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Effectiveness of physical education among hyperactive students with special reference to school students in pathanamthitta district, Kerala

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Abstract
Inattention, hyperactivity, and impulsivity are the core symptoms of Attention Deficit Hyperactivity Disorder (ADHD). A child's academic success is often dependent on his or her ability to attend to tasks and teacher and classroom expectations with minimal distraction. School students with a tendency toward attention deficit/hyperactivity disorder (ADHD) tend to act impulsively because they cannot control their behaviour. They display low academic achievement and insufficient social skills, and are at high risk for alcoholism and drug abuse. Although various intervention methods have been used to reduce ADHD tendency (e.g., improving physical fitness and participating in sports and exercise), there are few studies on the relationship between ADHD and health-related physical fitness. This study conducted to know the influential and satisfied factors of hyperactive students towards physical education. SEM, CFE, regression correlation method is used for this study.

Keywords: physical education, hyperactive students, ADHD tendency, school students, fitness

1. Introduction

Physical Education (PE) develops students' competence and confidence to take part in a range of physical activities that become a central part of their lives, both in and out of college.

A high-quality PE curriculum enables all students to enjoy and succeed in many kinds of physical activity. They develop a wide range of skills and the ability to use tactics, strategies and compositional ideas to perform successfully. When they are performing, they think about what they are doing, they analyse the situation and make decisions. They also reflect on their own and others' performances and find ways to improve upon them. As a result, they develop the confidence to take part in different physical activities and learn about the value of healthy, active lifestyles.

ADHD is a neurobiological disorder frequently observed in preschool and school-age children and has an incidence rate of 2-18% among children (Moss *et al*., 2007). Its prevalence rate is very high, accounting for approximately 50% of adolescent patients who visited a psychiatric clinic (Cantwell, 1996). Although ADHD is primarily a childhood disorder that used to be expected to improve with age, various longitudinal studies have now shown that it is a chronic disorder that persists into adulthood. Thus, interest in ADHD is increasing. There are cases in which 50-65% of children diagnosed with ADHD show symptoms into adulthood, and the prevalence rate of adult ADHD in the general population is estimated to be approximately 2-3% (Kim *et al*., 2005).

In addition, approximately 25% of school students have been diagnosed with ADHD or show ADHD symptoms. However, the testing tools and countries differ from study to study, and the ADHD prevalence rate has been reported to be higher for male than for female students (Green and Rabiner, 2012). Because ADHD symptoms include low concentration, carelessness, excessive activity, and impulsivity, affected school students have poor academic performance, difficulty interacting with peers, and high rates of alcohol and drug use. In addition, because they experience repeated failure and frustration, frequent criticism, and reproach in everyday life, they often develop low self-esteem (Faraone *et al*., 2000). Low self-esteem and lack of sociality also cause problems in interpersonal relationships, relationships with the opposite sex, and couple and family relationships.

The goal of physical education is to help students to develop healthy habits which will serve them in the long-term. In today technology frenzy world things become easy, we are enjoying the facilities like no other generation. Adults spend their whole day in air-cooled offices, they eat junk food, don't find time to exercise. It is going to be very tough for our generation. If we get good healthy habits now when we are in the school. It will definitely help us now and in the future. It is actually a dire need of time. The education system should be proactive and make it mandatory in schools. So let us see, why do children need physical education? Healthy Habits With physical education, children can improve their fitness, body posture and ultimately it will boost their confidence. It helps students to form good habits from an early age. Running, jogging, weight training, eating and sleeping on time these are few habits which will help them in the future. Healthy Habits With physical education, children can improve their fitness, body posture and ultimately it will boost their confidence. It helps students to form good habits from an early age. Running, jogging, weight training, eating and sleeping on time these are few habits which will help them in the future.

Children with ADHD also crave constant stimulation which physical education is more than capable of providing. Some common physical exercises that kids with ADHD should consider include walking, jogging, dancing, gymnastics, swimming and martial arts. Any activity that helps a child exert lots of energy is going to be helpful.

When educators and parents incorporate daily physical activity into a child's life, they not only improve the child's physical health, but can also help the child to cope with ADHD behaviors as well. Furthermore, it's helpful if the physical activity occurs at regularly scheduled times. Providing a defined routine is helpful for ADHD children.
Parents and teachers can always work together to ensure that physical education becomes a part of the child's life. There are numerous methods for treating ADHD, and physical education is one method with proven benefits. Children and parents who use physical education to treat the symptoms of ADHD are finding great success.

