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Optimization of Toddler Development Detection Through Mother-Based Toddler Class Education

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ABSTRACT

Background: *Early detection of toddler development is essential to prevent long-term developmental problems. Many mothers still have limited knowledge and practical skills in monitoring their children's developmental milestones. This community service aimed to improve mothers' knowledge and skills in toddler development detection and stimulation.*

Methods: *This activity was conducted in Pangkah Village, Karangdadap Health Center area, involving 23 mothers of toddlers for 6 months. Activities included education, practical training on development detection using Pre-Screening Developmental Questionnaire (KPSP), and stimulation practices. Evaluation was conducted using pre-post knowledge assessment and observation of mothers' skills.*

Results: *There was a significant difference observed before and after the community service activities with a p-value of 0.001 There was an increase in mothers' knowledge after the community service activities, as indicated by the increase in mean scores of toddler nutrition (from 15.57 to 23.35), development detection (from 12.57 to 19.17), and development stimulation (from 9.09 to 17.70).*

Conclusion: *The community service activities showed an improvement in mothers' knowledge and skills in toddler development detection, as well as their ability to perform basic developmental screening independently. Recommendations for the community include actively participating in routine toddler growth and development monitoring, providing appropriate stimulation at home according to the child's developmental stage, and seeking regular consultation with health workers to support optimal child development.*

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INTRODUCTION

According to WHO in 2018, there were problems with growth and development among children under five years old worldwide. Globally, 149 million children were stunted, 49 million were wasted, and 40 million were overweight. In 2018, about 22% of all children under five were stunted. As many as 17 million children under five suffered from severe wasting in the same year. In addition, there has been a significant increase in the number of children who are overweight, with 45% in Africa and 33% in Asia, since 2000. In Indonesia, based on the results of the Stimulation, Detection, and Early

Intervention of Growth and Development (SDIDTK) services among 500 children from five regions in DKI Jakarta, it was found that 57 children, or about 11.9%, experienced abnormalities in their growth and development (1).

Disorders in growth and development are serious problems that affect both developed and developing countries worldwide. Growth can be measured through indicators such as weight, height, and head circumference, while development encompasses motor, social, emotional, language, and cognitive abilities. In principle, every child will go through stages of growth and development according to their age, but various factors can influence this process. Children are the future of a nation and deserve special attention, and every child has the right to achieve optimal cognitive, social, and emotional development. Therefore, efforts are needed to ensure that children can grow and develop with excellent quality, which in turn can help create a nation's future of high caliber (2).

The critical period of development occurs during the first five years of a child's life, because during this period the foundations of human personality, sensory abilities, thinking, language skills, speech, social behavior, and other aspects begin to form (3). Developmental delays are often a problem that occurs in early childhood, with an incidence rate of around 15% (4). Children who experience developmental delays may face a variety of disorders that tend to persist in chronic conditions affecting them throughout life, including intellectual disorders, speech problems, socio-communicative disorders, sensory disorders, other physical problems, as well as behavioral and emotional disorders. Identifying children who may be affected at an early stage is important to provide advice to parents, conduct diagnostic examinations, and initiate appropriate therapeutic support for infants experiencing developmental delays or at risk of developmental delays (5).

Early intervention for children experiencing developmental delays is increasingly emphasized as a priority in global programs. The United Nations, in its efforts toward sustainable development, has set targets and goals aimed at providing children with the best access to quality development and care. Furthermore, the Global Strategy for Women's, Children's, and Adolescents' Health (2016-2030) supports three core principles, namely that children should not only 'survive' but also 'thrive' (6). Parents play a central role in a child's success.

They are the first figures that children see as individuals with extraordinary abilities beyond themselves, and through interaction with their parents, children first understand the world around them. With parental guidance, children can develop various aspects of their lives. Developmental aspects during early childhood are highly interconnected and interactive; if one aspect of development is hindered, it can affect the development of other aspects. There are various factors that can influence early childhood development, both positively and negatively. Successfully addressing developmental tasks during early childhood will have a significant impact on a child's development in the future (7).

The lack of parental knowledge about improper feeding practices by parents can increase the risk of stunting, especially if they do not pay attention to the child's nutritional needs. Poor parenting, when mothers have little knowledge about child health development and nutrition during pregnancy and after giving birth, increases the risk of stunting in toddlers (8). The growth and development of children under five years old are positively influenced by democratic parenting, where children are given the freedom to choose food from a menu provided by their mother or parents according to a balanced diet. Short-term growth delays can have negative effects, such as disturbances in brain

development, intelligence, physical growth, and metabolism. Long-term side effects include impaired cognitive and learning abilities, weakened immune system, and an increased risk of disease (9).

