

Effects of Peer Acceptance on Participation of Children with ADHD in Physical Activity: Mediating Role of Physical Self-Efficacy

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Abstract

Background: Previous studies have shown that peers play an important role in the participation of children in physical activities. Nevertheless, peers' effects on physical activity participation of children with ADHD have been rarely examined. Thus, this study aimed to examine the effects of peer acceptance on the participation of children with ADHD in physical activity with a consideration of physical self-efficacy as a mediator.

Method: In this study, we followed the descriptive-correlational method. The participants were 92 children with ADHD aged 9 to 12 years old who attended a special school for children with ADHD. Peer acceptance, physical activity, and self-efficacy were measured by the use of standard questionnaires. Data was analyzed using Structural Equation Modeling (SEM).

Results: Overall, the level of physical activity in children with ADHD was very low (0.98 out of 7). Peer acceptance positively influenced physical activity ($T=7.769$) and physical self-efficacy ($T=6.967$). Moreover, physical self-efficacy significantly mediated the association between peer acceptance and physical activity ($P<0.001$).

Conclusion: Our findings indicate that it is necessary to adopt appropriate strategies to increase the level of physical activity among children with ADHD. Moreover, peers play an important role in the participation of children with ADHD in physical activity and physical self-efficacy can be considered as a plausible mediator in this relationship.

Key Words: ADHD, Peer, Physical activity, Self-efficacy.

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1- INTRODUCTION

Regular PA is essential for physical and mental health (e.g., for reducing the risk of various chronic diseases and improving quality of life) in all age groups, particularly in children and adolescents (1-8). However, it has been shown that physical activity level is dramatically decreased mostly because of passive leisure programs due to modern lifestyle (9). Several studies have consistently shown that physical activity decreases and sedentary time increases approximately between the ages of 6 and 15; and girls are less active than boys in all age groups (10-11). Moreover, it has been shown that only 20-25 percent of girls and 35-40 percent of boys meet the recommendations of World Health Organization (WHO) regarding the engagement in at least 60 minutes of daily moderate-to-vigorous physical activities (12-14). In addition, several studies have reported low amounts of physical activity among children in particular groups such as attention deficit hyperactivity disorder (ADHD). ADHD is a common neurodevelopmental disorder persisting into adolescence and adulthood. Among the characteristics of ADHD are inattention, hyperactivity, and/or impulsivity. Individuals with ADHD have problems with daily activities and social contacts (15-20). Several studies have demonstrated that individuals with ADHD do not meet 60 minutes of daily MVPA (21-22). Thus, it can be assumed that children with ADHD are at risk of negative consequences of physical inactivity. Therefore, it is necessary to find influential factors related to participation of children with ADHD in physical activity.

A possible factor that may affect participation of children with ADHD in physical activities is the peer's influence. Peer is defined as a person of the same age, the same social position, or with the same abilities as other people in a group.

Previous studies have shown that children who receive more peer acceptance are supposed to be more physically active. Thus, peer acceptance can be considered as an important factor in the participation of children in physical activities (23). There are several factors that can play an important role in bidirectional relationships between peers. Some of them are children's personal characteristics, acceptance between friends and the quality of friendship (24). Being in peer groups can improve perception of children regarding the interpersonal contacts, which subsequently increase the student's social dependence, and satisfy their relatedness needs (25). If children have contacts with peers who are more intended to participate in physical activities, then it can be expected that they are more motivated to do so. Several studies have examined this issue and showed the positive role of active peers in the participation of children in physical activities (Haidar et al., 2019). Thus, it can be assumed that children and adolescents do more PA in the presence of physically active peers. However, effects of peer acceptance on the participation of children with ADHD in physical activities have been less studied. Therefore, the first aim of this study was to evaluate the effects of the physical activity levels on physical and psychological wellbeing of children with ADHD.

In addition, receiving appropriate acceptance from peers may increase individuals' self-efficacy. Self-efficacy indicates a person's confidence in his or her abilities and capabilities to perform activities (26). Therefore, the second aim of this study was to investigate the role of the physical dimension of self-efficacy in the relationship between peer acceptance and physical activity. Altogether, the purpose of this study was to examine the effects of peer acceptance on the participation of children with ADHD in

physical activities, considering the physical self-efficacy as a mediator.

2- METHODS

2-1. Participants

In this study, we followed a descriptive-correlational method. Participants were 92 children with ADHD aged 9 to 12 years old attending a special school for children with ADHD.

2-2. Instruments

Peers Questionnaire (27) with 5 items (scored from 1 to 4) was used to measure perceived peer acceptance. In this study, Cronbach's alpha coefficient was estimated as 0.86, CVR as 0.92, and CVR as 0.90. Moreover, we used the Physical Activity Behavior in Leisure-Time Scale to measure the leisure-time physical activity of children with ADHD (13). This questionnaire contains three questions scored based on an eight-point Likert scale from zero days (0) to seven days (7). In the current study, Cronbach's alpha coefficient was estimated as 0.88, CVR as 1.00 and CVR as 1.00. Finally, the children'

physical self-efficacy was measured by a questionnaire with 8 questions (28). This questionnaire has a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). In the current study, Cronbach's alpha was estimated as 0.77, CVR as 0.88, and CVR as 0.92.

2-3. Data analysis

Mean and standard deviation were utilized to describe the variables. Pearson correlation test was used to compute the bidirectional relationships between the variables. Structural Equation Modeling (SEM) by the use of SmartPLS software was used to examine the effects of peer acceptance on the participation of children with ADHD in physical activities, considering the physical self-efficacy as a mediator. The significance level was set at $P < 0.05$.

