



EFFECTIVENESS OF E-POSYANDU HEALTH (EPOK) APPLICATION ON KNOWLEDGE AND SKILLS OF POSYANDU CADRES IN MONITORING GROWTH AND DEVELOPMENT OF TODDLERS

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ABSTRACT

Posyandu cadres are community elements that play an important role in the implementation of Posyandu activities. The cadre's role includes monitoring the growth and development of children under the age of five. To do their job effectively, they must have strong monitoring knowledge and skills in order to detect complications or problems in toddlers early on. So that appropriate intervention and counseling can begin immediately. The ePoK application is an innovative smartphone application that helps cadres monitor the growth and development of toddlers. The objective of this study was to determine the effectiveness of the ePoK application in terms of posyandu cadres' knowledge and skills in monitoring toddler growth and development. This study was a quasi-experiment with a one-group pretest and posttest design. This study was carried out in Tanjungpinang City. A total of 60 posyandu cadres responded. Respondents were given the ePoK Application to use for one month. Knowledge was assessed using a questionnaire, and skills were assessed using a checklist. The results showed that respondents' knowledge and skills increased both before and after using the application (11.55 and 5.78, respectively). There was also a significant difference in the knowledge and monitoring skills of respondents before and after using the ePoK Application with a p value <0.05 (0.000<0.05). The conclusion of this study is that the use of the ePoK application is proven to increase the knowledge and skills of posyandu cadres on monitoring the growth and development of toddlers.

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1. INTRODUCTION

Toddlerhood is often referred to as the golden age. Toddlerhood is a period of rapid growth and development, encompassing physical, psychomotor, mental, and social development. At this age, children will improve their thinking, speaking, five senses, and motor skills. The role of parents, posyandu cadres, and health workers is critical in promoting children's growth and development during the golden age (Dermysyhi, 2017; Setiawati, et al. 2020).

Toddlers are particularly vulnerable to health problems. Early detection is critical for detecting growth and developmental deviations, as well as mental and emotional deviations, in children. This is done to provide intervention and stimulation as early as possible to prevent the development of a type of deviation that persists in toddlers. Growth and development monitoring is performed routinely on all toddlers and pre-school children, so it is not limited to toddlers who have been diagnosed with a disorder or problem (Dardjito, et al. 2014).

Growth and development exhibit interconnected signs and characteristics. Many factors influence toddler growth and development, including the child's physical, family, and health-care environments, among others. It is critical for parents, particularly mothers, to understand physiological and normal pp when detecting deviations. Growth and development monitoring evaluates not only physical changes, but also the child's intellectual, social, and emotional development. If physical, intellectual, social, or emotional changes are disrupted or delayed during monitoring, mothers can notify/consult with health workers about the problem (Muzayyaroh & Suyati, 2022; Rahayu, 2014).

So far, children's growth and development have been monitored at posyandu activities or clinics/independent midwife practices (PMB). Cadres play an important role in posyandu activities by monitoring children's growth and development. The cadre is a midwife's long arm that helps her detect health problems. Cadres are responsible for weighing children and recording the results in the report and KIA books. In addition to weighing, cadres can provide mothers of children under five with health information about the results of the weighing and efforts to meet nutritional needs. Cadres must accurately weigh and record because they play such an important role in posyandu activities. Errors in measurement or weighing will affect the KIA book's recording. In addition, erroneous weighing will have an impact on the analysis of children's nutritional status based on the results of the weighing (Setiawati, 2020).

Cadre knowledge is critical because it can influence cadre performance (Afifa, 2019; Mediani, 2020). Cadres must be knowledgeable about toddler health in order to carry out their posyandu responsibilities, particularly in the early detection of toddler growth and development disorders. The need for innovation to improve cadres' knowledge and skills based on the most recent scientific information about stunting (Tristani & Khoirunnisa, 2018). Cadres with a strong understanding of nutrition and stunting prevention efforts will be better able to counsel the community (Nurbaya, 2021). Currently, electronic media and applications are popular media options for the public to obtain information because they are practical and efficient.

The use of applications is thought to have the potential to positively impact users' knowledge and attitudes, as well as improve skills and positive behavior. This also applies to the use of various toddler growth and development apps. Several studies have been conducted to demonstrate that the use of applications for monitoring the growth and development of toddlers can help improve knowledge, attitudes, and skills in monitoring toddlers. Mothers can detect complications or disorders earlier, allowing for more timely and effective treatment (Saurina, 2015; Amaliah, et al 2018).

