

# The Role of Parents in Monitoring the Growth and Development of Toddlers: A Systematic Review

Andi Lis Arming Gandini<sup>1,2\*</sup>, A. Ummu Salmah<sup>2</sup>, Stang<sup>2</sup>, A. Arsunan Arsin<sup>2</sup>, Anwar Mallongi<sup>2</sup>

Andi Lis Arming Gandini<sup>1,2\*</sup>, A. Ummu Salmah<sup>2</sup>, Stang<sup>2</sup>, A. Arsunan Arsin<sup>2</sup>, Anwar Mallongi<sup>2</sup>

<sup>1</sup>Faculty of Public Health, Universitas Hasanuddin, Makassar, INDONESIA.

<sup>2</sup>Nursing Department, Poltekkes Kemenkes of East Kalimantan, INDONESIA.

## Correspondence

Andi Lis Arming Gandini

Faculty of Public Health, Universitas Hasanuddin, Makassar; Nursing Department, Poltekkes Kemenkes of East Kalimantan, INDONESIA.

E-mail: anwar\_envi@yahoo.com

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## ABSTRACT

**Background:** Toddler growth and development are important aspects that are interrelated. Growth is an increase in physical size and body structure while development is an increase in body structure and function in terms of movement, speech, language, socialization, and independence. The first five years of a child's life are a time of building learning, social, and emotional skills.<sup>1</sup>Children who receive stimulation provide good benefits for growth in body weight and mental development.<sup>2</sup>However, the growth and development of toddlers can experience disorders. The role of parents in monitoring the growth and development of toddlers is very important because it will influence the child's behavior as an adult. Applying parenting knowledge to children as early as possible is beneficial for the development of children's cognition and socio-emotional behavior.<sup>3</sup>Parenting is the overall interaction of parents with children that affect children's psychological and social.<sup>4</sup>Parenting groups are effective for increasing children's development, especially physical growth. The application of parenting techniques can be a method or way to help parents take better care of their children. **Objective:** This study aimed to know the methods and implementers that can monitor the growth and development of toddlers. **Methods:** This systematic review refers to the 2020 Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines. The databases used to search for articles are Pubmed and Google Scholar. The studies used were assessed using eight criteria from Strengthening the Reporting of Observational Studies in Epidemiology (STROBE). A total of 10 of 45,388 articles met the inclusion criteria for review. **Results:** The programs for monitoring the growth and development of toddlers using an application is considered more effective for training family independence in preventing disease. Monitoring the growth and development of toddlers can be carried out by health workers, child development agents, researchers, and parents. **Conclusion:** Parents can be effective implementers of monitoring because they are the closest people and the first for education place to their children. The use of the application is considered very effective for monitoring the growth and development of toddlers.

**Keywords:** Role of Parents, Monitoring, Growth, Development, Toddlers.

## BACKGROUND

Toddler growth and development are important aspects that are interrelated. Growth is an increase in physical size and body structure while development is an increase in body structure and function in terms of movement, speech, language, socialization, and independence. The first five years of a child's life are a time of building learning, social, and emotional skills.<sup>1</sup>Children who receive stimulation provide good benefits for growth in body weight and mental development.<sup>2</sup> However, the growth and development of toddlers can experience disorders.

Disorders that can occur are disorders in physical growth, motor development, behavior, and emotions. The prevalence of toddlers who experience disorders is 28.7%.<sup>6</sup> More than 200 billion parents in developing countries are unable to develop their children's potential.<sup>7</sup> This can have long-term impacts on children's cognitive function and economic productivity as adults.<sup>8</sup> The growth and development of toddlers do not only depend on the family economy but also on the mindset and parenting of parents.