According to a study conducted by Abidah and Novianti in 2020, it was concluded that providing education aimed at stimulating children's growth and development by parents can improve parents' ability to provide developmental stimulation to children from an early age. This will result in positive impacts such as improved language skills and memory in children, preparing them for school, and supporting children in reaching their maximum potential in life. Normal motor development allows children to play and socialize with their peers, whereas abnormal motor development can hinder children in interacting with their peers (10)

At this time, active involvement of mothers in maximizing child development is declining, and about 16% of toddlers in Indonesia experience developmental delays. These delays include impaired fine and gross motor development, hearing problems, lack of intellectual abilities, and speech delays (11). The "Mother and Toddler Meeting" class is a forum where mothers with children aged 0 to 5 years gather to discuss, share views, and exchange experiences regarding health services, nutrition, and stimulating their children's growth and development. During these meetings, they are guided by a facilitator who uses the KIA book. This class is recognized for its significance in enhancing maternal empowerment and the development of knowledge, attitudes, and skills in caring for their toddlers. Aimed at improving mothers' abilities in nurturing their children, this meeting is held to enhance mothers' understanding, attitudes, and skills in toddler care (12)(13).

This service, the toddler class, is aimed at mothers of toddlers, using a participatory approach, which means that mothers are not merely passive recipients of information, as this approach is less effective in changing behavior. The mothers' class is designed with a participatory learning method, where mothers are not considered students but rather members of a learning community. In practice, mothers are encouraged to learn from shared experiences, while the facilitator acts as a guide in providing correct knowledge.

This community service activity was implemented in response to the needs of mothers of toddlers in Pangkah Village, who had limited knowledge and skills in early detection of child development. Based on preliminary observations and coordination with local health workers, it was found that mothers were not actively involved in monitoring their children's development and relied mainly on health services at the community health center. Therefore, a toddler class program was designed using a participatory approach, where mothers are not merely passive recipients of information but are actively involved as members of a learning community.

Through this approach, mothers are encouraged to share experiences, practice developmental detection, and gain practical skills, while facilitators act as guides in providing accurate and relevant information. The knowledge provided concerns the detection of toddler development, as well as conducting developmental assessments of toddlers. The goal of this service is to improve the health status of young children by providing education on nutrition that supports toddler development, detecting child development, and stimulating toddler growth.

METHODS

This community service initiative was carried out in Panggah Village, within the catchment area of the Karangdadap Community Health Centre, using a participatory

approach through a mother-led toddler class programme. The implementation involved several key activities, namely health education, training and practical sessions, mentoring, and outreach.

Health education was delivered by providing information to mothers of toddlers on nutrition, growth and development, and early childhood stimulation. Furthermore, the training and practical sessions aimed to enhance mothers' skills in conducting early detection of child development using the Developmental Screening Questionnaire (KPSP), the Visual Acuity Test (TDL), and the Hearing Test (TDD). Mentoring is provided during practical sessions to ensure that mothers' understanding and skills are applied correctly, whilst awareness-raising focuses on increasing community awareness of the importance of early detection and stimulation of child development.

Partners in this activity include 23 mothers of toddlers, village midwives, and health cadres who play an active role in mobilising participants, providing facilities, and supporting programme implementation. The activity phases consist of the pre-activity phase, implementation, and evaluation.

Pre-Activity Phase

During the pre-activity phase, coordination took place with the head of the community health centre, the coordinating midwife, the village head, and the village midwives, alongside the preparation of materials, educational media, the activity schedule, and agreement on the venue with partners. In addition, the implementation team identifies participants' needs regarding the detection of infant and toddler growth and development as a basis for developing educational materials. The team also prepares evaluation instruments in the form of knowledge questionnaires and skill observation sheets to measure the achievements of the community service activities.

Implementation Phase

The implementation phase took place from March to September 2023 through toddler classes covering nutrition and toddler development education, training in developmental screening using the KPSP, TDL, and TDD, practical simulations of developmental detection, as well as discussions and experience-sharing among mothers. Activities were conducted interactively using lectures, demonstrations, and hands-on practice to help participants better understand the material provided. In addition, participants received direct support from the implementation team and healthcare workers to ensure that developmental screening skills could be carried out independently and sustainably at home.