The e-Posyandu Health (ePoK) application was created by implementing a 5-table system. This application includes chat rooms, immunization schedules, vitamin A, and deworming reminders, as well as other features that can provide health information to toddler mothers. This application includes features for monitoring growth and development using the Developmental Pre-Screening Questionnaire. The use of the ePoK application is expected to improve cadres' knowledge and skills in monitoring children's growth and development, allowing for earlier detection of disorders in toddlers (Damayanti, et al, 2022).

Based on the background described, the question in this study was whether the e-Posyandu Health (ePoK) Application is effective in increasing the knowledge and skills of posyandu cadres in monitoring toddler growth and development. The objective of this study was to determine the impact of the Health e-Posyandu Application (ePoK) on posyandu cadres' knowledge and skills in monitoring toddler growth and development.

2. RESEARCH METHOD

This research is a quasi-experiment with a one-group posttest-only design. The study was carried out between June and August 2022 in Puskesmas Mekar Baru Working Area in Tanjungpinang City. The population consisted entirely of posyandu cadres in Puskesmas Mekar Baru Working Area in Tanjungpinang City, but the research sample was a subset of this population that met the research criteria. The study's inclusion criteria were that respondents be willing to participate, be active as posyandu cadres, and have Android at least version 5 and the ability to use it. Exclusion criteria included the cadre's status as a health worker. The ePoK application was used for one month to assess respondents' knowledge and skills both before and after they used it. To assess respondents' knowledge, a questionnaire was used, while a checklist was used to assess skills in monitoring growth and development.

The sample size was as many as 60 people, who were calculated using the Slovin Formula. Respondents were drawn from all posyandu in the Working Area of Puskesmas Mekar Baru Tanjungpinang City. Respondents were selected using a proportional stratified random sampling technique from 12 posyandu in the Puskesmas Mekar Baru Working Area. This research has passed ethical review at the Ethics Committee of Stikes Patria Husada Blitar Number: 06/PHB/KEPK/29/10.21.



3. RESULTS AND ANALYSIS

This study was carried out in Tanjungpinang City from June to August 2022. The sample size was 60 posyandu cadres from the Puskesmas Mekar Baru Working Area who met the inclusion and exclusion criteria. Table 1 below shows the characteristics of respondents:

Table 1. Characteristics of Respondents

| Variable | Frequency | Percentage (%) |
|----------------------------------------|-----------|----------------|
| Age (years old) | | |
| < 20, > 40 | 4 | 6.7 |
| 20-40 | 56 | 93.3 |
| Education | | |
| Low (< SMA) | 16 | 26.7 |
| High (≥ SMA) | 44 | 73.3 |
| Occupation | | |
| House Wife | 45 | 75 |
| Worker | 15 | 25 |
| Length of time as cadre | | |
| < 5 years | 18 | 30 |
| ≥ 5 years | 42 | 70 |
| Participating in cadre training | | |
| Ever | 48 | 80 |
| Never | 12 | 20 |
| Total | 60 | 100 |

Table 1 shows that the vast majority of respondents (93.3%) are between the ages of 20 and 40. The majority of educational characteristics, 73.3%, fall into the high category. The majority of respondents (75%) were housewives assigned to be cadres. In terms of length of time as a cadre, the majority of respondents (70%) have served for more than 5 years and have received cadre training (80%). Table 2 shows differences in respondents' knowledge before and after using the ePoK application.

Table 2. Mean Distribution of Respondents' Knowledge Before and After the Use of ePoK Application

| Variable | Before Intervention | | After Intervention | | P value |
|-----------|---------------------|--------|--------------------|-------|---------|
| | Mean | SD | Mean | SD | |
| Knowledge | 67.89 | 13.076 | 79.44 | 7.982 | 0.000* |

* significant at p value < 0.05

Table 2 above shows that using the ePoK Application increased respondents' knowledge by 11.55. There is a significant difference in respondents' knowledge before and after using the ePoK Application ($p < 0.05$). Table 3 shows the difference in respondents' ability to monitor toddlers' developmental growth before and after using the ePoK application.

