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Efficacy of physical activities to develop Social Communication Skills in Children with Autism

Ibrhim Hassan Alzoubi
Universiti Sains Islam Malaysia
ibrahimsaleh20722@gmail.com

Abstract

There are a number of strategies related to physical activities that can be used to keep the child with autism spectrum disorder manage their symptoms. 20 minutes of exercise is highly recommended, depending on the age and health of the autism spectrum disorder children as well as other family members engaging in the activity (parents and siblings). When choosing which exercises to conduct, take into account the perspectives of the kid with autism spectrum disorder as well as what kind of activities they love most. The research has been carried out in Abu Dhabi with aim to get clear understanding of how physical activity regulates behavioral patterns. Moreover the success rate of physical activity in managing social incoherence among children with autism will be evaluated. Along with the effectiveness of parental and educator assistance in facilitating social contact among children diagnosed with autism spectrum disorder to determine whether physical activity is useful for all children diagnosed with autism spectrum disorder. The research will suggest by including reference from previous researches and meta-analysis that Physical activities and yoga decreases blood pressure, enhance insulin sensitivity and sleep quality, and lower the risk of some chronic diseases. Exercise triggers the release of endorphins and monoamine neurotransmitters that act as a brain-mimicking substitute for antidepressants, making physical activity an effective strategy for autism spectrum disorder children (Howells et al., 2019). Many global institutions employ exercise as a strategy for managing autistic children, but its efficacy remains a topic of controversy, especially when it comes to using games and physical activity for autism treatment. The study will tend to find out the efficacy of exercise on autistic children behavioral patterns. The research will use quantitative analysis by using SPSS to evaluate weather physical activity is good strategy to enhance social communication among children of 10-14 age in particular. Two types of questionnaire would be composed and later analyzed in this research one to check child's caliber to understand concept of social gatherings in school or home and one for parents or teacher to respond by evaluating

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* Corresponding Authors:
Ibrhim Hassan Alzoubi

E-mail:
ibrahimsaleh20722@gmail.com

child performance in tests. It has been found out that Autistic behavior can be treated with increased physical activities including games as per the results extracted by SPSS.
Keywords: AUTISM, SPECTRUM, DISORDER, physical activity, managing symptoms.

Introduction

It has been described by ali & fazil (2022) autism spectrum disorder, a neurodevelopmental disease characterized by impaired social and communication abilities. Treatment interventions typically come in the form of structured programs that combine behavioral and educational components. There are numerous sophisticated programs available, but physical activity has been found to be a key component. Numerous studies have provided additional evidence to support the importance of parental participation in promoting physical exercise and implementing sports programs aimed at enhancing social comprehension and behavioral patterns among participants. Additionally, it has been claimed by zachor et al. (20217) necessity of variations in the specifics of the practices and activities that make up a successful program. Since every individual with autism has very specific traits and symptoms, highly personalized therapies are necessary. This is particularly valid for fitness regimens. As early interventions, numerous therapies that are already available in preschool are used. Since there is presently no known treatment for autism spectrum disorder, structured strategies exist to typically treat behavioral and educational intervention tactics. In that context, the study would look into the efficacy and impact of physical activity on autism spectrum disorder people by developing an understanding of external stimuli that enhance social communication.

Research objectives

- To what extent physical activity is an effective measure to manage social incoherence among children with Autism
- To evaluate parent and teacher supports in managing social interaction among children with Autism.
- To gauge the fact weather physical activity is effective for all children diagnosed with Autism spectrum.

Research **questions**

- To asses the physical activity is correlated with the individual capability to enhance social communication
- To assess the role of parental and teacher assistance in facilitating social contact among children diagnosed with Autism.
- To identify the parental role in encouraging children to engage in physical activity for managing social communication skills

Problem statement

It has been argued by Zhao & Chen (2018) the fact could not be neglected that there is a correlation between motor disability and the amelioration of maladaptive behaviors in individuals with autism spectrum disorder. The effectiveness of exercise as a technique which is used by various autistic child management institutions globally yet, managing autism with games and physical activity is still a subject of debate. The engagement in physical activity has been found to have positive effects on the development of social skills and behaviors in young individuals diagnosed with autism spectrum disorder (Nowell et al., 2019). However, doctors do not only advice to treat social disability of Autistic children only with physical activities due to which physical activity's impact in treatment plan is still unclear. This research will analyses the effectiveness of physical activity among Autistic children in context of managing interpersonal communication issues.

