

The effect of sensory playbook 30 days on the development of children aged 6-36 months in Ngawen District, Gunung Kidul Regency

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ABSTRACT

Background: Sensory Play is an active play facility that involves touch, taste, smell, sight, hearing, vestibular, and proprioception. Sensory play can support the development of speech and language, gross and fine motor skills, cognitive abilities, and social interaction, especially with their peers. The purpose of this study was to analyze the effect of the sensory playbook 30 days using an approach of sensory play on the development of children aged 6-36 months in Ngawen District, GunungKidul Regency.

Method: This research is a descriptive study using quantitative methods to measure the level of children development with a pre-test and post-test approach using the Developmental Pre Screening Questionnaire (KPSP).An intervention in the form of sensory play from the book "30 Days of Sensory Play Ideas to Support Toddler Growth" was also used

Results: Based on the results of the study showed the Chi-Square test p value < 0.000 where p < 0.005. Thus it can be concluded that there is an influence from the sensory playbook on the development of children aged 6 - 36 months in Ngawen District, GunungKidul Regency.

Conclusion: The Intervention of the 30 Days Idea Sensory PlayBook has an effect on the development of children aged 6 - 36 months showing an influence on development which is seen through the interpretation of dubious KPSP results or deviations from being age-appropriate. Community health center or midwife can suggest the parents to use sensory play in order to improve their children's growth and development.

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1. Introduction

Public health services, especially in the field of maternal and child health, have had a major impact from the Covid-19 pandemic that occurred in Indonesia which had an impact on the public health service system. The government's policy regarding Large-Scale Social Restrictions (PSBB) has led to a decline in health services in terms of services number and healthcare resources. Limitations of physical contact and activities outside the home have an impact on patient visits to health facilities. In Indonesia, Posyandu or *Pos Pelayanan Terpadu*/ The Integrated Service Post hold an important role to monitor the public health especially children and mothers. The Integrated Service Post (Posyandu) is an extension of the Puskesmas to provide health services and monitoring that is carried out in an integrated manner by and for the community (Kurniati & Yuni, 2020). During pandemic, as many as 83.9% of basic health services cannot run optimally, especially at the Posyandu level (Kostania, 2020). Posyandu should be a basic tool that has a big role in monitoring the growth and development of infants and toddlers, as well as basic health services for mothers, children, adolescents, and the elderly.

Posyandu activities that run well can assist maternal and child health services, such as monitoring the development of toddlers' growth and development and facilitating early detection if there are deviations in the growth and development of infants and toddlers, so that they can immediately receive appropriate treatment (Hosseini & Padhy, 2021).

Growth monitoring activities are carried out to detect early growth deviations (malnutrition, poor nutrition, and short children), developmental deviations (late speech), and mental-emotional deviations of children (impaired concentration and hyperactivity). Growth screening carried out on infants and toddlers includes weighing activities, measuring length/height and head circumference (Ningtya & Haenilah, 2018). The data is then analyzed into a growth curve according to the age and sex of the child in the Card Towards Health (KMS) in the Maternal and Child Health (MCH) book. While developmental screening can be done by health workers observing directly the infants/children and also using the Developmental Pre-Screening Questionnaire (KPSP) which can be answered by parents or using the MCH handbook, aged 0-6 years by health workers at the Posyandu or Puskesmas, and for infants/children who have a high risk of being carried out by pediatricians at the hospital.

Parents need to monitor the growth and development of their children, especially at the age of <2 years. Children's brain development occurs very rapidly during the age period <2 years therefore, this is the right time to detect deviations and develop plan of intervention if any developmental disorders exist (Zainiyah & Susanti, 2020). Early age is a phase in the process of individual growth and development that affects life and provides important opportunities as a basis for lifelong learning (Gladstone et al., 2018). To optimize the growth and development of children, as well as to support children with adequate nutrition and love, proper stimulation is also needed. Success in this period can help optimize the growth and development process as the basis for children's learning throughout life (Rosiyah et al., 2020).

The Covid-19 pandemic situation has certainly become an obstacle for parents to bring their children to the Posyandu for monitoring growth and development and other routine services that are very much needed. Parents must accompany and facilitate children to play by providing variations in stimulation to support the achievement of children's development according to their age (Legiati et al., 2020). For example, parents can introduce their children to a sensory play consisting of toys which can stimulate the children's sense of touch, taste, sight, and engage them on the activity that require movement and balance.