Table 3. Mean Distribution of Respondents' Skills on Growth and Development Monitoring Before and After the Use of ePoK Application

| Variable | Before Intervention | | After Intervention | | P value |
|-------------------------------------------|---------------------|--------|--------------------|-------|---------|
| | Mean | SD | Mean | SD | |
| Monitoring Skills Developmental Growth | 67.44 | 10.248 | 73.22 | 5.691 | 0.000* |

* significant at p value < 0.05

Based on the table above, it can be seen that there is an increase in respondents' monitoring skills after using the ePoK Application by 5.78. There is a significant difference in the monitoring skills of respondents before and after using the ePoK ePoK Application with a p value < 0.05 ($0.000 < 0.05$).

According to the results of the analysis of respondents' age characteristics, the majority (93.3%) were between the ages of 20 and 40. According to Susilawati et al. (2017), someone who is older will have better

knowledge and skills because they have more experience with child health, including monitoring toddler growth and development. Damayanti et al. (2022) concluded that 20-40 year olds are more productive than other age groups. This age group is generally not technologically illiterate; instead, they are more active and frequently use smartphones. This generation has the potential to be more intense in using technological media to seek various information, including health information (Damayanti, et al, 2022). This is consistent with research by Pratiwi and Rustanti (2018), which found that people over the age of 20 are mature enough to obtain information, learn, and adjust to new environments. This age is ideal for reviewing previously learned materials, performing analogy reasoning, and developing more creative thinking skills. This age group is mature enough to process new information. This age group is mature in terms of physical, mental, and spiritual changes, as well as proficiency, skills, and expertise in the application of science and technology (Pratiwi & Rustanti, 2018).

The majority of respondents (73.3%) completed upper secondary or higher education. Research by Pratiwi and Rustanti (2018) found that a person's education level influences how much information and knowledge they receive. Longer levels of education have a consistent positive impact on health. The longer a person rejects education, the more likely he or she is to develop a more effective life capacity, which will have an impact on health. Education provides and improves knowledge, general skills, and specialized skills that influence a person's actions toward achieving goals. The higher a person's education, the more logical and rational his or her way of thinking, and thus the ability to analyze and solve a problem correctly (Pratiwi & Rustanti, 2018).

The majority of respondents in this study were housewives (75%), with only 25% working mothers. According to Apsaryanthi (2017), working mothers spend most of their time outside the home, leaving little time for other tasks such as performing their duties as cadres. As a result, working mothers do not have enough free time to monitor their toddlers' development (Apsaryanthi, 2017).

The length of time spent as a cadre is also expected to have a significant impact on how well a person performs their duties as a cadre. They will be more enthusiastic because of their extensive experience, particularly with monitoring the growth and development of children under the age of five. The same is true for the cadre's experience attending health-related training for children under the age of five. Cadres who attend training are thought to be better able to carry out their duties of assessing the growth and development of children under five.

According to table 2, respondents' knowledge increased after using the ePoK Application for one month, and there was a significant difference between their knowledge before and after using the ePoK Application. Similarly, table 3 shows that respondents' skills in monitoring toddler growth and development are improving, but there is a significant difference in their skills. This shows that the ePoK application has an impact and contributes positively to increasing cadres' knowledge and skills, particularly in the area of toddler development. The ePoK application is intended to be simple to understand and use. This application includes a 5-desk posyandu system, which includes the registration stage and the completion of child data, monitoring infant and toddler growth and development, recording examination results, and providing counselling or health information about toddlers. This application can detect early growth and development disorders in toddlers based on the data entered into it (Damayanti, et al, 2022; Saputri, et al, 2022).

Using some of the features available in this application can help cadres gain an overview and understanding. Some available information, such as audiovisuals or videos on how to monitor toddler growth, can help to improve knowledge and skills in weighing, measuring height/length, and measuring head circumference. The Developmental Pre-Screening Questionnaire, which consists of questions or statements, is used to monitor the development of toddlers. This questionnaire is appropriate for the toddler's age at the time of the examination. The application also specifies the tools and materials required for developmental monitoring based on the toddler's age, assisting cadres in the preparation stage.

