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Psychomotor Therapy Program of Eye-Hand Coordination Game to Address Hand Flapping Behavior in Children with Autism

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Abstract: This study aims to find out the extent of psychomotoric therapy program of eye-hand coordination games addressing the hand flapping behavior in children with autism. This study was motivated by the frequent emergence of hand flapping behavior in children during learning or playing, while verbal instructions given by the teacher are insufficient to raise children's awareness. This study was conducted on MB subject, an autistic student of an SDLB. This research used Single Subject Research (SSR), A-B-A design. The results of the study answered the problem formulation proposed because there was an increase in the value of the mean level of children's motor skills, including the baseline-1 phase (A-1) by 0%, the intervention phase (B) by 33%, and the baseline-2 phase (A-2) by 75%, and a decrease in the value of the mean level of intensity/number of hand flapping behaviors, including the baseline-1 phase (A-1) by 187 times, the intervention phase (B) by 154, and the baseline-2 phase (A-2) by 119 times. Based on these results, it can be concluded that the psychomotor therapy program of eye-hand coordination games can address hand flapping behavior in MB, children with autism.

Keywords: Psychomotor Therapy; Hand Flapping Behavior; Children with Autism.

INTRODUCTION

Education through physical activities has been carried out by many teachers in schools, including in general schools, special schools, as well as schools with inclusive education settings. Physical activity is used as a tool or a medium to fulfill the needs of students with special needs or better known as Children with Special Needs (CSN), especially those with social-emotional or behavior issues who require assistance. Houben (2014, p.18) stated that:

"at school children with social-emotional problems or behavior problems often need specific assistance and help to function adequately. Psychomotor Therapy (PMT) can offer this help, by providing bodily experiences and offering movement and play situations in which the child can practice new behavior. As such, PMT suite the child's world of experience very well."

According to this viewpoint, psychomotor therapy can provide solutions for children with socio-emotional or behavioral problems at school by providing body experiences as well as movement and play situations in which children can practice new behaviors. The behavior of children with special needs not only is caused by the impact of the obstacles they face but also occurs because their desires/ willingness are not fulfilled. This situation is due to their inability to convey something because of a high level of anxiety or extreme joy. Behavioral issues in children with special needs can interfere with the learning process and interactions with peers and adults in the school setting. Of course, this must be minimized to the point where it is no longer bothersome. Many efforts can be made to deal with behavior, including learning processes/therapy such as psychomotor therapy.

This psychomotor program assists students in forming new behaviors through the use of bodily experiences and movement in play situations. Psychomotor therapy programs can also be used to address the stereotyped behavioral barriers that exist in autistic children. One

of the barriers to stereotyped behavior is hand-flapping behavior. According to the findings of Pratiwi's (2016) research in inclusive school settings, hand-flapping behavior decreases after children receive psychomotor therapy intervention programs. Hand flapping is a form of self-stimulatory (stimming) behavior, also known as stereotypical behavior, which is a form of repetitive and non-functional motor behavior disorder that can interfere with daily activities or result in bodily injury and can occur continuously. Hand-flapping behavior in autistic children varies and can occur under certain conditions, such as when they are nervous or anxious, excessively happy, silent, or not engaged in an activity.

As we are aware, autistic children, also known as children with autism syndrome disorder, are those characterized by disruptions and delays in cognitive, language, behavior, and social interactions (Wulandari, Gunarhadi, & Widyastono, 2022; Irdamurni, et al., 2021). These children experience obstacle in social communication, social interaction and behavior (Homdijah, Euis & Ehan, 2021). Autism is excessive mobility. When children cannot sit still, behave the way the want and are easily distracted in one activity (Irdamurni, et al 2021). With this disorder children are unable to form social relationships an communicate well or normally, even children do not have eye contact with other people. Children show failure to foster interpersonal relationships characterized by a lack of response to people around them (Jaleha & Mirnawati, 2019).

A preliminary study in the form of observation activities has been carried out by the researcher on the hand-flapping behavior of autistic children who attend the Special School (SLB) of Pelita Adinda Birahmatika, Bandung City. It revealed that teachers have made efforts to overcome this behavior in children by giving verbal instructions when hand flapping occurs. These verbal instructions are for example, "Put your hands down, Dear!" and "Come on, don't flap your hands!" This effort is quite appropriate because it raises children's awareness that this behavior is improper, making them lower their hands and stop waving them. However, children's awareness of the habit of hand-flapping did not last long. They resumed hand-flapping a few moments later. Based on this, the researcher believes that there is a need for innovation in dealing with hand-flapping behavior in autistic children at school.