Sensory Play is an active play facility that involves the five senses of the body, including touch, taste, smell, sight, hearing, vestibular, and proprioception. The more senses that are used, the more likely the child is to learn and remember. Especially at the first 3 years of life, the growth and development of children accelerate rapidly. Children can receive a lot of information as to their knowledge of the world. Sensory play can support brain stimulation to improve abstract thinking skills, experiment, and do more complex tasks, thus supporting speech and language development, gross and fine motor skills, cognitive abilities, and social interaction, especially with their peers. Sensory play helps train children's emotional and concentration skills (Butcher, 2016). In sensory play stimulation, children are encouraged to actively explore, not only learn from listening to their parents talk or reading books. Parents who invite their children to play sensory play can help children increase

their vocabulary about the world they are exploring. Playing with different types of textures, tastes, and objects also helps children develop new ways of talking about the world around them (Septianingrum & Yasintha, 2018).

Monitoring and stimulation of growth and development of toddlers can still be performed even though posyandu activities are postponed. The pandemic situation does limit children's activities outside the home, but it will not prevent children's playing activities at home. Parents must accompany and facilitate children to play by providing variations in stimulation to support the achievement of children's development according to their age (Legiati et al., 2020). As an effort to implement sensory activities for toddlers at home with parents, parents can follow the guideline in the 30-day book of sensory play that have been packaged in detail, concisely, to support growth and development during the Covid-19 pandemic. Therefore, this study aims to determine whether there is an influence on children's development age 6-36 months through the utilization of 30 Days of Sensory Play Ideas Book.

2. Methods

This study uses a quantitative method approach to measure the level of sensory abilities of children with a quasi-experimental study. The experiment was provided with a module book called "30 Days of Sensory Play Ideas to Support Toddler Growth and Development" along with eight toys. The measurement was collected in the pre-test and post-test approach using an instrument of a Developmental Pre-screening Questionnaire/*Kuesioner Pra Skrining Perkembangan* (KPSP). The Developmental Pre Screening Questionnaire (KPSP) is an instrument for early detection in the development of children aged 0 to 6 years. This KPSP is useful to find out if the child's development is normal or if there are deviations. KPSP has several age groups with an interval of every 3 months. The population in this study is 36 children aged 6-36 months in Ngawen District, Gunungkidul Regency from 23rd October to November 20th, 2021 at the Sadewa Posyandu. This study was a total sampling technique, in which all mothers and children will be recruited. The inclusion criteria of all toddlers aged 6-36 months, having received the book "30 Days of Sensory Play" and agree to involve in study. The exclusion criteria was children who refused to participate in this study and had congenital defect.

The stimulation using the book includes playing with colorful sand, touching the waterbeads, arranging the puzzle, sticking buttons, playing with an animal's miniature, pressing the pop-it toys, and pinching the small hairy ball. The stimulation was performed by the mothers everyday for one month, within 30 to one hour. The monitoring was conducted through an online platform in which mothers are monitored every day about the utilization of sensory books. The book consists of various games and how to use the sensory toys. The researchers will observe everyday using a webcam or video call to watch the children play with the toys they were given. The ethical consideration of this study was obtained from Universitas 'Aisyiyah Yogyakarta (UNISA) (No. 1897/KEP-UNISA/X/2021).

This study uses univariate analysis to determine the frequency distribution and percentage of each variable. The bivariate analysis uses the Chi-Square test to determine the effect of the intervention, the Chi-Square test was used in the pre-post intervention group.

3. Results

The research was conducted on 36 children aged 6-36 months in Ngawen District, Gunungkidul Regency as an experimental group who were given the 30 Day Sensory Play Idea Book Intervention.

By the research objectives, the data obtained by the researchers were processed and arranged as follows:

Table 1. Subject Characteristics

| Characteristics | n | % |
|------------------------------|-----------|------------|
| Gender | | |
| Boy | 24 | 66.7 |
| Girl | 12 | 33.3 |
| Pre-Intervention Age | | |
| 6 months old | 5 | 13.9 |
| 9 months old | 3 | 8.3 |
| 12 months old | 5 | 13.9 |
| 15 months old | 5 | 13.9 |
| 18 months old | 1 | 2.8 |
| 21 months old | 5 | 13.9 |
| 24 months old | 3 | 8.3 |
| 30 months old | 6 | 16.7 |
| 36 months old | 3 | 8.3 |
| Total | 36 | 100 |
| Post-Intervention Age | | |
| 6 months old | 4 | 11.1 |
| 9 months old | 1 | 2.8 |
| 12 months old | 8 | 22.2 |
| 15 months old | 5 | 13.9 |
| 21 months old | 4 | 11.1 |
| 24 months old | 4 | 11.1 |
| 30 months old | 7 | 19.4 |
| 36 months old | 3 | 8.3 |
| Total | 36 | 100 |

