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The effect of bocce games on manipulative movement skills of children with intellectual disabilities

Addriana Bulu Baan[1abc], Sardiman[1de], Didik Purwanto[1ef]

[1]Department of Health and Recreation Physical Education, Universitas Tadulako, Palu, Sulawesi Tengah, Indonesia

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Abstract

This study aimed to determine the Effect of Bocce Games on the Manipulative Movements of Mentally Impaired Children at SLB Muhammadiyah ABC Palu. This research is a type of experimental design research using a pretest-posttest one-group design. The research sample was 10 students selected by purposive sampling technique. The data analysis techniques used are Descriptive Analysis, Normality Test, and SPSS. This study used the Throw Fun Target Test instrument to modify the Bocce game with a model of throwing the ball at the target/target with coordination movements. The results showed that the results of statistical tests with t-test techniques showed a sig value of 0.000 so that which was smaller than the significant level used ($p < 0.05$), furthermore, the results of the pretest and posttest results of the bocce game showed a difference in the mean value of pretest 1.8000 and posttest 3.6000. This means that from this study, there is an influence of bocce games to provide significant results on the manipulative movement of children with intellectual disabilities SLB Muhammadiyah ABC Palu.

Keywords: Mentally impaired, bocce, manipulative motion.

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INTRODUCTION

Physical education is formally taught in elementary school and plays an important role as the foundation of the next educational process. The importance of physical education has even been introduced in preschool education programs such as kindergartens or playgroups that are packaged through a variety of joyful children's games. Physical education is inseparable from playing, through play, children can know more things, this is where children are taught and fostered to become qualified human beings from those who cannot become can, through this process, physical

Correspondence author: Addriana Bulu Baan, Universitas Tadulako, Indonesia.
Email: addriana@untad.ac.id

education wants to realize its contribution to child development (Chen et al., 2016). Research shows that motor skills competence is a contributing factor that provides the physical foundation necessary for enjoyable and successful physical activity engagement in youth (Setyawan, Suharjana, and Lumintuarso 2021). Children with adequate motor skills competence spend significantly more time in moderate to vigorous intensity than children with inadequate motor skills competence. As a result, the ability of childhood manipulative skills is significantly associated with adolescent participation in various organized sports.

School is a key environment for physical activity, however, some teenagers need to be more active at that level of physical activity. Around the age of 10-12, students enter formal operations, characterized by being able to handle hypothetical situations, and their thought processes no longer depend solely on the immediate and real things (Kassah, Kassah, and Phillips 2018). The quality of physical education offered at the elementary school level is essential for students to understand and develop their life skills. One of the various skills that need to be trained is basic movement. The development of the movement is one part of the goal of implementing physical education itself.

During that time, children who have different abilities (disabilities) are provided with special education facilities according to their degrees and types of limitations called Special Schools. Unwittingly, the special education system has built a wall of exclusivism for children with special needs. The wall of exclusivism has so far unwittingly hindered getting to know each other between children with disabilities and non-disabled children. As a result, in social interactions in society, disabled groups become communities alienated from social dynamics. In terms of education, developing children with disabilities is possible through sports and physical education programs. Physical education supports the creativity, physical fitness, and motor skills of children with disabilities because it contains psychometric, cognitive and affective values. On this basis, it is necessary to develop children with disabilities through sports and physical education.

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Adaptive physical education is the learning of sports and physical health education, which is carried out by modifying learning in terms of material, learning facilities, game rules, and assessment Taufan, Fitri, and Rafmateti (2019). Adaptive physical education is structured based on the characteristics of children with disabilities (Taufan et al., 2019) state that physical education, sports, and health for children with special needs have certain limitations very broad. Physical activity contributes to Mentally impaired children's cohesion and competence (Ozdemir, Ilkim, and Tanir (2018). Adaptive service learning is an integral part of education that aims to develop aspects of physical fitness Puspitaningsari (2022), movement skills, critical thinking, social thinking, reasoning, and emotional, moral, and healthy lifestyle. Children who engage in regular physical activity, structure, and good motor skills have social development (Eliassy et al. (2021). Physical education, sports, and adaptive health learning are carried out in many ways, including games Widianto and Indahwati (2020). Through games, students also carry out physical activities that are carried out in the physical education process. Doing planned and systematic physical activity can improve gross motor development and decrease stereotyped behaviour in autistic children Muneer and Sultana (2018). Children's gross motor skills can be developed through rhythmic gymnastics activities Manggau and Usman (2020). children with disabilities require special treatment because of developmental disorders and disorders experienced, such as physical, mental, social disorders, or a combination of these three aspects. Children with disabilities generally have abnormalities or deviations from the average condition of normal children in terms of physical, mental, and social behaviour Abdullah and Nandiyah (2013).