Several types of therapy can also be applied with autistic children to address developmental barriers experienced, including also to deal with behaviors, such as excessive and deficit behaviors, in the hope that they can be replaced with new behaviors that are in accordance with existing norms and prevailing in society. The researcher, however, has a tendency to use psychomotor therapy programs to deal with this hand-flapping behavior. This is supported by the findings of Abduljabar's (2010), which revealed that the orientation of physical education implementation in special schools needs to shift from sports-based implementation to psychomotor-therapy-based teaching. Thereafter, the psychomotor therapy program was implemented in eye-hand coordination games such as hitting balloons, throwing and catching balls, throwing balls into containers and throwing targets. The games utilize media in the form of balloons, small basketballs, and small balls.

Based on the description above, the researcher feels the need to formulate a psychomotor therapy program for eye-hand coordination games to deal with hand-flapping behavior in autistic children. In the program there is a task, in the form of eye-hand coordination games which are also a tool to improve the motor skills of children with autism in motion enrichment, namely in the gross motion section in the form of manipulative skills consisting of hitting objects, receiving (catching objects) and throwing objects. If children's motor skill increase, it is expected to reduce the intensity or amount of hand flapping behavior in children with autism.

METHOD

This research was conducted on the subject of MB, an autistic child who is a student of the Special School (SLB) of Pelita Adinda Birahmatika, Bandung City. This study aims to develop and implement a psychomotor therapy program for hand-eye coordination games. The study used an experimental method, conducted with Single Subject Research (SSR) with an A-B-A research design (Sunanto et al., 2005). Fraenkel, et al (2013) Explain that SSR refers to a research design developed to document changes in the behaviour of subjects naturally. The independent variable in this study was a psychomotor therapy program of eye-hand coordination games while the dependent variable was the hand-flapping behavior of an autistic child.

Making a program for handling children with special needs is divided into two ways, based on the results of the assessment of observations in the field and based on the assumption that all children with special needs have not been able to (Susetyo, 2020). This study uses the second method, name by assuming that all autistic children have not been able to handle their hand flapping behavior. Furthermore, the program is complied or developed. Before being tested on the subject, validation was carried out first both on the program and the instrument. The validated program was then tested on the research subjects. Therefore, the method used in this research is the experimental method. The experimental method described by Sugiyono (2011), is a research method used to seek the effect of certain treatments on others under controlled conditions.

RESULT AND DISCUSSION

The results of the research findings in the field present: 1) Child Profile, 2) Psychomotor Therapy Program Formulation of Eye-hand Coordination Games, and 3) Implementation of Psychomotor Therapy Program.

Discussion of the Child Profile

The following is the profile of MB, who is the research subject. The description below was obtained from the results of research that has been done:

Table 1. Results of Baseline 1 (A1), Intervention (B), Baseline-2 (A2) R & N Subject Measurements

Ability	Findings	Needs	Handling/ Implication
1. Able to follow instructions while studying or playing 2. Upper and lower limbs do not experience stiffness 3. The senses of hearing and vision do not experience problems, as evidenced by the frequent reflexes of turning to sound source direction	When learning/playing, the child often shows hand-flapping behavior, such as flapping/waving hands simultaneously and repeatedly.	Learning activities while playing that can reduce the intensity of hand-flapping behavior by flapping/waving hands simultaneously and repeatedly	Psychomotor program of eye-hand coordination games, which can improve children's motor skills in manipulative skills such as hitting objects, receiving (catching) objects, and throwing objects.

Discussion of the Psychomotor Therapy Program Formula of Eye-Hand Coordination Games

The psychomotor therapy program used in this study was designed in the form of hand-eye coordination games. The games serve as a tool for improving the child's motor skills. The motor skills developed in this study are movement skills, which is one of the targets of motor development, namely movement enrichment. There are two types of motion enrichment, including gross motion and fine motion. The gross motion refers to a person's

ability to move dominantly with large muscles. Motor skills in this study are classified as gross movement skills in children, which are divided into three categories: locomotor, non-locomotor, and manipulative. There are three indicators of manipulative movement skills, including the movement of hitting an object, receiving (catching) an object, and throwing an object. The three indicators are applied to the form of eye-hand coordination games, including hitting balloons, throwing and catching balls, throwing balls into containers, and throwing targets. The motor skills of the child in these four games were then assessed using a motor skills test.

