the PrimaKu application. In addition, researchers only conducted parent assistance using the PrimaKu application, so it is not known how parent assistance compares to using other child growth and development health applications. So, it is recommended that further research be carried out to examine the control group that has the most dominant effect on parents' knowledge in assessing early childhood growth and development through the PrimaKu application. And it is also recommended to conduct further research on parental assistance using other child growth and development health applications.

Based on the results of this study, parental assistance through the PrimaKu application is very influential on assessing early childhood growth and development because parents have an important role in monitoring early childhood growth and development so that if parents are unable to assess early childhood growth and development using the PrimaKu application that has been given by researchers, parents' actions to improve their knowledge will not be maximized due to the low knowledge of parents so that only what they know they do. To improve parents' knowledge in assessing early childhood growth and development using the PrimaKu application, the *Posyandu* Rajawali of the Bojong Nangka Tangerang Health Center should continue efforts to increase parents' knowledge in assessing early childhood growth and development using the PrimaKu application by monitoring parents in assessing early childhood growth and development using the PrimaKu application and involving parents directly to become role models for other parents in the



Bojong Nangka Tangerang Health Center Working Area.

## CONCLUSIONS

The results of the analysis using the Wilcoxon test obtained a p-value: 0.001 ( $p < 0.05$ ) with the median, minimum, and maximum values increasing after the intervention. So that statistically there is an effect of parental assistance through the PrimaKu application on the assessment of early childhood growth and development in the Bojong Nangka Tangerang Health Center Working Area.

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## REFERENCES

1. Badan Pusat Statistik. (2020). *Launching ECDI: Analisis PAUD untuk Indonesia Maju*. Jakarta: Badan Pusat Statistik.
2. Khairunnisah, & Fitriyani, A.L. (2023). Bonus Demografi dan Visi Indonesia Emas 2045. *DATAin: Make It Matters*, 1-11. [https://bigdata.bps.go.id/documents/datain/2023\\_01\\_2\\_Bonus\\_Demografi\\_dan\\_Visi\\_Indonesia%20Emas\\_2045.pdf](https://bigdata.bps.go.id/documents/datain/2023_01_2_Bonus_Demografi_dan_Visi_Indonesia%20Emas_2045.pdf)
3. SDGs Bappenas. (2024). *SDGs Knowledge Hub: Agenda 2030 untuk Pembangunan Berkelanjutan*. Jakarta: Kementerian Perencanaan Pembangunan Nasional RI/Badan Perencanaan Pembangunan Nasional (Kementerian PPN/Bappenas). <https://sdgs.bappenas.go.id/>
4. Global Hunger Index. (2024). *Global Hunger Index 2024: Indonesia*. Global Hunger Index. <https://www.globalhungerindex.org/indonesia.html#:~:text=In%20the%202024%20Global%20Hunger,of%20hunger%20that%20is%20moderate>
5. Fitri, H., & Aida, A.N. (2023). Ancaman kelaparan masih terjadi, akankah pembangunan ketahanan pangan berhasil?. *Buletin APBN*, Vol.VIII No.17, 3-7. <https://berkas.dpr.go.id/pa3kn/buletin-apbn/public-file/buletin-apbn-public-186.pdf>
6. Perpres RI. (2013). *Peraturan Presiden Republik Indonesia Nomor 60 Tahun 2013 Tentang Pengembangan Anak Usia Dini Holistik-Integratif*. <https://peraturan.bpk.go.id/Details/41430/perpres-no-60-tahun-2013>
7. Silviliyana, M., Ramadani, K.D., Sulistyowati, R., Sari, N.R., & Anggraeni, G. (2023). *Profil Anak Usia Dini 2023*. Jakarta: Badan Pusat Statistik. <https://www.bps.go.id/id/publication/2023/12/12/e9b0a9a0adcffefb137e0d0d/profil-anak-usia-dini-2023.html>
8. Lubis, A.D. (2020). Pemberdayaan kader kesehatan melalui penyuluhan dan pelatihan "golden age period for golden generation sebagai upaya peningkatan kualitas bangsa" pada kader kesehatan di Wilayah Puskesmas Pangkalan Lada Pangkalan Bun. *Jurnal Borneo Cendekia*, Vol.4 No.1, 31-33. <https://journal.stikesborneocendekiamedika.ac.id/index.php/jbc/article/view/205>
9. Hakim, A.R. (2023). *Optimalkan golden age anak untuk generasi bebas stunting*. Jakarta: Kementerian Kesehatan RI. [https://yankes.kemkes.go.id/view\\_artikel/2713/optimalkan-golden-age-anak-untuk-generasi-bebas-stunting](https://yankes.kemkes.go.id/view_artikel/2713/optimalkan-golden-age-anak-untuk-generasi-bebas-stunting)

