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ORIGINAL ARTICLE

The Relationship between Motor Self-Motivation and Symptoms of Attention-Deficit Hyperactivity in Adhd Children

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ABSTRACT

Background: The growth and development of the child are essential and inevitable, and the growth of every child requires motor development.

Purpose: This study examines the relationship between motor self-motivation and attention-deficit hyperactivity disorder's symptoms in children with attention-deficit hyperactivity disorder. 40 people were selected by the convenience sampling method from the psychology centers of the province. The research method was descriptive-correlational. A questionnaire was used to collect data. Data were analyzed using Pearson correlation and linear regression.

Results: The results showed that there is a significant negative relationship between motor self-motivation and symptoms of attention-deficit hyperactivity disorder. The results of regression analysis also showed that motor self-motivation is able to predict the symptoms of attention-deficit hyperactivity disorder in children.

Conclusion: In general, the more children's motor motivation, the more minor attention-deficit hyperactivity disorder's symptoms.

Keywords: Hyperactivity, motor self-motivation, motor development, preschool

INTRODUCTION

There is a change in Motor development over time, and psychosocial changes are with changes in motor development.[1] The most critical period of motor development among the life periods is childhood, characterized by continuous physical, motor, cognitive and emotional development. Gallahue divides human motor development into four periods, one of which is the period of fundamental movements. The growth and development of the child are essential and inevitable, and the growth of every child requires motor development. Motor development begins before birth and continues throughout adolescence.[2,3] Fundamental movements are the major movements that include two groups of object control motor skills: throwing, receiving the ball and hitting the ball, and movement skills such as hopping, running, and jumping. Children suffer from various disorders in childhood, including Attention-deficit Hyperactivity Disorder.[4]

Usually, the child cannot pay attention and focus on a subject, learning is slow, and the child has unusual and very high physical activity. This disorder is associated with attention-deficit hyperactivity disorder, impulsive behaviors, or a combination of these. A physician should carefully examine any child suspected of ADHD. Many of these children also have one or more other behavioral disorders. They may also have mental health problems such as depression or bipolar disorder. Attention-deficit Hyperactivity Disorder is one of the most common chronic disorders, with a global prevalence of 7.2% and 2 to 18% worldwide.[5] Attention-deficit Hyperactivity Disorder (ADHD) is a psychosocial disorder that appears to be prevalent in modern society due to stressful lifestyles, stimulant diets, inadequate rest and nutrition during pregnancy, and dehydration. Using Attention Training Techniques in Children with Attention-deficit Hyperactivity Disorder in Preschool can prevent or stop attention-deficits. The neuropsychological disorder begins in childhood and associates with age-inappropriate and chronic attention-deficit, impulsivity, and to some extent, hyperactivity and with greater frequency and intensity compared to normal individuals who are at the same level of development.[6] Early and timely detection of behavioral problems that manifest themselves in preschool age is crucial because almost all mental health professionals emphasize that the early period is essential in later adjustment and problems during this year grounds for maladjustment in later years.[7]

Biological, congenital, and environmental factors are effective in the development of this disorder. Biological factors include genetics, reticular activating system disorder, Hypofrontality, high activity of alpha waves in the frontal-central location, low activity of beta waves in the cerebral cortex, and imbalance in neurotransmitters such as dopamine, norepinephrine, and serotonin (Dana et al., 2018).[6] Research also shows that preschoolers with attention-deficit hyperactivity disorder/impulsivity in the future have disorders in many academic achievement-related functions such as working memory, mental arithmetic, spelling, inner speech, adaptive reading, Verbal fluency, and written reports.[6] As a result, the disorder causes problems for the child, the family, and the community. Therefore, helping these children improve and correct Attention-deficit Hyperactivity/impulsivity and even their disobedience can significantly reduce their problems. Attention is one of the abilities that children need to learn in school.[8]

In other words, attention is a set of abilities, cognitive and metacognitive, including self-management, self-initiation, planning, cognitive flexibility, working memory, organization, dynamic time perception, predicting the future, and problem-solving in daily activities required by children for Learning in school.[9,10] Impulsivity, like inattention, varies in individuals according to different

conditions and situations, and many experts believe that the inability to control impulsive behaviors plays a fundamental role in attention-deficit hyperactivity disorder. In the development model, Newell Kelso and Vogel (1986) emphasize the role of structural and functional characteristics of human beings, the motor task, and the environmental conditions for a complete understanding of motor development. In this regard, motivation can be considered one of the functional and essential characteristics of children's motor development.[10] Children have different levels of motor motivation. Children with low motor motivation have little desire to move, and the intensity and duration of physical activity are insignificant. The priority of these children is to move with the least possible energy. However, children with moderate motor motivation move in a gentle sequence and have no preference for high or low energy activities. However, children with high motor motivation often have a strong desire to move, do not need external stimulation to start moving, and continue to move for a more extended period. These children prefer high-energy activities and move to be active and mobile. Also, their movements are fast, frequent, and high intensity caused by internal factors and do not need external stimuli.[11] Therefore, the present study deals with whether there is a significant relationship between motor self-motivation with symptoms of attention-deficit hyperactivity disorder in children with attention-deficit hyperactivity disorder.