Table 1 shows that there are 24 boys (66.7%) and 12 girls (33.3%) who involved in this study. The age group of 30 months consisted of 7 children (19.4%) before the intervention was given. After the intervention was given, there were 8 children in the 12 month age group (22.2%). That was because, during one-month intervention, the children's age increased one month, making them more appropriate to assess in the next age group questionnaire.

Table 2. Interpretation of Pre-Intervention and Post-Intervention KPSP Results

| Category | N | % |
|--------------------------|----|------|
| Pre-Intervention | | |
| Suitable (9 - 10) | 27 | 75.0 |
| Doubtful (7 or 8) | 5 | 13.9 |
| Deviation (6 or less) | 4 | 11.1 |
| Post-Intervention | | |
| Suitable (9 - 10) | 33 | 91.7 |
| Doubtful (7 or 8) | 2 | 5.6 |
| Deviation (6 or less) | 1 | 2.8 |

Table 2 shows the interpretation of KPSP results with appropriate categories (9 - 10) as many as 27 children (75.0%) at pre-intervention and 33 children (91.7%) at post-intervention. Groups with doubtful categories (7 or 8) were 5 children (13.9%) and 2 children (5.6%) at the post-intervention.

Table 3. Cross-tabulation of Interpretation of Pre-Intervention KPSP Results on Post-Intervention

| Variable | Category | Interpretation of Post-Intervention KPSP Results | | | | | | 95% CI | | p |
|---|-------------------------|---|-------|----------------------|------|--------------------------|------|----------------|----------------|-------|
| | | Suitable (9 -10) | | Doubtful (7 or 8) | | Deviation (6 or less) | | Lower Bound | Upper Bound | |
| | | n | % | n | % | n | % | | | |
| InterpretationR esults of Pre- Intervention KPSP | Suitable (9 - 10) | 27 | 75.0% | 0 | 0.0% | 0 | 0.0% | | | |
| | Doubtful (7 or 8) | 5 | 13.9% | 0 | 0.0% | 0 | 0.0% | 0.000 | 0.001 | 0.000 |
| | Deviation(6 or less) | 1 | 2.8% | 2 | 5.6% | 1 | 2.8% | | | |

Table 3 shows the results of the bivariate analysis on the interpretation of the variables from the KPSP pre-test results with the KPSP post-test using Chi-Square. The bivariate results showed the correct interpretation results (9 - 10) before and after the intervention as many as 27 children (75.0%). The results of the doubtful interpretation (7 or 8) in the pre-intervention became appropriate (9 - 10) for 5 children (13.9%). Interpretation of deviation results (6 or less) to be appropriate (9 - 10) as many as 1 children (2.8%). The results of the Chi-Square show a value of $p < 0.000$, it can be concluded that the intervention of the 30 Days Sensory Play Ideas Book affects the development of children aged 6 - 36 months.

4. Discussion

Development is the process of maturation of cells, tissues, organs, and organ systems so that they can improve the ability of more complex structures and functions of the body. Childhood development has a major influence on individuals in later stages of development. Children in the early years of their life have learned to trust others, are starting to quickly imitate and develop independence in opening and wearing clothes, walking, picking up, eating alone, and going to the toilet begin to form self-control. If the development of independency is not supported by parents, the children can have a hesitant personality. For example, when the stimulation activity fails, the child will be shy and quiet (Lestari & Hati, 2016).

This current study found that there was a difference in development recorded in the KPSP before and after the intervention. Before the intervention, among 36 respondents, 4 respondents were considered as in deviation. When the researcher asked the mother about the types of toys they usually playing and how they interact with their peers, the mother said that they only have a limited variety of games or toys and they rarely play with other children. The mother also admitted that they let their children play alone instead of playing with them. It may relate to a limited source of stimulation which is linked to the delayed result of the questionnaire (Rofita et al., 2021).