The role of parents in monitoring the growth and development of toddlers is very important because it will influence the child's behavior as an adult. Applying parenting knowledge to children as

early as possible is beneficial for the development of children's cognition and socio-emotional behavior.<sup>3</sup> Parenting is the overall interaction of parents with children that affect children's psychological and social.<sup>4</sup> Parenting groups are effective for increasing children's development, especially physical growth.<sup>5</sup> The application of parenting techniques can be a method or way to help parents take better care of their children.<sup>9</sup>

The application of parenting techniques can be a method or way to help parents take better care of their children "The application of parenting techniques can be a method or way to help parents take better care of their children Parenting is carried out using various methods so further research is needed to find out the right method for monitoring the growth and development of toddlers with a systematic review.

## METHODS

### Search Strategy

This systematic review refers to the 2020 Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines.<sup>10</sup> Literature sources came from the Pubmed and Google Scholar databases. The search included worldwide studies published from 2011 to 2021. The obtained articles were then imported into Mendeley. The combination of keywords used in the search was "the role of parents

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in monitoring the growth and development of toddlers", "the role of parents in monitoring the growth and development under five years of age", and "parents and monitoring and the growth and development".

### Inclusion and Exclusion

Article inclusion criteria were studies whose/that (a) sample consisted of parents and toddlers; (b) discussed the role of parents in monitoring the growth and development of toddlers; (c) used quantitative and qualitative research designs; (d) used English; (e) published from 1 January 2011 to 31 December 2021.

### Data Extraction

The extracted data were variables related to the role of parents in monitoring the growth and development of toddlers. All articles were imported into Mendeley and duplicated. The next stage was reading the title and abstract. Appropriate articles were further selected based on inclusion and exclusion criteria. Selected articles were read in full and those that met the criteria were entered into the synthesis table.

### Quality Assessment

*Strengthening the Reporting of Observational Studies in Epidemiology* (STROBE) was used to rate the studies reviewed. Of the 22 STROBE assessment items, 8 items were taken, namely: sample size explanation, sample methodology explanation, response rate calculation, results measurement, statistical analysis explanation, confounding control, study limitation explanation, and research ethics. The study quality category was calculated based on the number of items met. Each item that was met was given a value of 1. The overall value was added up to determine the quality of the study. The study quality was categorized into poor (0-3), moderate (4-6), and good (7-8).<sup>11</sup> Articles that were included in the good category can be further assessed.

## RESULTS

A total of 45,388 articles were obtained from two databases. Then 22,473 articles were obtained after removing duplicates. The examination stage for articles that were not suitable for inclusion resulted in 4,537 articles. Furthermore, the abstract screening stage excluded 3,247 other articles. Next, 1,290 eligible articles were obtained and 1,280

articles were removed because they were not indexed and did not use monitoring methods. Finally, 10 articles were obtained to compile this study. Table 1 shows a summary of the studies; 5 in Africa, 1 in Oceania, 1 in America, and 3 in Asia. Sample sizes ranged from 101 to 1,489 participants and all studies were rated in the moderate to good quality category. The studies obtained show that digital monitoring programs using an application are considered more effective for training family independence in preventing disease.

## DISCUSSION

### Methods of Monitoring the Growth and Development of Toddlers

Health programs or interventions in monitoring the growth and development of children (toddlers) include counseling, education, mentoring, and health training activities for parents. The aim of these programs is to train families to be independent in maintaining health and preventing disease at the family level. The programs are Growth Monitoring and Promotion (GMP), Scalable Home-Visiting, Home visit-based Community Health Workers (CHW), and Parenting program.

- 1. Growth Monitoring and Promotion (GMP)** is a program for monitoring the growth and development of toddlers through regular measurement results charts.<sup>12</sup>
- 2. Scalable Home-Visiting** is a monitoring program with regular home visits.<sup>13</sup>
- 3. Home visit-based Community Health Workers (CHW)** is a children's growth and development monitoring program through home visits.<sup>14</sup>
- 4. Parenting program** is a childcare program that focuses on monitoring health and nutrition through a process of communication and play with children.<sup>15</sup>

Home visits are one of the most effective methods of family and community health care. This method allows researchers to find out the environment and lifestyle of the family, as well as the people around them, thus facilitating the process of monitoring, treatment, and recovery.<sup>16</sup> (Andrade et al., 2014).