Review of literature
There are many benefits students receive from high school physical education classes that contribute to students becoming responsible adults who are aware of the importance of a healthy lifestyle. High school students retain a higher level of knowledge related to overall health that help them make educated decisions regarding their own health, safety and well-being.
There are many factors that effect learning, and physical education is one of the many factors that impacts academic achievement. In this day in age, it is necessary to integrate physical activity with other content areas to enhance learning in the physical education setting, as well as the classroom setting. Movement improves cognitive functioning, and learning is more fun (Leppo & Davis, 2005). Physical activity is a different type of learning style. Physical activity increases students' capacity for learning (Kong, 1999). Learning through movement is vital for a successful experience in school. "Exercise, besides shaping up bones, muscles, heart and lungs also activates major growth of neurons and nerve nets in the basal ganglion, cerebellum and corpus callosum of the brain. Thanks to advances in brain research, we are now aware that most of the brain is
activated during some sort of physical activity, much more than when sitting behind a desk (Maier, 2001). Movement expands blood vessels that allow for the delivery of oxygen, water, and glucose to the brain, which optimizes the brain's performance (Pica, 2004). Therefore, physical activity increases the blood flow, which in turn, increases cognitive functioning. One Canadian study conducted by Pica (2004) shows how academic scores increased when a third of the school day was devoted to physical education. Another study by Pica (2004) [4] demonstrated children participating in five hours of vigorous physical activity a week had stronger academic performance in math, English, natural sciences, and French than children with only two hours of physical activity per week. Children who participate in daily physical education have been shown to perform better academically and to have a better attitude toward school (Sadler & Tentinger, 1993) [10]. Physical activity and fitness may actually help students do better in the classroom.

Objectives
1. To analyse the adoption of physical education among hyperactive students.
2. To analyse the satisfaction of hyperactive students towards physical education.

Research Methodology
This study following descriptive nature. Questionnaire is used as primary data collection tool. The information from Journals, reports, books and websites related to emotional intelligence are considered as the secondary data. School students in Pathanamthitta District are the sample unit for this study. Sample size for this study is 200 school students from different schools in Pathanamthitta district. Co-efficient of correlation and CFA, SEM were used for this study.

Data Analysis and Interpretation
Objective 1: To analyse the adoption of physical education among hyperactive students.
H_1: Improve mental health is an influential factor for the adoption of Physical education by hyperactive students
H_2: Improve physical health is an influential factor for the adoption of Physical education by hyperactive students
H_3: confidence is an influential factor for the adoption of Physical education by hyperactive students
H_4: Concentration influential factor for the adoption of Physical education by hyperactive students `
H_5: stress relief is an influential factor for the adoption of Physical education by hyperactive students `
H_6: P lay time is an influential factor for the adoption of Physical education by hyperactive students
H_7: Daily routine is an influential factor for the adoption of Physical education by hyperactive students

Table 1: Model fit Indices for CFAInfluencing factors for adoption of physical education

	χ2	DF	P	Normed χ2	GFI	AGFI	NFI	TLI	CFI	RMR	RMSEA
Influencing factors	12.559	5	.028	2.520	.988	.888	.997	.985	.998	.014	.103

***Source*:** survey data

All the attributes loaded significantly on the latent constructs. The value of the fit indices indicates a reasonable fit of the measurement model with data. In short the measurement model confirms to the factor structure of the constructs.

Table 2: Regression coefficient

Path	Estimate	CR	P	Variance explained
Improve mental health -> Influencing factors	0.953	26.155	<0.001	90.8
Improve physical health ->Influencing factors	0.859	18.099	<0.001	86.2
Confidence -> Influencing factors	0.886	19.692	<0.001	97.3
Concentration -> Influencing factors	0.973	30.117	<0.001	94.7
Stress relief -> Influencing factors	0.987	35.296	<0.001	78.5
Play time -> Influencing factors	0.929	23.173	<0.001	73.8
Daily routine -> Influencing factors	0.988	35.861	<0.001	90.8

***Source*:** survey data

H_1: Improve mental health is an influential factor for the adoption of Physical education by hyperactive students

The results revealed that the Mental health improvement had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.953, which is more than 0.4 (also p value was significant). So accept the hypothesis H_1 and conclude that improve mental health is an influential factor for the adoption of Physical education by hyperactive students.