Literature Review

Advantages of exercise for AUTISM SPECTRUM DISORDER

Children with autism spectrum disorder can benefit from physical activity's exclusive health advantages. However, compared to their counterparts, children with autism spectrum disorder had lower blood pressure readings (Nowell et al., 2019). This might be brought on by the poor motor coordination and balance frequently linked to autism spectrum disorders (Mesa-Gresa et al., 2018). The range of potential applications is so constrained that participating in group projects is challenging due to sensory, behavioral, and communication issues.

Research has been done on the use of physical activity in autism spectrum disorder, and many people have argued in favor of using physical activity to treat autism. Mesa-Gresa et al. (2018) found through a systematic study that dancing had a beneficial impact on autism spectrum disorder symptoms, such as improved body awareness, conduct, communication skills, and mental wellness. A meta-analysis performed by Ingersoll et al. (2017) of 29 trials evaluating physical exercise therapies for children with autism spectrum disorder revealed generally somewhat beneficial outcomes. However, the motor domains showed moderate to significant favorable impacts (driving and entrepreneurial skills, muscle strength, and endurance).

Group sports, games, and physical activity enhance social skills

According to Ying et al. (2018), one of the most suitable methods to enhance social communication among individuals diagnosed with Autism spectrum disorder is to involve in group exercise and sports. Participation, for instance, has been demonstrated to boost self-esteem about physical prowess and looks, as well as self-control and confidence. Additionally, there is proof that exercise helps people with Autism spectrum disorder exhibit less rigidity, help them to remain focused, and other improper social behaviors. The integrated setting in which these activities are conducted offers a structured framework and environment that fosters the growth and maintenance of social skills while also providing support by assuring safety, rules, regulations, objectives, and discipline. In addition, the physical strategies can promote more peer interaction and experience while offering participants a natural experience. It has been identified by Craig et al. (2018) communication, skill retention, and generalization are fostered because peer interactions and communication are common in sports. Such a setting also suggests and promotes the need for social connectedness, a crucial component of personal growth that can only be acquired through experience. Additionally, it offers chances for social connection through a variety of entertaining activities. These coping mechanisms can be recalled when necessary, boosting self-assurance and self-esteem. Furthermore, the physical activity environment, whether in school, at home or outside, gives

adults a chance to engage in various social situations and interactions, which could help them further develop the social skills necessary to integrate into the larger social structure. Physical activity is well-supported in controlling anxiety, sadness, rage, obesity, and other physical health issues that contribute to comorbidities in people with autism spectrum disorder.

Enhance social communication through PHYSICAL ACTIVITY

As per the study by Chan et al. (2021), Children who engaged in a 12-week structured physical activity program significantly improved their social functioning; according to a study of kids at a south Asian special school between the ages of 5 and 8, the program included workouts twice a week for 60 minutes. The intervention program purposefully offered a chance to encourage social engagement in a setting conducive to the growth of communication skills. Participants gain the ability to recognize and interact with people. The Social Skills Development System (SISS) and Basic Language and Learning Skills-Revised (ABLS-R) rating scales, as well as qualitative interviews with parents and staff, were used to objectively evaluate the curriculum (Zanobini & Solari 2019).

The SISS assesses seven social skill subdomains, and it has been noted that communication, cooperation, and self-control have all significantly improved. ABLLS-R scores also saw an improvement. This technique offers support for the value of structured physical activity programs in the care of kids with autism spectrum disorder because communication and social interaction are crucial deficiencies in autism spectrum disorders (Turner-Brown et al., 2018). The observed improvement cannot be simply attributed to the physical activity or to the manner in which the program was carried out; for example, improvements were made as a result of a team-building exercise or physical activity. Future research in this area might be crucial. Regardless of whether the identified intervention contained physical activity components, the stated improvements were caused by the program that was used.

Researchers and professionals increasingly agree that specific interventions and treatments focused on social functioning may be able to influence the behavior of children with autism spectrum disorder and help them perform better in their everyday environments. As the public's understanding of autism spectrum disorder grows, numerous intervention programs have been created and put into practice in numerous nations that have been proven to be successful in addressing particular behaviors in children with autism spectrum disorder (such as voice training, vitamin therapy, medicine, and music). For kids with AUTISM SPECTRUM DISORDER, standardized interventions and treatments have already had a moderately good impact (Sefen et al., 2018).