During their use of the application, respondents encountered no significant barriers. Respondents can track their progress and development by using the ePoK app on their smartphones. So, through this application, cadres can hone their skills in monitoring toddler growth and development. This is also in a line with study by Handayani (2019), which found that using the Stunting-Free Child (ABS) application increased cadre knowledge about stunting in toddlers aged 12-36 months in the working area of the Leuwigoong Puskesmas, Garut Regency, by 25.1%. Similarly, Makrifah (2021) found that the use of the "PrimaKu" application had an effect on cadres' knowledge of monitoring and detecting the developmental growth of toddlers at Posyandu in the Puskesmas Kampar Kiri Hilir working area, with a P value of 0.000.

Mobile Health is a type of e-health technology innovation and advancement that is used in the world of health. This innovation is expected to reach all levels of society through online tools or prepayment systems that use communication devices / media that are very close to humans, such as mobile phones, tablets, and the internet (Widiarti, 2018). Audiovisual media is an educational tool that stimulates the senses of sight and hearing by combining sound and images. Audiovisual media can enhance perception, knowledge, and memory (Apriliawati et



al., 2020; Utario & Sutrianti, 2020). This is in a line with study conducted by Rizqiea and Utami (2020), which found that using audiovisual media increased cadres' awareness of the dangers of infant choking (Rizqiea and Utami, 2020). According to the findings of Permatasari et al. (2017), counselling with audiovisual media is significantly more effective than leaflet media in increasing health knowledge about the prevention of gastritis disease. It can be concluded that providing education through the application has had an impact on increasing Posyandu cadres' knowledge of early detection of stunting.

The media used to provide information can influence one's understanding of toddler growth. Educational media is designed to stimulate as many senses as possible in order to facilitate perception of an object. Educational media makes it easier for people to understand complicated information or material. The use of media will aid in the clarification of the information conveyed because it can be more interesting, interactive, and overcome the limitations of space, time, and human perception. To ensure that the information conveyed is clear and easy to understand in accordance with the objectives to be achieved, it must be packaged according to the characteristics of each media used. Mobile phones are no longer just a means of communication; they have evolved into devices capable of performing a variety of tasks (Sutriyawan et al 2021; Handayani, 2019). This type of mobile phone is now commonly referred to as a smartphone. Smartphones can be used to aid in medical procedures such as diagnosis and treatment. Mobile phones are regarded as a particularly effective tool for advancing education in developing countries, among other forms of information and telecommunications technology. Smartphones outperform modules without applications. Wahyuni (2017) found that smartphone applications increased a person's knowledge and skills in stimulating toddler growth and development. As a result, providing information through appealing media facilities will make it easier for individuals to stimulate themselves (Wahyuni, 2017)

It is critical to educate cadres on how to monitor toddler growth and development. Pp can detect early complications or problems in toddlers, both in terms of nutritional status and development, allowing for faster and more appropriate treatment (Muntafiah et al 2021; Monalisa et al 2021; Maidelwita Y. & Arifin Y. 2020). Good cadre knowledge will also improve cadre attitudes and skills in measuring growth and assessing toddler development. Akhmadi, 2021; Noprida, 2022; Hariani, et al 2020)

Posyandu cadres are members of the community who are chosen to assist with activities related to simple health services in the implementation of posyandu on a volunteer basis. According to the Indonesian Ministry of Health, one of the requirements for posyandu cadres is that they are members of the local community. So that cadres can better carry out their duties of monitoring the situation and condition of infants and toddlers in the posyandu work area. Cadres also conduct home visits to monitor the development of infants and toddlers who are not present at posyandu activities. To be able to carry out these tasks, it is very important to provide knowledge and skills to cadres, especially regarding monitoring the growth and development of toddlers (Hastuti, 2020; Sitorus, 2021; Noprida, 2022).

Faced with the challenges ahead, kaders are expected to provide guidance to families as well as address other community health needs and problems. If cadres are not trained, their role in assisting health workers in the Puskesmas area will become more complicated. Inaccurate data and information processing have an impact not only on midwives and nutrition officers' performance, but also on decision-making and interventions that do not follow established Standard Operating Procedures (SOPs). Another impact is on the performance and quality of health services at the puskesmas, which are in charge of implementing the under-five health programme at the district or city level (Herlina S, 2021); Fitirani (2020); Roshinah (2020).

4. CONCLUSION

The use of the ePoK application has proven to improve posyandu cadres' knowledge and skills in monitoring toddler growth and development. Toddlers' growth and development should be monitored on a regular basis to detect any early complications or disorders. Furthermore, it may raise suspicion of any found complications or deviations.

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