H_2: Improve physical health is an influential factor for the adoption of Physical education by hyperactive students

The results revealed that the Improve physical health had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.859, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_2$and conclude that Improve physical health is an influential factors for the adoption of Physical education by hyperactive students

H_3: confidence is an influential factors for the adoption of Physical education by hyperactive students.

The results revealed that the confidence had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.886, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_3$and conclude that confidence is an influential factors for the adoption of Physical education by hyperactive students.

H_4: concentration is an influential factors for the adoption of Physical education by hyperactive students.

The results revealed that the concentration had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.973, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_4$and conclude that concentration is an influential factors for the adoption of Physical education by hyperactive students.

H_5: stress relief is an influential factors for the adoption of Physical education by hyperactive students.

The results revealed that the stress relief had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.987, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_5$and conclude that stress relief is an influential factors for the adoption of Physical education by hyperactive students

H_6: Play time is an influential factors for the adoption of Physical education by hyperactive students

The results revealed that the Economic Aspects had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.929, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_6$and conclude that Economic Aspects is an influential factors for the adoption of Physical education by hyperactive students

H_7: Daily routine is an influential factors for the adoption of Physical education by hyperactive students

The results revealed that the Daily routine had significant influence on Influencing factors as the standardised direct effect of this construct on Influencing factors was 0.988, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_7$and conclude that Daily routine is an influential factors for the adoption of Physical education by hyperactive students

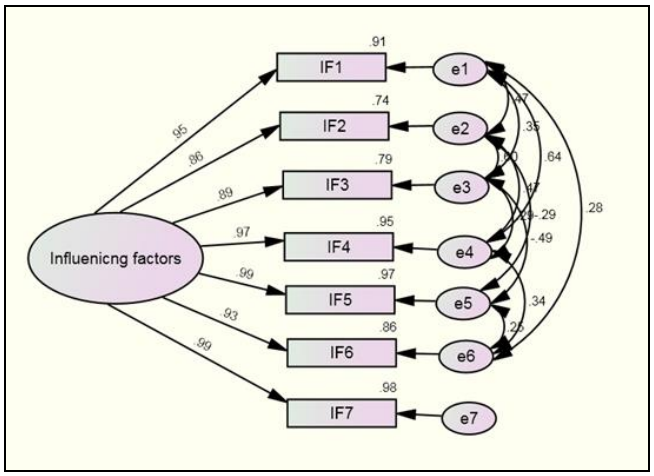

Fig 1

Objective 2: To analyse the satisfaction of hyperactive students towards physical education.

Words we use SEM to test the following hypothesis

H_1: Mental strength leads to satisfaction of hyperactive students

H_2: Physical health leads to satisfaction of hyperactive students

H_3: Stress relief leads to satisfaction of hyperactive students

H_4: Academic performance leads to satisfaction of hyperactive students

H_5: Supporters and motivators leads to satisfaction of hyperactive students

H_6: Healthy life style leads to satisfaction of hyperactive students

H_7: Social acceptance leads to satisfaction of hyperactive students

H_8: Psychological factors leads to satisfaction of hyperactive students

Table 3: Model fit Indices for CFA Satisfaction of hyperactive students

	χ2	DF	P	Normed χ2	GFI	AGFI	NFI	TLI	CFI	RMR	RMSEA
Satisfaction of hyperactive students	12.491	11	.328	1.136	.985	.950	.959	.986	.995	.082	.026

***Source*:** survey data

All the attributes loaded significantly on the latent constructs. The value of the fit indices indicates a reasonable fit of the measurement model with data. In short the measurement model confirms to the factor structure of the constructs.

Table 4: Regression coefficient

Path	Estimate	CR	P	Variance explained
mental strength -> Satisfaction	0.714	12.566	<0.001	51.0
physical health -> Satisfaction	-0.006	-0.084	0.933	0.0
Stress relief -> Satisfaction	0.237	3.391	0.001	5.6
Academic performance ->Satisfaction	0.562	8.923	<0.001	31.6
Supporters and motivators-> Satisfaction	-0.119	-1.678	0.095	1.4
Healthy life style-> Satisfaction	0.445	6.715	<0.001	19.8
Social acceptance-> Satisfaction	0.521	8.109	<0.001	27.2
Psychological factors-> Satisfaction	0.342	5.002	<0.001	11.7

H_1: mental strength leads to satisfaction.

