

# The Effect of Family Empowerment on the Development of Sensory, Motor, Visual Perception and Independence in Daily Life Activities of Children with Special Needs

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## Abstract:-

### ➤ *Background:*

According to the Ministry of State for Empowerment, children with special needs are children who have limitations or exceptionalities, physically, mentally-intellectually, socially or emotionally, which have a greater influence on the growth and development process compared to other children of the same age. Children with Special Needs have sensory, motor, cognitive and visual perception development problems which cause problems with independence in activities of daily living.

### ➤ *Objective:*

This research aims to determine the effect of the family empowerment program on the development of sensory, motor, visual perception and independence in activities of daily living of children with special needs.

### ➤ *Method:*

This research uses a pre-experimental research design with a one group pre and post test design to see changes in developmental maturity, as well as independence in activities of daily living before and after receiving intervention. Data analysis in this study was a paired samples t-test.

### ➤ *Conclusion:*

The results of this research show the effect of providing a family empowerment program on sensory development ( $p=0.000$ ), motor ( $p=0.000$ ), visual perception ( $p=0.000$ ), and the independence in activities of daily living ( $p=0.000$ ). So it can be concluded that the family empowerment program (providing monitored training and home programs) has proven to be effective in increasing the development of sensory, motor, visual perception and the independence in activities of daily living in children with special needs.

**Keywords:-** Family Empowerment; Children With Special Needs; Development Of Sensory Motor, Visual Perception, Independence In Activities Of Daily Living

## I. INTRODUCTION

Children with Special Needs have sensory, motor, cognitive and visual perception development problems which cause independence problems independence in activities of daily living [2]. However, to this day there are still many children with special needs who have not fully received their rights to participate fully in social life due to stigmatization, limited training services, health services, access to environmental facilities and infrastructure, transportation and opportunities to work. The existence of caregivers and people around children with special needs (parents, family, and people who care for children with special needs, teachers, neighbors) has a significant meaning for the process of protecting and growing children with special needs. Parents, families and communities need to have skills in caring for, nurturing and training children with special needs through training [3]. This research topic is about empowering families in an effort to improve the sensory, motor, visual perception and independence development of Children with Special Needs. The family empowerment training, it is hoped that families will be able to care for and train children with special needs from an early age to further optimize their growth and development, explore their potential and direct their future, and can be integrated into community activities.

According to research [1], the limitations of caring for and training children with special needs in Indonesia are the lack of knowledge and skills of parents, families, communities, as well as limited medical rehabilitation services. An indicator of family empowerment is increasing the understanding and skills of parents, families and the community. The form of this activity is in the form of a home program in an effort to train children with special needs in their respective homes [3]. Meanwhile, according to the Regulation of the Minister of State for Women's Empowerment and Child Protection of the Republic of Indonesia Number 10 of 2011 concerning Policies for Caring for and Training Children with Special Needs, family and community empowerment strategies based on fulfilling children's rights. The indicator of family empowerment based on these regulations is increasing the understanding and skills of parents, families and communities in caring for and training children with special needs [2].

Independence is an individual's ability to participate in an occupation that is needed or preferred satisfactorily, without external assistance from other people, completely independently, independently with the help of activity adaptations, environmental modifications, or assistive devices, or with supervision or assistance from other people. other. Activities of Daily Living are basic activities of daily personal life that are oriented towards caring for one's own body and are the basis (useful) for living in the social world [4]. Activities of Daily Living enable the survival of basic well-being[5]. Activities of Daily Living consist of: bathing, dressing, eating, mobility, toileting, personal care [6]. Families of Children with Special Needs experience difficulties in training independence because children with Special Needs, especially those in certain conditions with a moderate-severe level, have gross motor and intellectual function problems which cause them to have difficulty learning the skills of Daily Living Activities.