Evaluation Phase

Process evaluation was carried out through observation of participants' attendance and participation, as well as their engagement during discussions and practical sessions. Outcome evaluation was conducted through pre- and post-activity knowledge assessments using questionnaires, as well as observation of mothers' ability to independently assess their infants' development. Partner participation was demonstrated through the provision of the venue, support in organising participants, and active involvement throughout the entire programme.

RESULTS

The activities lasted for half a year, in accordance with the agreement made with the partners. The enthusiasm of mothers with toddlers was very high, with punctual attendance. Even though the mothers brought their toddlers, the atmosphere in the toddler class remained conducive. During the implementation, participants actively asked questions and also practiced according to the guidance of the service team. This class was attended by 23 mothers with toddlers, who faithfully attended the class every month.

Mothers with toddlers, village midwives, and community health volunteers actively participated in this activity and made this toddler class in the service program an example to be adopted in other villages still within the Karagdadap Health Center area. Forms of partner support from the health center included facilitating interactions between the service team and village midwives and monitoring the implementation of the service process. Village midwives were also very active in collaborating from the initial stage until the service implementation was completed and were also responsible for provision of the location. The cadre also actively participates by providing snacks for toddlers.

Table 1. Distribution of Knowledge Before and After Community Service

Knowledge	Mean		Different Mean	p-value*
	Before	After		
Toddler Nutrition during the Developmental Period	15.57	23.35	7.78	0.001
Development Detection	12.57	19.17	6.60	0.001
Development Stimulation	9.09	17.70	8.60	0.001

Note: a paired sample t-test

The results of the community service initiative indicate an increase in knowledge among mothers of toddlers following their participation in the toddler education programme. Improvements were observed in the areas of nutritional knowledge regarding toddlers during their developmental stages, monitoring growth and development, and stimulation of child development, with average scores after the intervention being higher than those prior to the initiative. Statistical analysis revealed a significant difference ($p<0.05$), indicating that the education programme was effective in enhancing participants' knowledge.



Figure 1. Nutrition Education and Toddler Development Detection Activities

Table 2. Toddler Growth and Development Screening Results

No	Gender	Age (Month)	Height (cm)	Weight (kg)	KPSP Result	Vision Test	Hearing Test	Note
1	M	6	63	7.5	Normal	Not Reviewed	Not Reviewed	No developmental disorders
2	M	48	92	15.4	Normal	Normal	Normal	No developmental disorders
3	M	36	89	14.0	Normal	Normal	Normal	No developmental disorders
4	F	9	70	8.5	Normal	Not Reviewed	Not Reviewed	No developmental disorders
5	F	18	82	10.3	Normal	Normal	Not Reviewed	No developmental disorders
6	M	24	85.4	12.4	Normal	Normal	Normal	No developmental disorders
7	M	10	73	9.0	Normal	Not Reviewed	Not Reviewed	No developmental disorders
8	F	15	81	10.8	Normal	Normal	Normal	No developmental disorders
9	M	12	74	9.2	Normal	Normal	Not Reviewed	No developmental disorders
10	F	11	69.7	9.3	Normal	Not Reviewed	Not Reviewed	No developmental disorders
11	F	36	88	14.0	Normal	Normal	Normal	No developmental disorders
12	F	30	84	13.2	Normal	Normal	Normal	No developmental disorders
13	F	5	65	7.0	Normal	Not Reviewed	Not Reviewed	No developmental disorders
14	M	18	81	11.4	Normal	Normal	Not Reviewed	No developmental disorders

No	Gender	Age (Month)	Height (cm)	Weight (kg)	KPSP Result	Vision Test	Hearing Test	Note
15	M	20	82	11.7	Normal	Normal	Not Reviewed	No developmental disorders
16	F	24	86.2	12.8	Normal	Normal	Normal	No developmental disorders
17	M	36	90	13.9	Normal	Normal	Normal	No developmental disorders
18	M	54	103	18.0	Normal	Normal	Normal	No developmental disorders
19	F	18	82	12.0	Normal	Normal	Not Reviewed	No developmental disorders
20	F	24	90	12.7	Normal	Normal	Not Reviewed	No developmental disorders
21	M	36	88	14.1	Normal	Normal	Normal	No developmental disorders
22	F	11	74	9.2	Normal	Not Reviewed	Not Reviewed	No developmental disorders
23	F	9	70	8.3	Normal	Not Reviewed	Not Reviewed	No developmental disorders

Based on the Table of growth and development screening results, all toddlers scored within the normal range on KPSP, with no developmental disorders identified. Some toddlers had not yet undergone vision or hearing tests due to their age or the conditions at the time of the screening. Overall, the results indicate that the toddlers' growth and development are progressing well in line with their age group.