However, children with intellectual disabilities have low intelligence (IQ) below average. Kesumawati et al. (2020) said that children with intellectual disabilities have IQs below the average of normal children but are mild physically at first glance, the same as other normal children. Children with intellectual disabilities are children with special needs who have delays in intelligence, physical, emotional, and social requiring special

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treatment for maximum ability development.

Fundamental movement skills lay the foundations for students to participate in various physical activities and sports. The basic motion is one of the motions that need attention for elementary school students. Fundamental movement skills consist of locomotor, non-locomotor, and manipulative skills. Physical education teachers must understand the stages in the development of the movement. The rate of basic motion development for each elementary school student varies depending on gender, ancestry and growth. Manipulative motion is usually described as movements that play with a particular object as its medium or skills that involve a person's ability to use body parts to manipulate objects outside of him or her. Games in physical education to improve the ability of children with intellectual disabilities can be used to improve their abilities. Games that are done in physical education are fun so that children can enjoy and participate in these activities. Child play is a type of manipulative skill play, such as physical activities that use enhancements such as balls. The game is to use bocce, a game that uses the help of a ball tool by playing or giving the ball to other friends.

According to (Setyawan et al., 2021), Using games in physical education learning can improve manipulative movement skills. Using games in physical education learning can improve manipulative movement skills (Yudanto, 2020) Says that perceptual-based physical activity models can improve basic manipulative movements of children aged 5-6 years.

The game of bocce is a game that is done by rolling the ball to another bola in front of it. (Febrianingrum and Diana, 2021) that the bocce game method improves the child's gross motor skills. (Sood, Ahmad, and Chavan 2017) It was said that Bocce was very influential in the development of motor intelligence of children with intellectual disabilities. Modifying bocce games can improve the throwing ability of children with mild intellectual impairment (Puspitaningsari, 2022). Bocce games improve the gross motor movements of children with intellectual disabilities (Wibowo & Tuasikal, 2019). Next bocce game (Badruzaman, 2021) Affects perceptual motor

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ability and object control in adolescents with intellectual disabilities. This study tries to provide answers to current problems to improve the manipulative abilities of children with intellectual disabilities with a physical education approach with a game character so that children can improve the manipulative movement skills of children with intellectual disabilities.

METHOD

The type of research used in this study is a type of quantitative research with an experimental model, which is research that seeks to find causal relationships. This study tried to provide treatment in the form of games in physical education learning. The game used is bocce games that can stimulate children to participate. Before this study was conducted, it tried to see manipulative movement skills in children who experienced intellectual disabilities. This research procedure is in accordance with the research method used without using a comparison group. The subject selection took 10 students voluntarily from SLB Muhammadiyah ABC Palu. After selecting the subjects to be given treatment, the next step is to pretest the subjects who will be given bocce treatment to improve manipulative skills for 16 meetings. After the scheduled meeting, a final test was conducted to determine the results obtained from manipulative movements in SLB-ABCD Muhammadiyah Palu students.

The subjects of this study were students with intellectual disabilities at SLB-ABCD Muhammadiyah Palu. The sampling technique in this study was purposive sampling, by taking the entire population at S SLB Muhammadiyah ABC Palu, which amounted to 10 students. The instrument in this study is to use manipulative skills tests to see the development of manipulative skills abilities in children who have intellectual disabilities. Next, students are given a bocce game. This model is often used in bocce training in schools before the child with special needs students use real bocce balls, so the model applied is a standard model derived from modifications to the bocce game itself.

The data obtained is then analyzed to answer the research problem, conclude, or formulate the research results. This section contains research

methods described descriptively, including the research's place and time, type and design of research, population, sample, and data analysis techniques. In analyzing the data, this study used several statistical tests, namely: 1) Characteristics of respondents and 2) Descriptive tests. 3) Test data normality. 4) Test the hypothesis.

