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The Relationship between Motor Skills and Physical Activity Patterns of Students with Disabilities in Special Schools

Cep Mumin*, Ahmad Alwi Nurudin, Muhammad Saleh
Physical Education, Health and Recreation, Universitas Muhammadiyah Sukabumi, Jl. R. Syamsudin, S.H. No. 50, Cikole, Kec. Cikole, Kota Sukabumi, West Java
e-mail: cepmumin01@ummi.ac.id,ahmadalwi@ummi.ac.id , muhammadsaleh@ummi.ac.id

Abstract

This study investigates the relationship between motor skills and physical activity in children with intellectual disabilities (tunagrahita) in special education schools. The research employs a quantitative descriptive method with a correlational design, involving 20 students (15 boys and 5 girls) from SLB Negeri Mutiara Bahari Mandiri, Sukabumi, selected through purposive sampling. Data collection utilized the **Movement Assessment Battery for Children Second-editions (MABC-2)** to measure motor skills and the **Physical Activity Questionnaire for Children (PAQ-C)** to assess physical activity levels. Results revealed an average motor skill score of **54.85**, classified as "difficulty performing motor tasks," and an average physical activity score of **2**, categorized as "low activity." Correlation analysis using Spearman's correlation demonstrated a significant positive relationship ($r = 0.661$, $p = 0.002$) between motor skills and physical activity. The findings highlight that students with better motor skills are more likely to engage in physical activities and vice versa. However, many students with intellectual disabilities face challenges in performing motor tasks, particularly those requiring hand-eye coordination, such as catching or bouncing a ball. The lack of stimulation, attention, and adequate facilities also contributes to low physical activity levels, with students often preferring sedentary activities like watching television or playing online games. This study underscores the importance of increasing motor skills and physical activity through collaborative efforts by schools, teachers, parents, and the community. Providing adequate facilities, engaging activities, and continuous encouragement can foster active participation and improve motor skill development in children with intellectual disabilities. These findings offer valuable insights for educators and policymakers in developing inclusive physical education programs tailored to the needs of children with special needs.

Keywords: motor skills, physical activity, intellectual disabilities, special education, inclusive physical education

Corresponding Author
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Author's Contribution: a - Study Design; b - Data Collection; c - Statistical Analysis; d - Manuscript Preparation; e - Funds Collection

A. Introduction

In the modern era, technological developments have provided convenience in various aspects of human life. However, on the other hand, this development also has a negative impact, especially in terms of physical activity. Physical activity is an important basis for the advancement of physical and psychological development, such as decreasing stress, anxiety and depression (Welis & Sazeli, 2014). Regular physical activity allows children to develop their physical skills and explore their environment independently. Physical development, especially motor skills, is very important for children as it includes physical, emotional, cognitive and psychosocial aspects. However, many children show a lack of basic motor coordination due to a lack of purposeful movement experiences. Therefore, it is important to engage children in physical activities that are fun and challenging, because in addition to improving health and motor skills, physical activity also reduces children's time for passive activities, such as playing online games (Weiss, 2014; Leonardo & Komaini, 2015; Piercy et al., 2018).

Unfortunately, physical inactivity is more common among children with special needs, especially children with disabilities. They often feel less confident in doing physical activities than normal children, so they need special attention to increase their participation (Solikhatun, 2013). Children with disabilities have below-average intelligence, so there is a general view that they will have difficulty doing physical activities (Kemis & Rosnawati, 2013). However, children with special needs have the same rights as normal children in obtaining education and training, including physical development that allows them to live independently. At Mutiara Bahari Mandiri State Special School (SLBN), Pelabuhanratu Sub-district, Sukabumi District, the majority of students are children with mild and moderate disabilities. Differences in physical activity between normal children and children with disabilities can vary greatly depending on the type and level of special needs. Normal children generally have good motor coordination, while children with disabilities, especially those with tunagrahita, often face challenges in motor movements that require additional aids or support.

Previous research has shown a positive relationship between physical activity and motor skills, particularly in visually impaired children (Houwen et al., 2009). However, research on this relationship in students with visual impairment is still very limited. This prompted the researcher to

explore the relationship between motor skills and physical activity of students with visual impairment in special schools. This study aims to find out whether physical activity can contribute to improving the motor skills of students with learning disabilities, while providing new insights for the community and educators in supporting the physical development of children with disabilities.

B. Methods

This study used a descriptive quantitative method with a correlational design to measure the relationship between motor skills (variable X) and physical activity (variable Y) of students with disabilities in SLB Negeri Mutiara Bahari Mandiri, Palabuhanratu, Sukabumi. The study population was all 30 students with disabilities, with a sample of 20 students (15 boys and 5 girls) selected using purposive sampling technique based on the criteria of age 7-10 years, physically healthy, and participating in learning at school. The instruments used were **Movement Assessment Battery for Children Second-editions (MABC-2)** to measure motor skills, and **Physical Activity Questionnaire for Children (PAQ-C)** to measure physical activity.