METHODS

The research method was descriptive-correlational. The statistical population was all children aged 10-12 years with attention-deficit hyperactivity disorder in Gorgan. The sample was 40 people selected by the continence sampling method from the province's psychological centers. After selecting the participants, first, the objectives and method of conducting the research were clearly explained to the subjects in a meeting, and then the particular forms for consent and illness were provided to their parents. In the research phase, we asked parents to complete a scale related to Attention-deficit Hyperactivity Disorder. Participants then completed a motor self-motivation scale. The following instruments measure the research variables.

Conners Parent Questionnaire: This questionnaire has 48 questions completed by parents for each subject before and after the program. We used a 4-point Likert scale (low, to some extent, high, and very high). This instrument is used to measure the severity of Attention-deficit Hyperactivity Disorder / Impulsivity symptoms and is the most common scale for measuring the severity of the symptoms of Attention-deficit Hyperactivity Disorder. This questionnaire contains subscales of Attention-deficit Hyperactivity Disorder, Attention-deficit Hyperactivity Disorder / Impulsivity, and Disobedience (Shahaian, 2007).[12] In Shahaian et al. (2007), the test-retest reliability coefficient of the questionnaire was 0.58, and the Cronbach alpha coefficient was 0.73, which indicates the optimal validity and reliability of this instrument.

Motor Self-Motivation Questionnaire: This questionnaire contains 18 questions that can measure three subscales of activity, motivation, and adjustment. The five-point Likert scale is used.

Clinical interview: In this study, subjects with a high score in the Connors questionnaire and a low score in the Touluse-Piéron test participated in an organized clinical interview based on the criteria of The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). Subjects who met the diagnostic criteria were included in the final sample of the study. This interview examined and diagnosed Attention-Deficit Hyperactivity Disorder. Professors and experts confirmed the validity of the instrument. Independent t-test was for data analysis. A significance level of $p < 0.05$ was considered in all analyzes.

RESULTS

The results of the Kolmogorov-Smirnov test showed that the data distribution was normal ($p > 0.05$). According to Table 1, the distribution of children by gender shows that 16 were boys and 24 were girls.

Table 1- Number and percentage of subjects by gender

Gender	Frequency	Percentage frequency
Girl	24	0.60
Boy	16	0.40
Total	40	0.100

The correlation analysis results showed a significant negative relationship between motor self-motivation and symptoms of Attention-deficit Hyperactivity Disorder.

Table 2. Correlation between research variables

		Attention-deficit Hyperactivity Disorder
motor self-motivation	R	-0.47
	P	0.001

Regression predicted hyperactivity based on motor self-motivation. The results of regression analysis are in Table 3. According to this table, the regression model of Attention-deficit Hyperactivity Disorder's symptoms based on motor self-motivation is statistically significant (R^2 = 0.062, $p < 0.001$, $t = 3.72$).

Table 3- Summary of regression model results

Model - Predictive variables	F	R	R^2	B (S.E.)	β	t
ADHD	5.352	0.257	0.22			
Constant				8.592(8.869)		1.464
Motor self-motivation				-0.721 (0.212)	0.246	-3.72

DISCUSSION

This study determined the relationship between motor self-motivation and attention-deficit hyperactivity disorder symptoms in children with attention-deficit hyperactivity disorder. The results showed a significant negative relationship between motor self-motivation and attention-deficit hyperactivity disorder symptoms. The regression analysis results also showed that motor self-motivation

could predict the symptoms of attention-deficit hyperactivity disorder in children. These findings are consistent with Zare and Ahmadi,[13] and Saheban et al.,[14]. For example, Zare and Ahmadi[13] showed that play therapy reduces children's behavioral problems. Also, Saheban et al.,[14] examined the short-term effect of executive function training on reducing the symptoms of attention-deficit and hyperactivity in students. They studied the elementary course with an experimental design. Findings confirmed that executive function training influenced the symptoms of attention-deficit-hyperactivity disorder.

Sabzi et al.[15] studied children with ADHD and showed that purposeful play and entertainment play a role in improving the overall quality of relationships with peers. Diagnosis of Attention-Deficit Hyperactivity Disorder is essential in preschool. If Attention-Deficit Hyperactivity Disorder is not diagnosed and cured, disorders such as oppositional coping behaviors and conduct disorders and the child's susceptibility to Psychological and social damages in adulthood are possible. It also significantly impacts the child's development, including speech and language learning, and is associated with many problems such as sleep, emotional, communication, behavioral, educational, etc., but if diagnosed early, it can be treated. Given the role that children play in society, experts consider preventive and early interventions necessary to address potential problems.