DISCUSSION

Child development and growth cannot be separated from the role of an optimal family. Therefore, the role of the family includes interpersonal interactions, behaviors, and activities of individuals with other individuals in specific situations and environments. The influence on a person's development and growth is based on the positive expectations and behavioral patterns of the family, groups, and society. In a child's life, parents hold the most important position in efforts to care for and support the child's development from one stage to the next. Each parent needs to have their own unique approach in playing this role by applying parenting patterns and development methods that are efficient and optimal (14).

Parents' efforts to maximize their child's growth and development can be realized in various ways, including providing stimuli to optimize the child's growth, giving healthy nutrition and dietary intake, and conducting early detection of the child's development. Parents need to reflect on and examine their parenting style, as this can have a significant impact on the child's development. Physical and motor development, so that the child can lead a healthy lifestyle and use their motor skills in daily activities. Language development, to enable the child to communicate, read, write, and engage in other literacy activities. Cognitive development, which helps sharpen the child's logic and numeracy skills. Social and emotional development, which helps the child develop self-control and the ability to adapt to their surroundings (15).

The service carried out shows an increase in the knowledge of mothers with toddlers before and after the intervention. This increase includes knowledge about nutrition in development, development detection, and development stimulation. The role of parents in carrying out detection and stimulation of child development is very important. In the context of child development, the role of parents goes beyond just giving birth to a child; they must also provide special attention, optimal parenting approaches, and, importantly, love. From a more comprehensive perspective, the role of parents in child development can be explained as follows: "Parents have a significant influence on the growth and development of their children and act as the primary protectors in all stages of child development". Therefore, parents are the first teachers who accompany children in the journey of development from one stage to the next by providing special attention, optimal care, and full love.

All parents hope that their children can grow and develop like other children in a normal way. Therefore, the role and responsibility of parents cannot be taken lightly; it requires an optimal strategy so that the parental role can be carried out properly. Activities to optimize the growth and development of infants and toddlers through increasing knowledge among pregnant women and mothers of infants and toddlers result in an increase in knowledge before and after education is provided. Health workers, in this case midwives, need to provide education to pregnant women and mothers of infants and toddlers to optimize the growth and development of infants and toddlers (2).

This community service team teaches mothers with toddlers how to independently carry out early detection of development and meet the needs of their toddlers to promote optimal development. Early detection is a comprehensive screening step carried out to identify problems in a child's growth and development and recognize risk factors that may affect them during the toddler years. Through early detection, we can identify developmental problems in children promptly, allowing for appropriate preventive measures, stimulation, care, and recovery based on clear information about the growth and development process (16) (13).

These efforts are aimed at achieving optimal growth and development conditions for children. The results of this activity imply that empowering mothers through participatory education can strengthen community-based child development monitoring and improve early identification of developmental delays. However, this activity was limited by the relatively small number of participants and the short duration of monitoring, which may not fully capture long-term outcomes. Therefore, future programs are recommended to involve a larger population, implement continuous mentoring, and integrate routine evaluation within community health services to ensure sustainability and long-term impact (16) (13).

The follow-up from this community service is expected to allow mothers with toddlers to perform independent detection, provide stimulation according to the age of the toddlers, and also meet nutritional needs that support their development. This prenatal class can provide optimal knowledge and practice for mothers with toddlers. In carrying out their role, a midwife not only has the responsibility to conduct early detection directly but is also expected to raise parents' awareness in monitoring and providing growth and development stimulation according to the child's age. This aims to reduce the risk of delays in achieving optimal development (17).

CONCLUSIONS AND SUGGESTIONS

The community service program demonstrated an increase in mothers' knowledge before and after the intervention, particularly regarding nutrition during development, developmental detection, and developmental stimulation, with statistically significant results. These findings imply that community-based education can empower parents to independently monitor child development, provide age-appropriate stimulation, and fulfill nutritional needs that support optimal toddler growth and development. Therefore, it is recommended that communities actively participate in routine development monitoring activities and collaborate with health workers to sustain early detection and stimulation practices at the household and community levels.

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DECLARATION OF USE OF AI IN SCIENTIFIC WRITING

AI tools were used solely for grammar and language editing. The authors take full responsibility for the content and integrity of the manuscript.

CONFLICT OF INTERESTS

The author declares that there were no conflicts of interest related to the implementation of this community service activity.

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