

Research Paper

## The Effect of Yoga Education on Anxiety Disorders in Patients with Attention Deficit/Hyperactivity Disorder

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### Abstract

**Introduction:** Attention deficit/ hyperactivity disorder is a pervasive pattern of inattention, hyperactivity, and impulsivity. Its prevalence in boys is three times more than girls and comorbid with many disorders, including anxiety. Therefore, the present research aimed to determine the effect of yoga education on anxiety disorders in patients with attention deficit/ hyperactivity disorder.

**Methods:** This study was quasi-experimental with a pre-test and post-test design with the control group. The research population was male primary school students with attention deficit/hyperactivity disorder of Zahedan city in 2018-19 academic years. Among students suspected of attention deficit/hyperactivity disorder, the number of 40 people after reviewing clinical interviews by a psychiatrist and inclusion criteria to study were selected by purposive sampling method and randomly replaced into two equal groups. The experimental group received the yoga education for 16 sessions of 45 minutes (two sessions per week), and the control group was placed on a waiting list for education. The research instruments were the children's intelligence test and the children's anxiety scale. The data were analyzed using chi-square, independent t, and multivariate analysis of covariance in SPSS-23 software.

**Results:** The findings showed that the experimental and control groups did not significantly differ in age and education level ( $P > 0.05$ ). Besides, the groups in the pre-test phase did not have a significant difference in terms of anxiety disorders, including panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety ( $P > 0.05$ ). Still, there were significant differences in terms of all anxiety disorders ( $P < 0.001$ ). In other words, yoga education reduced anxiety disorders, including panic attacks and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety in patients with attention deficit/hyperactivity disorder ( $P < 0.001$ ).

**Conclusions:** The results showed the effect of yoga education on reducing anxiety disorders in patients with attention deficit/hyperactivity disorder. As a result, planning to use yoga education is essential in children, and clinical psychologists and therapists can use yoga education to reduce anxiety disorders in children.

## Extended Abstract

### OBJECTIVE

Attention deficit/ hyperactivity disorder is a pervasive pattern of inattention, hyperactivity, and impulsivity that its prevalence in boys is three times more than in girls [1]. This disorder negatively affects cognitive,

social, emotional, and family functions and is associated with many disorders, including anxiety disorders and comorbid disorders, including anxiety disorders [4]. Anxiety is an evolutionary and adaptive response whose

moderate levels improve performance, but its high levels reduce performance [5]. Anxiety disorders are the most common psychological disorders of childhood and adolescence. The most important of these disorders include panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive, and generalized-overanxious anxiety [6]. Anxiety disorders are chronic satiety and increase the risk of depression and suicide attempts [7]. Yoga education is one of the educational methods to reduce anxiety disorders [8]. Yoga promotes behavioral, mental, and emotional health through coordination between breathing, body, thoughts, and emotions [10]. Yoga is a type of exercise based on specific body movements, mental focus, and breathing techniques which many of its activities are used in rehabilitation and physiotherapy programs [11]. Therefore, the present research aimed to determine the effect of yoga education on anxiety disorders in patients with attention-deficit/ hyperactivity disorder.

**MATERIALS AND METHODS**

This study was quasi-experimental with a pre-test and post-test design with the control group. The research population was male primary school students with attention deficit/ hyperactivity disorder of Zahedan city in 2018-19 academic years. Among students suspected of attention deficit/ hyperactivity disorder, several 40 people, after reviewing inclusion criteria to study and

clinical interview by a psychiatrist, were selected by purposive sampling method and randomly replaced into two equal groups (each group 20 people). The experimental group received the yoga education for 16 sessions of 45 minutes (two sessions per week), and the control group was placed on a waiting list for education. Then, expressed the ethical considerations (principles of secrecy, the confidentiality of personal information, privacy of the subjects, etc.) and received consent-conscious participation in research. The research instruments were the children’s intelligence test (Raven, 1938) and tests of chi-square analyzed the children’s anxiety scale (Spence, 1997) and the data, independent t and multivariate analysis of covariance in a significant level of  $P < 0.05$  in SPSS-23 software.

**RESULTS**

The findings of the chi-square test showed that the experimental and control groups did not a significant difference in terms of age and education level ( $P > 0.05$ ). The result of the independent t-test showed that the experimental and control groups in the pre-test phase did not have a significant difference in terms of anxiety disorders, including panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety ( $P > 0.05$ ), but groups in the post-test phase there were significant differences in terms of all anxiety disorders ( $P < 0.001$ ) (Table 1).