Early intervention programs, based on assumptions such as the importance of critical learning periods, the importance of early experiences, and the flexibility of children's brain cells, claim that children learn more early in life than at any other stage. They can be more efficient than other periods of life. Findings showed that timely interventions could significantly reduce children's ADHD. Timely intervention refers to a wide range of activities designed to increase a child's growth and health, beginning with a comprehensive assessment of the child, the family's strengths, and needs. Early intervention program improves the growth and development of children and dramatically neutralizes the effects of risk factors, such as unfavorable economic and social conditions. Early diagnosis and intervention of attention-deficit disorder/ Hyperactivity help identify and treat many other disorders, such as coping disorder, learning disabilities, and academic problems.[16, 17]

CONCLUSION

Early diagnosis and intervention for young children at risk for Attention-deficit Hyperactivity Disorder is a new topic. Studies have shown that attention-deficits can persist at older ages and make it more difficult for children to do their homework and personal affairs. According to the research findings, it can be said that by enriching the environment and paving the way for group and motor games, it is possible to help reduce children's ADHD. Education officials and physical education teachers are also advised not to look at the physical education course as a useless period. Instead, it can be used in a way that helps both the development of students' motor skills and their physical fitness components.

REFERENCES

1. Gallahue, D., Ozmon, J. Understanding motor development in different periods of life. Bamdad Ketab Publications, Tehran. 2005
2. Dana, A., Shams. The effectiveness of TGFU and SDT approaches on motor development and motivation in children with attention-deficit hyperactivity disorder. sport Psychology. 2021; 5 (2): 71-85.
3. Hashemi, M., Khameneh, N.N., Salehian, M.H. Effect of selected games on the development of manipulative skills in 4-6 year-old preschool girls, Medicina Dello Sport, 2015:; 8(1):49-55
4. Baniasadi, T, Ghanati, P. The association between physical activity and motor function in the elderly, Journal of Humanities Insights, 2021; 5(3): 08-11.
5. Sabzi AH, Dana, A., Salehian MH, Shaygan Yekta H. The Effect of Water Treadmill Exercise on Children with Attention-deficit Hyperactivity Disorder. International Journal of Pediatrics. 2021; 9 (6): 13671-81.
6. Biederman J, Faraone SV. Attention- deficit hyperactivity disorder. Lancet, 2005; 366: 237-480.
7. Jeffrey MH, Dione MH. The influence of environmental enrichment, cognitive enhancement, and physical exercise on brain development: Can we alter the developmental tragedy of ADHD? Neuroscience & Behavioral Reviews, 2011; 35 (3): 621-634.
8. Dana, A., Rafiei, Saleh, Ahmadi S., Tina, Sabzi, et al. The effect of growth-based physical education training on students' attention-Deficit Hyperactivity disorder. Motor behavior. 2018; 10 (32): 17-34.
9. Ray D, Schottelkorb A, Tsai M. Play therapy with children exhibiting symptoms of attention-deficit hyperactivity disorder. J Play Ther, 2007; 16: 95-111.
10. Payne VG, Isaacs LD. Human motor development: A lifespan approach. Routledge; 2017.
11. Atun-Einy, O., Berger, S. E., & Scher, A. Assessing motivation to move and its relationship to motor development in infancy. Infant Behavior and Development, 2013; 36 (3), 457-469.
12. Shahaian A., Shahim S., Bashash L., Yousefi F. Standardization, Factor Analysis and Short Form Reliability for Conners Parent Scale for 6 to 11-year-old children in Shiraz. Psychological studies. 2007; 3 (3); 97-120.
13. Zare M, Ahmadi S. Play the effectiveness of behavioral therapy- cognitive decline in children's behavior problems. J Appl Psychol, 2007; 1: 18-28.
14. Saheban F, Amiri SH, Kajbaf M, Abedi Effect of short-term training, executive function, reduce symptoms of attention-deficit and hyperactivity in elementary school male students in the City, New J Cogn Sci, 2010; 12: 52-8.
15. Sabzi, A.H., Pak D, Gaviar Taha. The effect of twelve sessions of atrial stimulation exercises on balance function in children with developmental coordination disorder. Journal of Rehabilitation Medicine. 2019; 8 (3): 1-8.
16. Geary D. Mathematical disabilities. reflections on cognitive neuropsychological, and genetic. Learn Individual Differ, 2012; 20: 101-9.
17. Salehian, MH, Golabchi M. The Effectiveness of Swimming Training on Reducing Coping Behaviors, Cognitive Problems, Inattention of Elementary School Hyperactivity Disorder Girls, MA thesis in Sport psychology, Tabriz Islamic Azad University, Iran. 2020.