After the intervention, the result shows that one child is still in deviation, it may be because the confounding variables like other games that interfere with the stimulation, for example watching online videos through a smartphone (Nurmasari, 2016). Another factor was that the children's development was a different one to others. Even though the stimulation was performed every day, the after intervention where the researcher cannot thoroughly monitor parents-children activity may bias the result. Some mothers said that the children play with sensory games even after the intervention, therefore, the result may differ between children who actively play and who only play during 30 minutes to one-hour intervention. Another finding was, that children who continuously played (more than one hour of intervention) with the sensory play were having suitable results in the KPSP. In addition, some of the children who were still doubtful results were still shy to talk with the researcher during the post-intervention. Thus, some questions or commands were not followed by children, resulting in a doubtful result. Developmental issues were probably the cause of the delayed or doubtful result. It can Developmental disorders are caused by various factors, one of which is the mother's knowledge of parenting to achieve optimal child development (Diana, 2010).

Based on the result, the number of respondents who had a suitable result of KPSP were increased by 16,7%. This is due to the provision of stimulation to the child's sensory-motor which has and motor development can have a positive impact on children's development. According to (Fitriani, 2018) the sensory play has several benefits, such as children are encouraged to do more physical activity the first is to do a lot of exercises that release the endorphin hormones, lighten, and trained the muscles.

important for children's development and happiness, make the body lighter, and trained, so that have a positive impact on children's health, Good health makes children stronger and more active in activities. Secondly, through exercise and sufficient stimulation, children can use the energy that is in the body, so that children can express themselves and free the body from anxiety and tension. Thirdly, children with good motor development can carry out perform daily activities independently and confidently.

Activities related to sensorimotor through stimulation of sensory-motor skills help children get the opportunity to develop their sensory-motor skills. It was performed through sensory play which can be done by practicing balance, coordination, and hand strength, introducing textures and shapes of objects, to children who have not been able to do these activities at their age. In addition, some mothers found the book very helpful because they can give several games in the book without worrying about how to stimulate their children. The toys provided along with the book were found to practically help the mothers understand the types of children's stimulation. Although all the children never used sensory play before, sensory play is easy to understand by them. Children's brains that are often given stimulation will develop 30 percent larger than those that are not stimulated. Gradually, the child will follow the directions given by their parents or teacher, so that they can learn to imitate and follow the directions during playing (Rahma, 2017). On the other hand, children who are not used to being trained or are limited in their sensory-motor activities will make children less active, do not want to move, make some of their organs stiff, and experience developmental difficulties at a certain age (Virianingsih, 2021).

Eight toys that have been provided by the researcher sharpen the optimization of brain performance by developing analytical thinking, stimulating the five senses, and increasing concentration. For example, in a game using colored sand requires the ability to recognize textures and colors. Playing with textures and color provides sensory experiences and motor development which are not available in their traditional playgrounds. Moreover, colored sand can improve the capacity of children who are slow learners (Dolah et al., 2020). It has the same goals as water beads toys and pop-it toys. Both of them require senses of touching and sight. In addition to other games, sticking the button, pinching the hairy ball, and arranging the puzzle require fine motor, concentration, and eye-hand coordination. It can stimulate their ability to know the geometric shapes, the capability of remembering, and practice patience (Sari et al., 2018). Moreover, mother-children or parents-children attachment can be seen when they were playing with children. This interaction will develop a personality, help them learn to interact with the environment, and develop a secure attachment when mothers give full attention during playing (Runcan et al., 2012).

This study has several limitations. Firstly, the utilization of sensory play should be only in time intervention to reduce the bias of excessive usage time. Secondly, we found some children refused to take part in doing commands based on the questionnaire, making the result doubtful. Thus, it is better to repeat the measurement at a different time according to the children's condition and mood. Despite such limitations, the findings from this study contribute to the literature that home playing with sensory play are effective to improve their development. Any kind of stimulation with parents or family members will also improve the bonding attachment and social skills of the children. Therefore, sensory play and the guideline book were useful to stimulate and gained new experiences to support children's development.

5. Conclusion

The utilization of sensory toys through the book "30 Days of Sensory Play Ideas" adds to the innovation of parents when playing with children in order to improve their children's development. Moreover, children can use the energy in the body, so that children can express themselves, free the body from anxiety and tension, and children can carry out daily activities independently and confidently. Therefore, parents need to provide Sensory Play games for their children so that they can stimulate fine motor sensors and gross motor sensors in children so that they can prevent delays and deviations in children's growth and development.

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