Research results [7] prove that most teenagers with mild special needs can carry out activities of daily living quite well, even though the community, family and people around them are not confident in their abilities. Children with Special Needs can learn things at a slow pace and even though their learning outcomes are not as good as individuals in general. Research [8] shows that the results show that there is an influence of providing practical integrative modules on the empowerment (knowledge, attitudes and empowerment) of families with Cerebral Palsy (CP) children, so that families can support the rehabilitation process for children with CP so that they can achieve optimal growth and development and become individuals who are more independent with all the limitations they have.

Based on the description above, this research is aimed at determining the effect of family empowerment on the

development of sensory, motor, visual perception and independence in activities of daily living of children with special needs.

## II. MATERIALS AND METHOD

Samples were taken from Special Need School Wedoro 1, Special Need School YKAB, Special Need School Nguter, Special Need School Weru, Special Need School Bulu with a total sample of 132 children. This research design is pre-experimental with a one group pre and post test design to see whether there are changes in the maturity of sensory, motor, visual perception and independence of children with special needs between before and after receiving intervention. The instruments used in this research consisted of the Family Empowerment Instrument, Short Sensory Profile, Test of Gross Motor, Development-2 (TGMD-2), Visual Perception Test (Subtest Beery VMI). Data analysis was carried out using the Paired Samples t-test.

## III. RESULTS

The aim of this research is to determine the effect of family empowerment on the development of sensory, motor, visual perception and independence in activities of daily living of children with special needs at Special Need School Wedoro 1 and Special Need School YKAB, Special Need School Nguter, Special Need School Weru, Special Need School Bulu. The research results are as follows:

### A. Demographics of the Research Sample

The demographics of this research sample include age, gender and diagnosis of children with special needs. Description of the demographics of the research sample in table 1.

Table 1: Sample Demographics

Sample Demographics	Frequency (n)	Percentage (%)
Age (years)		
6	1	0.8
7	12	9.1
8	23	17.4
9	13	9.8
10	17	12.9
11	24	18.2
12	22	16.7
13	17	12.9
17	3	2.3
Gender		
Female	38	28.8
Male	94	71.2
Diagnosis		
LD	10	7.6
ID	85	64.4
ADHD	9	6.8
ASD	11	8.3
DS	17	12.9

Based on the results in table 1, it shows that the demographic description of the research sample, based on age, the largest number of respondents at the age of 11 years was 24 (18.2%), gender was dominated by men, numbering 94 (71.2%), and the highest diagnosis of ID was 85 (64.4%).

#### *B. The Influence of Family Empowerment on the Sensory Development of Children with Special Needs*

To determine the effect of family empowerment on the sensory development of children with special needs, the Wilcoxon test was carried out with the results in table 2.

Table 2: The influence of Family Empowerment on the Sensory Development of Children with Special Needs

Ranks				
SSP_Posttest - SSP_Pretest		N	Mean Rank	Sum of Ranks
	Negative Ranks	0 <sup>a</sup>	.00	.00
	Positive Ranks	132 <sup>b</sup>	66.50	8778.00
	Ties	0 <sup>c</sup>		
	Total	132		
a. SSP_Posttest < SSP_Pretest				
b. SSP_Posttest > SSP_Pretest				
c. SSP_Posttest = SSP_Pretest				
Test Statistics <sup>a</sup>				
				SSP_Posttest - SSP_Pretest
	Z			-9.976 <sup>b</sup>
	Asymp. Sig. (2-tailed)			.000
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				

Source: Data Primer Diolah, 2024

The results of the Wilcoxon test obtained a p value < 0.000, so there is an influence of family empowerment on the sensory development of children with special needs.

To determine the effect of family empowerment on the motor development of children with special needs, the Wilcoxon test was carried out with the results in table 3.