3- RESULTS

3-1. Demographic data

Table 1 shows that the mean physical activity level of children with ADHD was very low.

Table-1: Descriptive data

| Variable | Peer acceptance | Physical activity | Physical self-efficacy |
|----------|-----------------|-------------------|------------------------|
| Mean | 2.12 | 0.98 | 2.52 |
| SD | 0.93 | 0.72 | 1.16 |

3-2. Correlations between variables

Table 2 shows that there are significant relationships between: 1) peer acceptance and physical activity ($P < 0.001$), 2), peer

acceptance and physical self-efficacy ($P < 0.001$), and 3) physical self-efficacy and physical activity ($P < 0.001$).

Table-2: Results of Pearson correlation test

| Variable | 1 | 2 | 3 |
|---------------------------|--------------------|--------------------|---|
| 1. Peer acceptance | - | | |
| 2. Physical activity | $r=0.558, P<0.001$ | - | |
| 3. Physical self-efficacy | $r=0.647, P<0.001$ | $r=0.407, P<0.001$ | - |

3.3 Structural Equation Modeling

Table 3 and **Fig. 1** show that: 1) peer acceptance positively influenced physical activity ($T=7.769$), 2), peer acceptance positively influenced physical self-efficacy ($T=6.967$), 3), physical self-efficacy

positively influenced physical activity ($T=4.740$), and 4) physical self-efficacy significantly mediated the association between peer acceptance and physical activity ($P<0.001$). The results confirmed that our model has a good fit ($GOF=0.92$).

Table-3: Results of path analysis

| No. | Path | β | T-value | Z | P-value |
|-----|--|---------|---------|-------|-----------|
| 1 | Peer acceptance => Physical activity | 0.449 | 7.769 | - | - |
| 2 | Peer acceptance => Physical self-efficacy | 0.410 | 6.967 | - | - |
| 3 | Physical self-efficacy => Physical activity | 0.349 | 4.740 | - | - |
| 4 | Peer acceptance => Physical self-efficacy => Physical activity | - | - | 4.527 | $P<0.001$ |

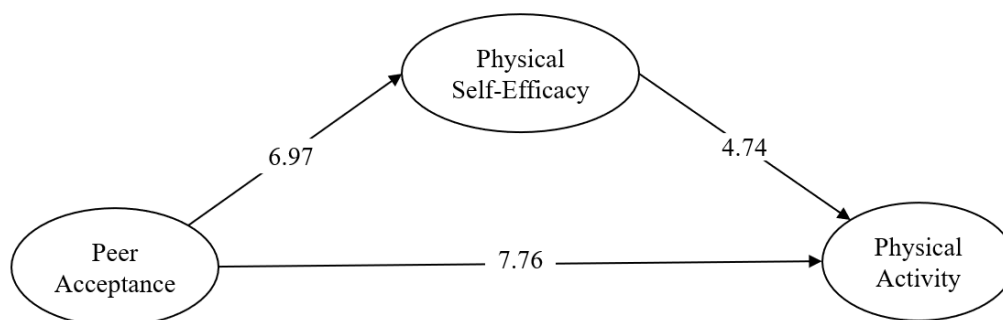


Fig. 1: Structural equation modeling

4- DISCUSSION

Previous studies have shown that peers play an important role in the participation of children in physical activities (23-25, 29). Nevertheless, effects of peers in the participation of children of special groups in physical activities have been rarely examined. Thus, this study aimed to examine the effects of peer acceptance on the participation of children with ADHD in physical activities with a consideration of physical self-efficacy as a mediator. Our findings revealed that overall, the physical activity level of children with ADHD was very low. This shows that these children need special attention and appropriate strategies that help them to enhance their level of physical activity. Moreover, our results

showed that peer acceptance positively affected physical activity of children with ADHD which are consistent with the findings of previous studies on healthy children (23-25). Moreover, physical self-efficacy plays a mediating role in the relationship between peer acceptance and participation of children with ADHD in physical activities. Children have many peers, especially at school, where their interaction with peers would strengthen social and emotional interactions, which subsequently increase their effect on their behavior. Children observe and accept their peers' behaviors in different activities such as participation in physical activity. This can happen through social learning processes such as modeling and social comparison. On the other hand, due to the

fact that increases in peer communication increase in school, the source of children's social support can be changed from parents to peers (24-25, 29). Here, as perceived peer acceptance increases, children become more related to their peers, and subsequently their motivation and self-efficacy to engage in physical activities with their peers are enhanced. Moreover, it can help them to overcome barriers for participation in physical activity. Furthermore, peer acceptance allows children to get positive feedback about their physical abilities. It can subsequently result in more participation in physical activities long with the increase in their physical self-efficacy (18-20).

4-1. Limitations of the study

This study has some limitations. First, we used a questionnaire to measure physical activity, which is limited by self-reporting bias (30). Moreover, we made use of a relatively small sample size. Further research studies with larger sample sizes are needed to increase the reliability of data.

5- CONCLUSION

Overall, our findings indicate that our sample of children with ADHD participate in very low amounts of physical activities, indicating the necessity of adopting appropriate strategies to increase the level of physical activity among children with ADHD. Moreover, peers are revealed to play an important role in the participation of children with ADHD in physical activities. Finally, according to our findings, physical self-efficacy can be considered as a plausible mechanism for the relationship between peer acceptance and physical activity among children with ADHD.

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