10. Anggryni, M., Mardiah, W., Hermayanti, Y., Rakhmawati, W., Ramdhanie, G.G., & Mediani, H.S. (2021). Faktor pemberian nutrisi masa golden age dengan kejadian stunting pada balita di negara berkembang. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, Vol.5 No.2, 1764–1776.  
<https://obsesi.or.id/index.php/obsesi/article/view/967>
11. UNICEF, WHO, World Bank Group. (2023). *Levels and trends in child malnutrition: UNICEF / WHO / World Bank Group Joint Child Malnutrition Estimates: Key findings of the 2023 edition*.  
<https://www.who.int/publications/i/item/9789240073791>
12. BKKP Kemenkes RI. (2023). *Survei Kesehatan Indonesia (SKI) Dalam Angka: Data Akurat Kebijakan Tepat*. Jakarta: Kementerian Kesehatan RI.  
<https://www.badankebijakan.kemkes.go.id/hasil-ski-2023/>
13. BKKP Kemenkes RI. (2022). *Buku Saku Hasil Survei Status Gizi Indonesia (SSGI) 2022*. Jakarta: Kementerian Kesehatan RI.  
<https://repository.badankebijakan.kemkes.go.id/id/eprint/4855/>
14. ADPIN BKKBN. (2021). *Indonesia cegah stunting, antisipasi generasi stunting guna mencapai Indonesia Emas 2045*. Jakarta: Kementerian Komunikasi dan Informatika RI.  
<https://www.kominfo.go.id/berita/pengumuman/detail/indonesia-cegah-stunting-antisipasi-generasi-stunting-guna-mencapai-indonesia-emas-2045>
15. Perpres RI. (2021). *Peraturan Presiden Republik Indonesia Nomor 72 Tahun 2021 Tentang Percepatan Penurunan Stunting*.  
<https://peraturan.bpk.go.id/Details/174964/perpres-no-72-tahun-2021>
16. Putri, I., Henniwati, H., Iswani, R., As, E., & Dewi, S. (2023). Pemberdayaan Masyarakat melalui Pelatihan Stimulasi Perkembangan Anak Usia 12-18 Bulan di Desa Sungai Pauh Kecamatan Langsa Barat. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (PKM)*, Vol.6 No.12, 5592–5603.  
<https://doi.org/10.33024/jkpm.v6i12.12638>
17. Febriyanti, N.L., Maulidiansyah., & Arifin, Z. (2021). Monitoring perkembangan anak usia balita berbasis Aplikasi Mobile Android. *Rekayasa: Journal of Science and Technology*, Vol.14 No.3, 381-388.  
<https://doi.org/https://doi.org/10.21107/rekayasa.v14i3.11385>
18. Holl, F., Kircher, J., Hertelendy, A.J., Sukums, F., & Swoboda, W. (2024). Tanzania's and Germany's Digital Health Strategies and Their Consistency with the World Health Organization's Global Strategy on Digital Health 2020-2025: Comparative Policy Analysis. *Journal of Medical Internet Research*, Vol.26 No.1.  
<https://doi.org/10.2196/52150>
19. IDAI. (2018). *Aplikasi PrimaKu dan PrimaPro*. Jakarta: Ikatan Dokter Anak Indonesia (IDAI).  
<https://www.idai.or.id/news-event/news/aplikasi-primaku-dan-primapro>
20. Sahariah, S., Purwati, N.H., & Apriliawati, A. (2024). The Effectiveness of the PrimaKu Application on Parents Behavior in Monitoring the Growth of Toddlers. *Jurnal Ilmiah Ilmu Keperawatan*