Due to the fact that social interventions frequently involve physical contact, an increasing number of researchers around the world have investigated how physical activity and exercise can reduce and control autistic behaviors, allowing for the identification of autism in children with spectrum disorders. Two programs were employed to investigate the efficacy of changing particular maladaptive behaviors in autism spectrum disorder children: a land aerobic exercise program and an aquatic exercise program. Interventions that increase physical activity have powerfully favorable impacts on stereotyped behaviors, behavior and social functioning, enhanced communication, mobility, body mass index, senses and emotions and mobility.

Lack of social and communication abilities might result in social retreat or isolation, as social interaction and communication difficulties are the key characteristics of children with autism spectrum disorder. In order for children with autism spectrum disorder to successfully develop their social, emotional, and communication skills, it is crucial that an intervention that focuses on these abilities is implemented. Little research has been done, notably in China, on the use of adaptive games and motions to teach and control autistic behaviors in children with autism. In order to determine whether a systematic training program has a positive impact on the social interaction and communication abilities of children with autism spectrum disorder, this study set out to evaluate its efficacy.

Parents support in PHYSICAL ACTIVITY

Nowadays, it is understood that practically all autism spectrum disorder treatment plans involve parents in some capacity. However, parent support is acknowledged as the most significant and useful instrument for altering the behavior of kids with autism spectrum disorder. The irony of the division of roles is that many current autism spectrum disorder treatment options place a strong emphasis on parents serving as primary therapists or co-therapists. Early intervention has been demonstrated to have a modest to large impact on outcomes for children with autism spectrum disorder. Parent-focused interventions were shown to be more rigorous and to have much better results. According to a meta-analysis by Ben-Itzchak & Zachor (2021), when parent's support in therapies, language comprehension and autism spectrum disorder symptoms improve better. One of the main goals of these interventions is to get parents ready to change their interactions with kids as they mature. Additionally, it has been demonstrated that parental involvement and support are crucial components of physical activity-based therapies designed to keep autism spectrum disorder patients physically active. It has been demonstrated that parental involvement enhances treatment plans and results in more favorable outcomes. According to Zhao & Chen (2018) physical activity with family involvement produces greater results than therapy without family involvement.

For young adults with autism, especially school-aged children, the impact of parents support on their children's physical activity is still an important field of research. According to Raulston et al. (2019) study, the significant benefits of having parents participate in physical activity are merely accidental. This idea emphasizes the necessity of more investigation of parent participation in physical activity, especially because it indicates that exercise is essential for young adults with autism spectrum disorder. It is believed that children with autism spectrum disorder need assistance from others on a somewhat regular basis. Therefore, in order to create interventions to support young people with autism spectrum disorder, it is crucial to identify factors that affect health outcomes, such as blood pressure.

Zhao & Chen (2018) claim that by encouraging their children with autism spectrum disorder to join, parents who enjoyed their time in the physical activity program had a good effect on those kids. Additionally, it weakens autism spectrum disorder children talents, which boosts their participation. Lower activity ratings were also discovered to be related to single parenthood. This implies that two-person families might result in better results. We arrive at the conclusion that parental participation in therapies or interventions results in better and more efficient outcomes and should be taken into account when suitable. We advocate for more explanation of the topic of TD in children and adolescents as well as parental participation.

Physical exercise as autism spectrum disorder treatment

The goal of autism spectrum disorder treatments is to improve the independence and general quality of life of autism spectrum disorder patients. This is accomplished by lowering the autism spectrum disorder's basal activity. Therefore, a general program management method is to improve maladaptive behavior (Raulston et al., 2019). The role of physical activity should be taken into account as a component of a more extensive and all-encompassing strategy for treating autism spectrum disorders. Focused intervention strategies are represented by targeted pharmacological and behavioral interventions, and multimodal behavioral and educational interventions are represented by comprehensive treatment models like TEACCH. These physical particular interventions target repetitive and stereotypical behaviors and interests as well as indicators of decreased social and communication skills. Physical activity is a type of targeted intervention that can be used alone or in conjunction with other targeted interventions as part of an all-encompassing treatment strategy.

Self-harm, impulsivity, lack of focus, anxiety, sadness, and sleep issues are all common co-occurring symptoms of autism spectrum disorder. For some of these symptoms, there are approved pharmaceutical and behavioral treatments. In addition to treatments, physical activity can be used to treat the comorbidities mentioned. Every child must have a unique treatment strategy that is catered to their requirements and includes parents,

teachers, and other carers. According to Turner-Brown et al. (2019), children with autism spectrum disorder had the same advantages as zhao & chen (2018) Practice-based therapies that are successful for older autism spectrum disorder children may not be successful for preschoolers, according to some research.