The hand-flapping behavior is part of the repetitive and non-functional self-stimulatory (stimming) behavior that occurs in autistic children. Behavioral barriers, along with social interaction and communication, are among the developmental challenges faced by autistic children. Some behaviors are excessive, while others are lacking/deficient. Hand flapping behavior includes excessive behavior and can interfere with children's activities if the amount/intensity is high. In this study, the observed hand-flapping behavior was flapping/wagging both hands simultaneously. The intensity of the hand-flapping behavior was observed during the program and then recorded in a behavior recording format.

Before the implementation was tested, the instrument of the psychomotor therapy program for eye-hand coordination games that had been prepared was tested for validation, which involved 3 experts. The validity results were then calculated using the CVR formula and show the results of the CVR index = 1. The magnitude of the CVR index indicated that the instrument compiled was valid.

Furthermore, the instrument also passed a reliability test using an inter-reader reliability test. The inter-reader reliability test was used because the test used was in the form of performance of children's motor skills. The results of the inter-reader reliability test showed a correlation coefficient of 0.57. The results of the correlation coefficient indicate that the test instrument was reliable because it reaches at least a correlation coefficient of 0.50.

The Implementation of Psychomotor Therapy Program

The researcher focused on data processing solely on one type of game, which was data on the child's motor skills and data on the intensity/number of hand-flapping behavior in the game of hitting the balloon. It was done because the game of hitting the balloon was the first indicator and became a pre-requisite on the aspect of manipulative skills, namely the movement of hitting an object.

Based on the data that has been analyzed and presented in the form of tables and graphs using the A-B-A design, it can be seen that the implementation of the psychomotor therapy program of eye-hand coordination games can handle the hand-flapping behavior of the subject of MB in this study. The research data is described as follows:

1. The Child's Motor Skills in Game of Hitting the Balloon

Based on the results of data analysis on the subject of MB, there was an increase in motor skills in the aspect of manipulative skills, particularly the movement of hitting objects in the game of hitting the balloon. This is evidenced by the data mean level at baseline-1 phase (A-1) of 0%, intervention phase (B) of 33%, and baseline-2 phase (A-2) of 75%.

These scores indicate an increase in the child's motor skills before and after being given intervention in the psychomotor therapy program of eye-hand coordination games. Before the program was implemented, namely in the baseline-1 phase, the child's motor skills were not visible. The child's movements were only stuck to hand flapping. After being given treatment/intervention, the average motor ability of the child increases so that the child can perform the task of hitting the balloon.

2. Intensity/Number of the Child's Hand Flapping Behavior

Based on data analysis that has been performed on the subject of MB, it can be seen that the intensity/number of hand-flapping behavior has decreased in the game of hitting the balloon. This is evidenced by data on the mean level in the baseline-1 (A-1) phase of 187 times, intervention (B) of 154 times, and baseline-2 (A-2) of 119 times.

These scores indicate a decrease in the intensity/number of the child's hand-flapping behavior before and after being given a psychomotor therapy program through the game of hitting the balloon.

According to the findings of this study, it was found that the subject of MB who received psychomotor therapy programs had the hand-flapping behavior managed. Hand-flapping behavior is one of the obstacles experienced by individuals with autism. The causative factor is thought to have something to do with the increase in the function of monoamines and catecholamines (epinephrine, norepinephrine, and dopamine) in the brain which are neurotransmitters involved in motor function. As explained by Hout, (2010 p. 12), frontal lobe and basal ganglia disorders affect the representation of action, motor, and working plans, resulting in impaired motor regulation.

CONCLUSION

Based on the results of data processing and analysis, it can be concluded that psychomotor therapy program of eye-hand coordination games can handle autistic children's hand flapping behaviour towards subject MB. Researchers limit hand flapping behaviour which is the target behaviour only in the movement of flapping or flapping both hands simultaneously and limit the processing of data on the results of children's motor skills to only one type of game, data on the game of hitting balloons only. It because the game is the first indicator or prerequisite in the aspect of manipulative movement skills, namely the motion of hitting objects. This Single Subject Research (SSR) stud also answers the formulation of the research problem, because there is an increase in the mean level in children's motor skills and a decrease in the mean level in the intensity or number of children's hand flapping behavior.

The results of this study also revealed that while undergoing a psychomotor therapy program, children began to learn to structure the movement tasks that they were required to perform. These results are supported by Houben's (2014, p. 18) arguments that the use of psychomotor therapy at school can provide solutions for children with socio-emotional or behavioral problems by providing body experiences and movement and play situations in which children can practice new behaviors. Research can provide suggestions based on research findings as follows: The research can take data on psychomotor therapy programs for eye-hand coordination games in group settings in team games with the condition of research subjects who both have behavioral problems.

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