- Indonesia*, Vol.13 No.04, 160–169. <https://doi.org/10.33221/jiiki.v13i04.2698>
21. Yanti., Lailiyana., & Hindratni, F. (2023). Pemberdayaan kader posyandu dalam pemantauan tumbuh kembang balita menggunakan KPSP dan aplikasi “PrimaKu” sebagai deteksi dini stunting di Desa Tanah Merah Kabupaten Kampar. *Krida Cendekia: Jurnal Pengabdian Masyarakat*, Vol.1 No.9. <https://kridacendekia.com/index.php/jkc/article/view/100>
22. Nursalam. (2020). *Metodologi penelitian ilmu keperawatan: pendekatan praktis edisi ke-5*. Jakarta: Salemba Medika.
23. Anugerahwati, D.L., Damayanti, R., & Anshari, D. (2024). Efektivitas penggunaan Aplikasi Prima untuk meningkatkan pengetahuan ibu tentang deteksi dini tumbuh kembang anak. *Ibnu Sina: Jurnal Kedokteran dan Kesehatan*, Vol.23 No.2, 110–120. <https://jurnal.fk.uisu.ac.id/index.php/ibnusa/article/view/608>
24. Makrifah, A.U.H. (2021). *Pengaruh pemanfaatan Aplikasi PrimaKu terhadap pengetahuan kader dalam memantau dan mendeteksi pertumbuhan perkembangan balita di Posyandu Wilayah Kerja Puskesmas Kampar Kiri Hilir*. Poltekkes Kemenkes Riau. <http://repository.pkr.ac.id/1681/>
25. Pakpahan, M., Siregar, D., Susilawaty, A., Tasnim., Mustar., Ramdany, R., et al. (2021). *Promosi kesehatan dan perilaku kesehatan (cetakan I)*. Medan: Yayasan Kita Penulis.
26. Notoatmodjo, S. (2011). *Kesehatan masyarakat: ilmu dan seni, edisi revisi 2011*. Jakarta: Rineka Cipta.
27. Notoatmodjo, S. (2018). *Metodologi penelitian kesehatan*. Jakarta: Rineka Cipta.
28. Sari, R.M. (2019). Gambaran pengetahuan ibu tentang verbal abuse pada anak di Desa Pomahan Kecamatan Pulung Kabupaten Ponorogo. *1st Prosiding Seminar Nasional Fakultas Ilmu Kesehatan*. [https://seminar.umpo.ac.id/index.php/SN\\_FIK2019/article/view/382](https://seminar.umpo.ac.id/index.php/SN_FIK2019/article/view/382)
29. Nilatulizah., Bakhar, M., & Andari, I.D. (2018). Pengaruh penggunaan Aplikasi Stimulasi Tumbuh Kembang terhadap pengetahuan ibu dan pertumbuhan balita umur 9-24 bulan. *Jurnal SIKLUS*, Vol.7 No.2, 328–331. <https://ejournal.poltekharber.ac.id/index.php/siklus/article/view/897>
30. Susilawati., Rusmil, K., & Dhamayanti, M. (2017). Sahabat Ibu Balita: Aplikasi untuk Meningkatkan Pengetahuan dan Keterampilan Ibu tentang Pertumbuhan dan Perkembangan Anak. *Jurnal Kesehatan Al-Irsyad (JKA)*, Vol.X No.1. <https://pustaka.unpad.ac.id/archives/164927#>
31. Kusuma, D.H., Shodiq, M.N., Yusuf, D., & Saadah, L. (2019). Si-Bidan: Sistem Informasi Kesehatan Ibu dan Anak. *INTENSIF: Jurnal Ilmiah Penelitian dan Penerapan Teknologi Sistem Informasi*, Vol.3 No.1, 43–53. <https://ojs.unpkediri.ac.id/index.php/intensif/article/view/12508>
32. Afiana, F.N., & Yunita, I.R. (2019). Aplikasi “GIZle” untuk mengetahui status gizi balita menggunakan metode forward chaining. *JURNAL RESTI (Rekayasa Sistem dan Teknologi Informasi)*, Vol.3 No.2, 297–303.

<https://jurnal.iaii.or.id/index.php/RESTI/article/view/908>

33. PrimaKu. (2023). *Tentang kami*. PT Cipta Medika Informasi (PrimaKu). <https://primaku.com/about>
34. Mubarak, W.I. (2012). *Ilmu kesehatan masyarakat: konsep dan aplikasi dalam Kebidanan*. Jakarta: Salemba Medika.
35. Saputri, C.A., Akib, R.D., Syahrani., Fitriani., & Ariyana. (2024). Optimalisasi peran keluarga melalui pendampingan dan edukasi dalam upaya Deteksi Dini Tumbuh Kembang (DDTK) pada bayi, balita, dan anak prasekolah. *Communnity Development Journal: Jurnal Pengabdian Masyarakat*, Vol.5 No.1, 2434–2439. <https://journal.universitaspahlawan.ac.id/index.php/cdj/article/view/25687>