Physical activity offers two advantages to patients with autism spectrum disorder; the impact of physical activity on weight growth and obesity comes first, followed by a decline in maladaptive behaviors. Obesity is a serious issue for kids with any type of developmental disability. However, there is a considerable risk of obesity in kids with autism spectrum disorder. Obesity should be taken into account because it is known comorbidity in children with autism spectrum disorder. This might be brought on by a lack of structure in nutrient intake, an excessive reliance on television for comfort, and drug side effects. A child with autism spectrum disorder might not benefit from a nurturing setting, which is another consideration. Another side relates to behavioral elements including social skills, self-esteem, and competence. Improving stereotypical behavior as well as overall social functioning has received a lot of attention. According to the research of Ingersoll et al. (2017), developing motor abilities also enhances social skills and lessens stereotypical behavior.

Language as social determinant for AUTISM SPECTRUM DISORDER individuals

Autism was categorized as one of the numerous Pervasive Developmental Disorders (PDD) in DSM-IV-TR1. Behavioral patterns that characterize autism spectrum disorder as a single diagnostic category with individual variance in severity, language proficiency, intelligence, and timeliness are what led to the change from PDD to autism spectrum disorder as the umbrella label. This intervention focuses on the frequent overlap and distinctions between autism-related social issues and communication issues that are frequently observed. This change also acknowledges the significance of context in comprehending the negative impacts of social isolation. A comprehensive understanding of the role of language and communication in the social impairment of autism spectrum disorder may

reflect the clinical features of this disorder since language delay is not a characteristic of autism (Cummins et al., 2019).

According to the proposed modification of the DSM-V, the core weakness of autism spectrum disorder is a lack of social engagement and persistent social interaction. Deficits in social contact include trouble forming and maintaining relationships as well as poorly synchronized verbal and nonverbal communication abilities that promote social engagement, such as inappropriate eye contact and a lack of gestures or facial emotions. It has been suggested by Shield et al. (2017) the significance of language and communication in the analysis is made even more apparent when taking into account the new social standards. People must be able to comprehend the language used in social situations in order to respond appropriately (e.g., to jokes, gauge voice tone, or comprehend vocabulary).

Semantics, syntax, pragmatics, and phonology are four interconnected aspects that might affect communication skills in a positive manner. By controlling the reciprocity of communication through language and paralinguistic, pragmatics is the social tool for comprehension. Conversations are typically where social information is shared; for example, thought-sharing or discussing a common interest can also encourage individuals to speak and enhance their communication skills by getting experience through social gatherings. Moreover, using signposts is also beneficial for autism spectrum disorder individuals that cannot even form coherent sentences or right words by themselves. Such as learning facial expressions and body language is an important knowledge stream that helps a child maintain social constructs. For instance, soft touch, stern look or range of voice are all factors that can help an individual to comprehend behavioral patterns.

Methods

Pedagogical Setting & participants

In this research two sets of primary questionnaires have been used first questionnaire composed of 5 questions is used to gauge how physical activity impact enhances communication skill. This questionnaire was only

given to students which appeared for survey. The second questionnaire has been designed for teachers, in which 10 parents have been chosen to appear. In the second questionnaire teachers respond by observing child performance in game. The research is qualitative close ended and we used observational method to access the results to observe physical activity impact on child's social patterns. The age of respondents is between the ages of 10 and 14. The reason for choosing this specific age groups is due to considering the fact which also mentioned in literature review that autism impact child's social behavior and child tends to develop social pattern and need for social late in life in comparison to normal children. Thus, children of this age group are the most suited population for the research.

Design of the Study

Ten children, were selected, 5 boys and 5 girls for the study. The Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition Text Revision (DSM-IV TR), criteria for autism spectrum disorder were met by all individuals who had previously been diagnosed with the condition based on a medical and psychological evaluation. Participants were chosen from schools for children with autism spectrum disorder in the same city.

Data collection & Analysis

Thirteen times a week, the observational group engaged with teachers to train about games through which teachers and parents could evaluate impact of physical activity among children. Each activity lasted 20 minutes and was held in a park close to the kindergartens taking part. Each session began with an introductory song, after which the kids began playing the instruments and alternated between them throughout. The child must connect with the teacher and peers as part of these activities, for instance, ask for assistance with some exciting and engaging games. Everyone convened for a quick briefing at the conclusion of the meeting to ask the respondents how it went and what activities they enjoyed. The band then performed its final tune. Rope ladders with two sides require the youngster to ascend one, descend the other, and then reappear on the ground. For this

module, students need to be able to manage their motor problems and vertigo as well as focus, plan and coordinate their motions.