Table 3: The effect of Family Empowerment on the Motor Development of Children with Special Needs

Ranks				
TGMD_Posttest - TGMD_Pretest		N	Mean Rank	Sum of Ranks
	Negative Ranks	2 <sup>a</sup>	33.50	67.00
	Positive Ranks	128 <sup>b</sup>	66.00	8448.00
	Ties	2 <sup>c</sup>		
	Total	132		
a. TGMD_Posttest < TGMD_Pretest				
b. TGMD_Posttest > TGMD_Pretest				
c. TGMD_Posttest = TGMD_Pretest				
Test Statistics <sup>a</sup>				
				TGMD_Posttest - TGMD_Pretest
	Z			-9.751 <sup>b</sup>
	Asymp. Sig. (2-tailed)			.000
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				

Sumber: Data Primer Diolah, 2024

The results of the Wilcoxon test obtained a p value < 0.000, so there is an influence of family empowerment on the motor development of children with special needs

To determine the effect of family empowerment on the development of visual perception in children with special needs, the Wilcoxon test was carried out with the results in table 4.

Table 4: The Effect of Family Empowerment on the Development of Visual Perception of Children with Special Needs

Ranks				
VMI_Posttest - VMI_Pretest				
	Negative Ranks	2 <sup>a</sup>	8.00	16.00
	Positive Ranks	80 <sup>b</sup>	42.34	3387.00
	Ties	50 <sup>c</sup>		
	Total	132		
a. VMI_Posttest < VMI_Pretest				

b. VMI_Posttest > VMI_Pretest	
c. VMI_Posttest = VMI_Pretest	
Test Statistics <sup>a</sup>	
	VMI_Posttest - VMI_Pretest
Z	-7.832 <sup>b</sup>
Asymp. Sig. (2-tailed)	.000
a. Wilcoxon Signed Ranks Test	
b. Based on negative ranks.	
Sumber : Data Primer Diolah, 2024	

The Wilcoxon test results obtained a p value < 0.000 so that there is an influence of family empowerment on the development of visual perception of children with special needs

To determine the effect of family empowerment on the development of visual perception of children with special needs, the Wilcoxon test was carried out with the results in table 5.

Table 5: Effect of Family Empowerment on the Independence in Activities of Daily Living for Children with Special Needs

Table 3. Effect of Family Empowerment on the Independence in Activities of Daily Living for Children with Special Needs				
Ranks				
Weefim_Posttest - Weefim_Pretest		N	Mean Rank	Sum of Ranks
	Negative Ranks	11 <sup>a</sup>	36.82	405.00
	Positive Ranks	117 <sup>b</sup>	67.10	7851.00
	Ties	4 <sup>c</sup>		
	Total			
a. Weefim_Posttest < Weefim_Pretest				
b. Weefim_Posttest > Weefim_Pretest				
c. Weefim_Posttest = Weefim_Pretest				
Test Statistics <sup>a</sup>				
		Weefim_Posttest - Weefim_Pretest		
Z		-8.907 <sup>b</sup>		
Asymp. Sig. (2-tailed)		.000		
a. Wilcoxon Signed Ranks Test				
b. Based on negative ranks.				
Sumber: Data Primer Diolah, 2024				

The results of the Wilcoxon test obtained a p value < 0.000 so that there is an influence of family empowerment on the independence in activities of daily living of children with special needs.

#### IV. DISCUSSION

This research aims to determine the effect of family empowerment on the development of sensory, motor, visual perception and independence in activities of daily living of children with special needs.

Demographics based on age show that the majority of children with special needs are aged 11 years, amounting to 24 subjects (18.2%), this result is in line with data on the number of children with special needs registered as studying in special schools, reaching 144,621 students in the 2020/2021 academic year. Of this number, 82,326 children with special needs are at the elementary school (SD) level. A total of 36,884 children with special needs are currently studying at junior high schools (SMP). Meanwhile, there are 25,411 children with special needs who are currently attending senior secondary school [9]. Factors that influence

independence in activities of daily living ( sensory, motor, visual perception) and independence development abilities are the maturity of the child's age, which will give the child the opportunity to learn. The younger the child, the less learning experience the child has compared to the older one, so the child's abilities may not be as good as those of the older child [10].