RESULT

The results of this study were presented by data analysis. They discussed the research results on the effect of bocce games on manipulative movement skills of children with intellectual disabilities SLB Muhammadiyah ABC Palu. In answering the hypothesis of this study, the research data were processed using SPSS 25 to explain descriptive research, test data normality, and test hypotheses. Descriptive data analysis in this study is to get an overview of the research results. The following is the data of the descriptive analysis table.

Table 1 Descriptive analysis

	n	mean	SD	min	max
Pretest	10	1.8000	.78881	1.00	3.00
Posttest	10	3.6000	.84327	2.00	5.00

The initial test data obtained a mean value of 1.8000, a minimum of 1.00, a maximum of 3.00, and a standard deviation. 78881. Final test data obtained a mean value of 3.6000, a minimum of 2.00, a maximum of 5.00, and a standard deviation of .84327. From these results, it is stated that the difference in pretest and posttest values in the provision of treatment in the study, the pretest results get an average of 1.8000 and posttest 3.6000. These results make a difference in the value of ability in manipulative ability in subjects.

Normality Test

The normality test is carried out to assess the distribution of data in a group of data and variables, whether the data is normally distributed or not. The purpose of the normality test is to collect normally distributed or taken from the population.

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Table 2. Normality test

Test	N	Mean	SD	Sign
Pretest	10	1.8000	.78881	.587
Posttest	10	3.6000	.84327	.403

From Table 2 of the normality test, by reading the one-sample Kolmogorov-Smirnov test, the number of respondents 10 by looking at the sig value > 0.05, it is stated that the data that has been tested show normal values.

Test the hypothesis

Table 3. Test the hypothesis

Description	n	t table	Sign
Pretest-Posttest	10	9.000	.000

Table 3 shows that the sample given bocce game training was higher than before being given a bocce game. The data above shows an increase in the statistical test t-test results showing a sig value of .000 ($p < 0.05$). This means that statistically, it shows a significant influence of bocce games on the manipulative movements of children with intellectual disabilities SLB Muhammadiyah ABC Palu.

DISCUSSION

From these results, it is stated that the difference in pretest and posttest values in the provision of treatment in the study, the pretest results get an average of 1.8000 and posttest 3.6000. These results make a difference in the value of ability in manipulative ability in subjects. Children with intellectual disabilities are children who have mental retardation or have intelligence below average. One of the characteristics of children with intellectual disabilities is having coordination of movements that lack movement, and coordination is a very important movement for children with intellectual disabilities, especially in everyday life. Repeated engagement in step training increases movement stability and therefore stepping frequency; it also improves walking speed, motivation, interpersonal interactions, self-confidence, and overall ability to engage in everyday activities (Wu et al., 2021).

The results showed that the manipulative game group improved

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manipulative skills, showing better improvement than the untreated group, suggesting that manipulative play methods were more effective in developing complex skills (Chen et al., 2016). Other research Results showed that variations in playing activities undertaken by children positively contribute to the manipulative movement skills of children in living their daily lives (Nguyen, Gardner, and Sheridan, 2018). Physical education learning is effective in improving skills in this case, the use of bocce games in accordance with research (Tsikinas & Xinogalos, 2020) mentions Learning with physical education can improve children's skills, this is because the type of material in physical education games can improve skills in children.

Children with intellectual disabilities have poorer physical health and development than the average student due to the limitations associated with the disability. They are likelier to exhibit poor concentration, memory, imagination, thinking, coping skills, delayed language development, self-centeredness, emotional instability, frustration, stubbornness, high help-seeking, low self-esteem, and self-defeating behaviours. When faced with a problem, children learn how to solve it from adults or peers, and after a successful experience, they repeat the same method. Individuals with disability engage in less physical activity than their peers without disabilities (Geukes, Bröder, and Latteck 2019). For children, including those with a disability, regular physical activity promotes social engagement and enhances body composition, bone health, and psychological health (Carolina Hardoy, 2011; Geukes et al., 2019). Although extensive research has examined physical activity behaviours, patterns, and determinants in children without disabilities, few studies have evaluated methods for improving physical activity in children with intellectual disabilities (Frey, Temple, and Stanish 2017).

CONCLUSION

From these results, it is stated that the difference in pretest and posttest values in the provision of treatment in the study, the pretest results get an average of 1.8000 and posttest 3.6000. These results make a difference in the value of ability in manipulative ability in subjects. The

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results of this study prove that the game model carried out on children with intellectual disabilities can increase manipulative abilities. Future research with this research can develop games that are integrated into children's skills, especially in children with intellectual disabilities.

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