Monitoring the development of toddlers is also carried out through an application, namely, See How They Grow. This application is a children's growth and development monitoring program with the main features of a digital children's growth chart.<sup>17</sup> The use of the application to monitor the growth and development of toddlers can improve the knowledge, attitudes, and behavior of users. In addition, monitoring with the application is very efficient, not limited by place and time.<sup>18</sup> However, there are factors that reduce the effectiveness of using the application, namely economic factors, age, and application features. Therefore, health programs or interventions are an alternative solution in monitoring the growth and development of toddlers.<sup>17</sup>

### Monitoring Implementers of the Growth and Development of Toddlers

Monitoring the growth and development of toddlers can be carried out by health workers, cadres, child development agents, researchers, and parents.

### Health workers

Health workers who monitor the growth and development of toddlers are nurses accompanied by community health officers.<sup>19</sup> Health workers are effective as monitoring implementers because they have knowledge and skills in using measurement tools such as growth charts,

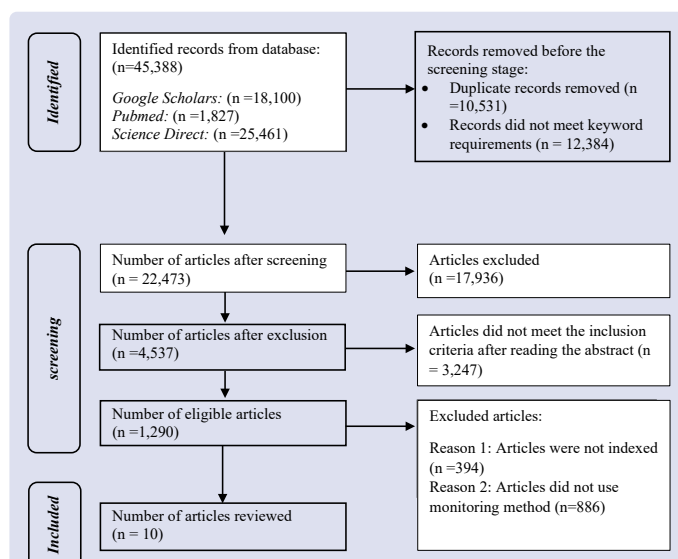


Figure 1: Article Selection Flow Diagram.

Source: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews.

**Table 1. Summary of Selected Studies and Conclusions on Research Results.**

No.	Author, Year, Country	Study Design	Sample	Journal Name	Monitoring Method	Monitoring Implementer	Quality Assessment	Results Findings
1.	(Rockers et al., 2018) Zambia	Cluster randomized clinical trial	524 caregivers	PLOS One (Q1)	Caregivers were visited by a child development agent (CDA) and attend parenting every two weeks	Child development agents (CDA)	Good (8)	The intervention of caregivers being visited by a CDA and attending parenting classes can reduce stunting and improve children's language development.
2.	(Sudfeld et al., 2021) Tanzania	Randomized clinical trial	593 pregnant women, mothers, and caregivers	BMJ Global Health (Q1)	Home-based health, nutrition, and responsive stimulation	Health workers, mothers, and caregivers	Good (7)	The increase in children's cognitive abilities is higher in the intervention group than in the control group.
3.	(Luoto et al., 2021) Kenya	Cluster randomized clinical trial	1,152 participants	Lancet Global Health (Q1)	Parenting intervention performed by trained community health volunteers	Trained community health volunteers	Good (8)	The interventions in group and mixed models significantly improve children's cognitive and socio-emotional development. These interventions also show significant improvement in children's receptive language.
4.	(Seidu et al., 2021) Ghana	Cross-section	400 parents	BMC Public Health (Q1)	Periodic monitoring of children's growth and development and implementation of growth monitoring and promotion activities, or what is called GMP.	Health workers	Good (7)	This GMP service can guarantee the growth and development of children by preventing children from being malnourished and assuring them to get immunizations/ vaccinations. It is also found that mothers with children aged 0–11 months were 3.9 times more likely to use GMP services compared to mothers with children aged 12–23 months and 24–59 months.
5.	(Humphrey et al., 2021) New Zealand	Two-phase approach (discussion and application test)	4 focus groups (Parents, professionals such as pediatricians and midwives) and 101 participants	PLOS One (Q1)	See How They Grow application.	Researchers	Good (7)	This intervention can improve breastfeeding practices in mothers and reduce the risk of obesity in children.
6.	(Muhoozi et al., 2018) Uganda	Randomized clinical trial	511 families with children aged 6-8 months	Maternal and Child Nutrition(Q1)	Nutrition education intervention delivered in group meetings.	Researchers	Good (7)	This intervention can improve children's development as measured by the Bayley Scales of Infant and Toddler Development-III (BSID-III) and Ages and Stages Questionnaire (ASQ) scores
7.	(Chang et al., 2015) Jamaica, Antigua, St Lucia	Cluster randomized clinical trial	251 mothers	Pediatrics (Q1)	Parenting intervention was provided concurrently with visits to health services.	Supervisors and health workers	Good (7)	The intervention by integrating parenting and health service functions is shown to improve children's cognitive abilities.
8.	(Yousafzai et al., 2014) Pakistan	Cluster randomized clinical trial	1,489 mothers and children	The Lancets (Q1)	Intervention provided by Lady Health Workers (LWH) to families with children aged up to 24 months.	Lady Health Workers (LWH)	Good (8)	The intervention of Lady Health Workers (LWH) for families with children aged up to 24 months can improve cognitive, language, and motor development in children aged 12 and 24 months.