The results exhibited in Table 4 revealed that the mental strength had significant influence the Satisfaction as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.714, which is more than 0.4 (also p value was significant). So we accept the hypothesis H_1 and conclude that mental strength leads to satisfaction

H_2: physical health leads to satisfaction.

The results exhibited in Table 4 revealed that the physical health had no significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was -0.006, which is more than 0.4 (also p value was not significant). So we reject the hypothesis $H_2$and conclude that physical health does not leads to satisfaction of hyperactive students

H_3: Stress relief leads to satisfaction.

The results exhibited in Table 4 revealed that the Stress relief had no significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.237, which is more than 0.4 (also p value was not significant). So we reject the hypothesis $H_3$and conclude that Stress relief does not leads to satisfaction of hyperactive students

H_4: academic performance leads to satisfaction of hyperactive students.

The results exhibited in Table 4 revealed that the academic performance had significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.562, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_4$and conclude that academic performance leads to satisfaction of hyperactive students

H_5: Supporters and motivators leads to satisfaction of hyperactive students.

The results exhibited in Table 4.38 revealed that the Supporters and motivators had no significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was -0.119, which is more than 0.4 (also p value was not significant). So we reject the hypothesis $H_5$and conclude that Supporters and motivators does not leads to satisfaction of hyperactive students

H_6: healthy life style leads to satisfaction of hyperactive students.

The results exhibited in Table 4 revealed that the healthy life style had significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.445, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_6$and conclude that healthy life style leads to satisfaction of hyperactive students.

H_7: social acceptance leads to satisfaction of hyperactive students.

The results exhibited in Table 4 revealed that the social acceptance had significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.521, which is more than 0.4 (also p value was significant). So we accept the hypothesis $H_7$and conclude that social acceptance leads to satisfaction of hyperactive students

H_8: Psychological factors leads to satisfaction of hyperactive students.

The results exhibited in Table 4 revealed that the Psychological factors had no significant influence on Satisfaction of hyperactive students as the standardised direct effect of this construct on Satisfaction of hyperactive students was 0.342, which is more than 0.4 (also p value was not significant). So we reject the hypothesis $H_8$and conclude that Psychological factors does not leads to satisfaction of hyperactive students

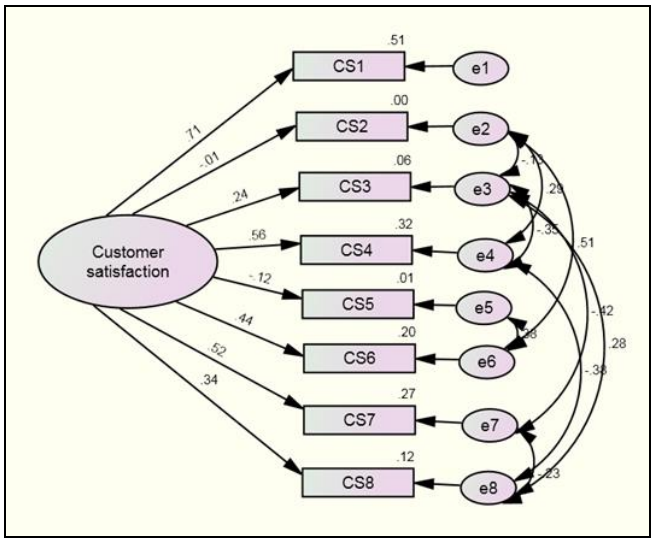

Fig 2

Findings

As per the analysis of data, this research paper found that improve mental health, physical health improvement, confidence, concentration, stress relief, play time and daily routine are the influential factors to depend physical education by hyperactive students. Mental strength, academic performance, healthy life style, social acceptance leads to satisfaction of hyperactive students

Conclusion

A high-quality PE curriculum enables all students to enjoy and succeed in many kinds of physical activity. They develop a wide range of skills and the ability to use tactics, strategies and compositional ideas to perform successfully. Approximately 25% of school students have been diagnosed

with ADHD or show ADHD symptoms. However, the testing tools and countries differ from study to study, and the ADHD prevalence rate has been reported to be higher for male than for female students. Because ADHD symptoms include low concentration, carelessness, excessive activity, and impulsivity, affected school students have poor academic performance, difficulty interacting with peers, and high rates of alcohol and drug use. In addition, because they experience repeated failure and frustration, frequent criticism, and reproach in everyday life, they often develop low self-esteem. This study concluded that physical education have a great role to improve ADHD students in their physical, mental and psychological level.

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