Demographics based on gender, children with special needs are mostly dominated by males 94 subjects (71.2%). Children with Special Needs are more common in men than women, because men produce more testosterone while women produce more estrogen. The hormone estrogen has an effect on a gene that regulates brain function called retinoic acid-related orphan receptor alpha. Testosterone inhibits the work of retinoic acid-related orphan receptor-alpha, while estrogen actually increases its performance which is the direct cause, therefore high testosterone levels are associated with the risk of children with special needs causing fine motor disorders and nerve damage due to stress and inflammation in the brain. several complaints that are often experienced by people [9]. Gender is one of the internal factors that can influence a child's development [11]. Girls' ability to control

emotions and participate in pre-school activities is slightly better than boys. This is because girls are more persistent in carrying out activities compared to boys, but this difference decreases slowly as they get older [12].

Demographics according to the highest diagnosis The most common diagnosis is intellectual disability 85 subjects (64.4%). This is in accordance with research [13], that children with intellectual disabilities experience developmental disorders that completely disrupt the child's cognitive, emotional and psychomotor functions. Meanwhile, according to [10] children with intellectual disabilities experience problems with motor development, their muscles are not strong enough to walk, and their body balance is poor. Children with intellectual disabilities have intellectual disabilities, so their independence must be adjusted to their potential. The abilities of children with intellectual disabilities should require comprehensive treatment between parents, psychologists (counselors), psychiatrists, teachers and therapists. In the field of education, handling children with intellectual disabilities emphasizes developing social skills and simple self-development activities to achieve independence [12]. To investigate whether there is an effect of providing a family empowerment program on the development of sensory, motor, visual perception and independence in activities of daily living of children with special needs, a hypothesis test was carried out. Because the results of the data normality test for both the groups before and after the intervention were not normally distributed, a non-parametric test with the Wilcoxon Signed Ranks Test was used. From the results of all these tests, it was proven to be effective in improving sensory, motor, visual perception and independence in daily activities and was statistically significant ( $p$  value  $< 0.000$ ). These results are in accordance with research [14] which states that the implementation of occupational therapy for individuals at the Husada Asih YPAC Malang Clinic in carrying out their activities is not the same as other normal children, therefore individuals need to be coached, educated and treated the same. In this case, to overcome and educate individuals who have developmental obstacles, therapy is needed, one of which is occupational therapy. Occupational therapy activities are varied according to the child's needs and condition. Occupational activities for children are different and lighter than for older people. Occupational therapy given by a therapist can strengthen the muscles in the arms and legs so that the muscles do not become weak. These activities can be applied in daily activities that can be done at home with the help and supervision of parents.

Another study by [15] believes that implementing therapy for children with special needs tailored to the child's needs will really help the child's growth and development in the future. For children with Down syndrome, the development of physical movement is very important, because the development of physical movement for them will help them in their future lives so that they are not completely dependent on their parents continuously. The results of this research are supported by research [16] which states that parental involvement (formal program involvement, child program involvement, training involvement and agency

involvement carried out by parents) in the self-help ability of mentally retarded children is generally in the quite high category. In other research [15] it was stated that occupational therapy had a significant effect on children's level of self-care independence. Occupational therapy is very helpful in training the body to move. There are many ways to improve motor coordination in occupational therapy, such as fine motor skills such as squeezing, sticking, squeezing, writing, coloring pictures, tying shoelaces, buttoning clothes. In occupational therapy, when children are offered play activities, they can train finger motor skills, wrist motor skills and arm motor skills [15].

- Limitation of Study: A limitation of this research is that there is no control group
- Clinical Implication: Empowering the family support system is very important to optimize the sensory, motor, visual perception and independence in activities of daily living of children with special needs.

## V. CONCLUSION

The family empowerment program (providing monitored training and home programs) has proven to be effective in improving the development of sensory, motor, visual perception and independence in activities of daily living in children with special needs.

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