9.	(Andrew et al., 2020) India	Randomized clinical trial	421 participants	Journal of Child Psychology and Psychiatry (Q1)	Intervention carried out in houses aimed at increasing the interaction of mothers and children through play.	Trained researchers and mentor	Good (7)	The intervention of Home visits is effective in improving children's cognitive, receptive language, and expressive language.
10.	(Aboud et al., 2013) Bangladesh	Nested cluster trial	463 participants	Social Science and Medicine(Q1)	Intervention carried out with a combination of group meetings and home visits.	Researchers	Good (7)	Cognitive and language development increased in children who were given the intervention compared to children in the control group.

anthropometric measurements, and children's health record books.<sup>12,20</sup> However, sometimes health workers do not provide consultation or information to mothers and only focus on monitoring the growth and development of toddlers.<sup>12</sup>

### Child Development Agents (CDA)

Child development agents are community-based health workers who are employed full-time on a project. Child development agents are known to be effective in monitoring the growth and development of toddlers because they are given training before carrying out monitoring in every house. However, the drawback is the lack of human resources for child development agents.<sup>21</sup>

### Researchers

Students and lecturers are researchers and monitoring implementers of the growth and development of toddlers. Researchers are effective in monitoring because they can conduct interventions or training regarding the concept of the growth and development of toddlers and the assessment of the development of toddlers.<sup>22</sup> However, the lack of accuracy or skill of researchers in monitoring the growth and development of toddlers is one of the obstacles.<sup>17</sup>

### Parents

Parents play an important role in monitoring the growth and development of toddlers and are the first for education place to their children so monitoring the growth and development of toddlers can be effective if done by parents. The advantage of the role of parents in monitoring the growth and development of toddlers is that parents can recognize the advantages of the development process of their toddlers and provide stimulation for the growth and development of their toddlers as early as possible in the physical, mental and social aspects.<sup>23</sup> However, the drawback is that it is often not done by mothers (parents) because they are busy.<sup>24</sup>

## CONCLUSION

The method for monitoring the growth and development of toddlers that is widely used and considered effective is an application for the growth and development of toddlers. Monitoring is mostly carried out by health workers, researchers, and parents. Parents can be effective monitoring implementers because they are the closest people and the first for education place to their children. Therefore, the use of the application by parents is considered very effective for monitoring the growth and development of toddlers.

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## CONFLICT OF INTEREST

The researchers declare that there is no conflict of interest.

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