A child is on a leash attached to a rope with tools on top of a tree, and the other kids are lifting them up while playing tug of war. This arrangement calls for the child's friend to be trusted and held accountable, as well as for the youngster to be socially integrated and adapted to his or her requirements and emotional state. Staff from the outdoor program, including a knowledgeable guide and two on-site teachers, led the activities. The primary supervisor outlined the intervention's characteristics and study standards while also offering qualified feedback. All on-site instructors have gone through in-depth internal training. The intervention was properly carried out thanks to the lead researcher's involvement in all stages of the study and a thorough training program.

Findings

As the two questionnaires have been composed, researchers have decided to record teachers' opinions about the efficacy of physical activity on children's communication. Four of the parents stated that during the musical session, children were exchanging eye contact with each other and trying to converse with their friends. Moreover, one of these parents stated that children also understood what their friends were signaling by comprehending facial expressions, which suggests a positive impact of physical activity. In that context, it is assumed that physical activity not only encourages effective verbal communication among children but also bridges non-verbal communication, which reduces social anxiety.

Three parents stated that in the observational group, three children were also taking speech therapy as they found it difficult to make coherent sentences and took more time to complete one sentence in comparison to other students. But, when the rope game started and children were observing pressure to reach in the given time, they were trying to call their friends and group members for help or take their hands. Moreover, all nine teachers show their common affirmation that parental support increases an individual's ability to communicate with their group mates. One of the parents stated that a child aged 12 was encouraged to ask for help from his

group members after listening to his mother's voice. Moreover, two more teachers stated that children became more enthusiastic to complete their tasks after hearing supportive parent words. Another aspect that has been observed is that children ran directly to their parents after completing the task, showing a strong need to impress their parents with their performance.

Lastly, it can be stated that children from 10 to 14 years old were all impacted by physical activity and tried to communicate as three of the children responded that they knew all members of the survey. It can be stated that, as they were motivated, communication was a necessity to complete the task that won their peers trust. Moreover, two out of five children also stated that they remember in bits what teacher has instructed them, however the other three do not exactly remember the wordings but know it's something about task. However, four parents who initially observed children's efforts to communicate during a musical session mentioned that parental support is unavoidable, but children were relaxed and enjoying them, which was the major cause of active social communication among youngsters. Furthermore, all of the children stated that they know the song that teacher has played in the starting hour of the session which suggested the positive outcome of the exercise on communication and cognitive skill of respondents. Thus, it can be stated that physical activity plays a crucial role in managing social communication stress and inabilities among autistic children.

Discussion

It has been found that in addition to conventional therapies, this study provides a novel strategy for fostering and sustaining social skills in individuals with autism spectrum disorder. Through physical activity and parents support, this style of education aims to help individuals better understand their surroundings and foster both their social and personal growth. Theoretically, research affirms the value of physical activity in regulating mood and as motivating force for student to engage in social gathering. Moreover, physical activity help them to understand the behavior of other individuals that help them to develop communication ability. The benefits of physical activity extend beyond the development of skills to the capacity of participants to integrate and apply the communication demands

of desired social circumstances in subsequent contexts. For an outdoor adventure program in treatment for young children with autism spectrum disorder, this study has clinical ramifications. The outdoor adventure program needs to be improved in order to look at the outdoor pursuits that have the most effects on the development of autism spectrum disorder.

Conclusion

This study looked at how a physical activity-structured training program affected the social interaction and communication of children with autism spectrum disorders. The results of a physical activity training program revealed that the experimental group's social interaction and communication abilities had improved more generally than those of the control group. There has been a lot of development in the social communication field, particularly in the areas of cooperation and self-control. However, the training course had no effect on participation, cooperation, accountability, or empathy. It is possible that the intervention was not long enough to make a difference in all facets of social interaction. At the conclusion of the training program, parent responses and self-administered surveys revealed appreciable changes in the general level of social engagement. Some social abilities are enhanced, for instance, eye contact, group participation, and building relationships with teachers and parents. Finally, this study served as a foundation for future research into fitness programs for children with autism spectrum disorder. It offers content, knowledge, and techniques to aid in creating and assessing the efficacy of upcoming research training programs.

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