The research was conducted on November 29, 2024, during PJOK learning activities, after obtaining permission from the school and the approval of the students' parents. Researchers used procedures that included determining the sample, filling out instruments, and conducting tests in the field. The collected data were analyzed to answer research questions regarding the relationship between motor skills and physical activity of students with disabilities in special schools.

C. Result and Discussion

This study aims to determine the relationship between motor skills and physical activity of students with disabilities at Mutiara Bahari Mandiri State Special School. Data were obtained through information collection using the **Movement Assessment Battery for Children Second-editions (MABC-2)** instrument to measure motor skills and **the Physical Activity Questionnaire for Children (PAQ-C)** to measure physical activity. Based on the data obtained from 20 students, the mean score of motor skills was **54.85** with a total score of **1097**. This result is in the red zone in the motor skills category table, which indicates that students with deafblindness generally have difficulties in motor skills. Meanwhile, the

mean score of students' physical activity was **2**, which in the PAQ-C category indicates that students' physical activity is in the **deficient** category.

To answer the research objectives, a correlation analysis was conducted using the Spearman Correlation test through **IBM Statistical Product for Social Science (SPSS) version 25**. The calculation results showed a strong correlation between motor skills and physical activity with a correlation value of **0.661** at a significance level of **0.002**. This means that there is a strong and positive relationship between motor skills and physical activity of students with disabilities, namely when motor skills increase, physical activity also tends to increase.

Thus, the findings of this study answer the research question and support the hypothesis that there is a significant and positive relationship between motor skills and physical activity of students with disabilities in special schools. These results also strengthen the theory and previous research which states that participation in physical activity can improve motor skills in children with special needs. These findings are expected to be a reference in learning and developing physical education programs for students with disabilities in special schools.

Discussion

The findings of the study show that individuals who lack physical activity also have difficulties in motor skills. Vice versa, individuals who experience motor difficulties or lack of motor skills can make them choose not to do physical activity. Thus, motor skills and physical activity have a reciprocal relationship in children (Leonardo & Komaini, 2020: 142).

When reviewed in the previous chapter on literature review, it reveals that motor skills have the potential for rapid development during the golden *age* or *golden age*, namely at preschool to elementary school age (Maharani & Masnina, 2018, p. 1). Where at this time, it can improve motor skills with more specific motor formation, if each child is applied a good exercise pattern supported by supporting facilities (Gabbard & Krebs, 2012 , p). 137 . This means that the role of schools, teachers and parents determines whether children's motor skills are good or bad. Therefore, efforts to develop and improve children's motor skills must be done early, because motor skills will affect various other activities and skills (Choi et all., 2018, p. 2).

However, the facts of this research reveal that the motor skills of students with disabilities in special schools have difficulties in performing motor tasks. This

is caused by several things, including a lack of development in motor skills, lack of physical activity mobility and a lack of parental understanding of the benefits of motor skills (Clark, 2007, p. 40). For example, there is often a mistake, namely the perception of parents in interpreting children's play activities, parents often limit children's play activities because they think that playing only makes children's learning time wasted (Sutini, 2018, p. 69). In fact, during this period, children should be given more time to play and explore the environment. Because in fact, at this time the child's brain forms thousands of trillions of connection networks that can absorb information quickly (Handayana et al., 2019, p. 57). That is why motor skills can also sharpen brain performance in children (Veldman et all., 2019, p. 40).

Meanwhile, the problem of motor skills in special schools is related to the inability of children to regulate balance, lack of coordination and slow body reactions (Fitriani & Adawiyah, 2018, p. 31). This is evident in this study, namely researchers found findings that motor skills in *catching*, precisely in throwing *catching* the ball with both hands, is a problem that is most difficult for every student to do. That is because, this motor skill requires focus and coordination between the eyes and hands, while children with disabilities have difficulty integrating visual input with hand movements or motor actions (Carmeli et al., 2008, p. 327). However, these skills can be trained and developed through regular programs and exercises. This is evidenced by an increase in the ability to throw and catch the ball in children with autism after an exercise program (Huseyin, 2019, p. 141).

Efforts to improve motor skills can be done in various ways. Starting from activities at home, in the community or even at school. For example, cutting activities can strengthen hand muscles and improve eye-hand coordination, which can train and improve children's fine motor skills (Nadila & Efendi, 2020, p. 57). Then, *puzzle* games can also improve the fine motor and gross motor skills of students with disabilities (Melliana et al., 2019, p. 9). In addition, modified dynasty game activities have been shown to improve the gross motor skills of students with disabilities (Indardi, 2015, p. 45). In fact, motor skills can be trained and developed during physical education learning, namely by using a traditional game approach model (Ardiyanto & Sukoco, 2014, p. 121).