**Table 1.** T-Test Results

Variables	Experimental Group M ± SD	Control Group M ± SD	P-Value
<b>Panic attack and agoraphobia</b>			
Pre-test	21.30 ± 1.78	20.65 ± 1.66	$P > 0.05$
Post-test	11.10 ± 1.64	19.30 ± 2.12	$P < 0.001$
<b>Separation anxiety</b>			
Pre-test	15.25 ± 1.51	14.65 ± 1.72	$P > 0.05$
Post-test	8.50 ± 2.41	13.65 ± 1.75	$P < 0.001$
<b>Social phobia</b>			
Pre-test	12.70 ± 1.26	11.70 ± 1.59	$P > 0.05$
Post-test	8.55 ± 2.18	11.30 ± 1.52	$P < 0.001$
<b>Physical injury fears</b>			
Pre-test	12.75 ± 1.97	12.25 ± 2.12	$P > 0.05$
Post-test	6.85 ± 1.42	11.55 ± 2.16	$P < 0.001$
<b>Obsessive-compulsive</b>			
Pre-test	8.05 ± 1.14	7.25 ± 1.06	$P > 0.05$
Post-test	4.25 ± 1.21	6.70 ± 1.12	$P < 0.001$
<b>Generalized-overanxious anxiety</b>			
Pre-test	15.05 ± 1.50	14.90 ± 1.48	$P > 0.05$
Post-test	9.05 ± 1.98	14.50 ± 1.27	$P < 0.001$

**Table 2:** Multivariate Analysis of Covariance Results

Variables	Source	Sum of Squares	df	Mean of Squares	F	P-Value	Eta Squared
<b>Panic attack and agoraphobia</b>	Group	636.96	1	636.96	86.29	$P < 0.001$	0.72
<b>Separation anxiety</b>	Group	238.35	1	238.35	40.47	$P < 0.001$	0.55
<b>Social phobia</b>	Group	85.15	1	85.15	35.99	$P < 0.001$	0.53
<b>Physical injury fears</b>	Group	213.99	1	213.99	111.99	$P < 0.001$	0.78
<b>Obsessive-compulsive</b>	Group	65.98	1	65.98	65.50	$P < 0.001$	0.64
<b>Generalized-overanxious anxiety</b>	Group	249.44	1	249.44	154.49	$P < 0.001$	0.81



The findings of multivariate analysis of covariance test showed that yoga education reduced anxiety disorders including panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety in patients with attention deficit/ hyperactivity disorder ( $P < 0.001$ ) (Table 2).

#### **CONCLUSION**

The results showed that yoga education on reducing anxiety disorders groups in the pre-test phase did not significantly differ in anxiety disorders, including panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety in patients with attention deficit/ hyperactivity disorder. As a result, planning to use yoga education is essential in children. Clinical psychologists and therapists can use yoga education and other educational methods to reduce anxiety disorders in children.

#### **Ethical Considerations**

This research has a code of ethics number IR.IAU.ZAHEDAN.REC.1398.069 from Medical Ethics Committee of Islamic Azad University of Zahedan branch. Also, it performs Helsinki ethics protocols, the information of subjects remains anonymous, and after the study, all this information will be protected. All participants signed the research consent form and described the purpose, importance, and necessity of research for all of them.

#### **Funding of Supports**

This research was conducted without any financial support and performed at the expense of the authors.

#### **Author's Contribution**

In the present article, Zahra Khayati was responsible for writing the proposal, implementing the intervention, data collection, and entering data into a computer. Mahmoud Shirazi and Gholamreza Sanagouye Moharer were responsible for data analysis and writing the article.

#### **Conflict of Interest**

Between the authors of the present research, there is no conflict of interest.

#### **Applicable Remarks**

This study was performed on patients with attention deficit/hyperactivity disorder who had problems in anxiety due to comorbid conditions with anxiety disorders. Yoga education could reduce anxiety disorders (panic attack and agoraphobia, separation anxiety, social phobia, physical injury fears, obsessive-compulsive and generalized-overanxious anxiety). Therefore, health professionals can use this research as a new perspective to reduce anxiety disorders in children with attention deficit/hyperactivity disorder and even children with other disorders. As a result, the use of yoga education in preventive, health, and treatment policies of children with attention deficit/ hyperactivity disorder can play an essential role in improving their characteristics, significantly reducing anxiety disorders.

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