In addition to the motor skill problems above, the researcher also found various other problems. That is, various problems

that can make students with disabilities not do physical activity and prove to interfere with the level of their motor skills to be at a good level. For example, a variable that can cause a person to become lazy to do physical activity is the rise of *online games* or video games which are the result of scientific and technological advances, so that children are busy with it (Hallal et al., 2012, p. 246). However, other facts about the impact of technological advances and digitalization can also provide benefits for students with disabilities if they are utilized and used wisely (Kuswandi & Mafruhah, 2017, p. 31). For example, the use of motor game learning media can help train the motor skills of students with disabilities in special schools and can be a fun alternative to learning (Wibisono & Findawati, 2010, p. 28). This means that technological advances and digitalization should not be an obstacle for students with disabilities to train or develop motor skills and perform physical activities as they should. However, this all depends on how teachers and parents use this technology and digitalization to be useful for each child with a disability.

In the facts of this research, it has been explained that technological advances and digitalization are negative and result in a deficit of physical activity followed by children's difficulty in performing motor tasks. This, of course, is related to the wrong parenting, parenting that tends to overprotect on the grounds that doing activities outside will be more dangerous and can threaten the safety of children (Primayana, 2020, p. 94). In the end, they prefer to let their children play *online games* rather than playing outside, doing play activities and exploring the environment (Piercy et all., 2018, p. 2020).

In addition to that, another problem of the disruption of a physical activity carried out by students with disabilities is the lack of stimuli that can arouse their desire to do a physical activity (Weiss, 2000, p. 4) . An example of an effort to provide the stimulus in question, is when a physical education teacher provides interesting learning activities. Like learning with a play approach, so that it can make students with disabilities stimulated to be more active than before (Lengkana et al., 2017, p. 3). Then, this is also related to the lack of facilities available in the school environment or outside the school. Adequate facilities or facilities and infrastructure are very important to increase children's interest in doing physical activity and motor development (Sari, 2016, p. 40).

Physical activity activities in special schools can increase the interests, talents, various skills and support the achievements of children with special needs. In addition,

it can also be used as a place to conduct social interactions between children with special needs (Kariadi & Riyanton, 2020, p. 290). Therefore, physical education in special schools is expected to be an oasis in the desert, which means that physical education is required to be able to explore every unique potential of each individual with disabilities (Hakim, 2013, p. 201).

In the findings of this study, it is known that the type of physical activity that most students do not do is activities that are classified as big ball games such as soccer, basketball and volleyball. In addition to requiring good mastery of skills, the lack of sports support facilities in the school environment and outside school was also found to be the cause. In addition, this type of sport is an activity that requires many people to play. This is certainly a contradiction with most students with disabilities, as they have difficulty adapting to the environment (Temple et all., 2006, p. 3). In fact, the environment should be a place that can encourage each individual with a disability to improve all their limitations (Sari et al., 2017, p. 221).

From the discussion above, researchers have described how the relationship between motor skills and physical activity. A close relationship between physical activity and motor skills in students with disabilities in special schools. So, it is necessary for efforts to increase physical activity and motor skills to be carried out by institutions, in this case, special schools, families and the environment through adequate supporting facilities and stimuli that make each individual tunagrahita interested and actively involved in physical activity and their motor skills. With hope, the benefits that can be generated from physical activity and motor skills can be achieved.

After the discussion of this research, the researcher makes a limitation in the research. This is to avoid aspects that are not related to the research and to emphasize the focus of the research and clarify the scope of the research study. Therefore, in every research study, the limitations of this research are important to know because they serve as the focus of the research and are intended to provide affirmation and as a means of information for further research (Connelly, 2013, p. 325). Therefore, it has been determined that the limitations in this study are on the issue of motor skills, physical activity, students with disabilities and special schools.

D. Conclusion

Based on the results of the research and data analysis that has been carried out, this study concludes that there is a positive and

very significant relationship between motor skills and physical activity of students with disabilities in special schools. However, this study also found that the physical activity of students with disabilities is still in the low category or lacking. This is in line with the fact that students with disabilities in special schools experience a high level of difficulty in motor skills, especially in tasks that require eye-hand coordination, such as catching a ball or bouncing a ball against a wall. In addition, the lack of attention, stimulation, and adequate facilities makes students with disabilities less interested in doing physical activities. They tend to prefer sedentary activities, such as watching television or playing online games, rather than physical activities that benefit their motor development.

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F. Conflict of Interest

This research is declared to have no conflict of interest.

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