

ORIGINAL ARTICLE

Effectiveness of Yoga Therapy and Pranayama in Reducing Examination-associated Anxiety among (Tenth) 10th Standard Students in the Selected High Schools at Bangalore, India.

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Abstract

Anxiety is a human emotion that is a part of life and can often serve as a beneficial form of adrenaline, for instance, before giving a speech, taking an exam, or performing on stage. Anxiety levels vary from student to student, and only a small fraction of exam-anxious students ever receive adequate anxiety reduction training. However, it can drastically impact and affect functions or performance. There are methods to overcome nervousness and anxiety when they interfere with performance. An experimental research design was used in this study on 60, students of 10th-standard from the selected high schools in Bangalore, India This is an experimental research design study conducted on 60 10th-standard students selected from high schools in Bangalore, India. A modified anxiety rating scale was used to assess the level of examination anxiety among 10th-standard students. Pre-test- and post-test data were collected after 4 weeks of intervention on both the experimental and control group. Yoga and pranayama were given to the experimental group along with counselling, whereas only counselling was given to the control group. The results of this study showed that in the experimental group, the overall mean pre-test and post-test scores were 100.02 and 54.01, respectively, with a paired 't' value of 11.60, which was above the table value of 2.7 at $p \leq 0.01$ level of significance. Whereas in the control group, the overall mean pre-test and post-test mean score was 104.77 and 101.43 respectively with paired 't' value of 0.82, which is not significant at $p \leq 0.01$ level of significance. Excessive exam anxiety can result in stress and may negatively affect performance. Yoga therapy may help individuals work with the physical, as well as the emotional tensions that either reduce anxiety.

Keywords: *anxiety, exam, pranayama, yoga.*

Introduction

Anxiety is a human feeling that is part of life and can often serve as a good form of adrenaline for instance, before making a speech, taking an exam, or performing on stage. However, there are methods on how to overcome nervousness and anxiety when they interfere with performance. Exam anxiety can also be experienced at varying levels. Slight exam stress can help by providing alertness, readiness, and helping you to concentrate. However, excessive exam anxiety can result in stress and negatively affect performance. Exam anxiety, just like other types of anxiety, tends to occur like a wave. It will increase from the time you first recognize it, come to a peak, and then naturally subside [1].

The flawed examination system and the highly competitive environment governed by the market forces, create tremendous competition for every job and profession, placing a great amount of strain on individuals appearing for exams [2].

Strangely, stress levels peak to a crescendo, just before the dreaded 'Board exams' in class 10 and 12. There is a great emphasis on academic excellence, as it is a gateway to a future of bright career prospects.

Often, even parents get caught in this vortex of exam stress, further heightening their child's tension with undue expectations. As a result, children feel double the pressure so as not to let their parents down [3].

Many students experience anxiety while undertaking exams. There are four main areas of stress which can contribute to exam anxiety: lifestyle issues, lack of required information, studying style, and psychological factors [4].

Students face a lot of pressure in school. Some of the excellent sources of stress and anxiety of students are the dreaded examinations and evaluation tests. Usually, the anxiety felt by students serves as a good motivator to study and perform well. However, there are times when some students worry more than they should really worry regarding their exams. Various studies showed that exam anxiety affects almost 50% of students in India. The prevalence rates range from 4.0% to 25.0%, with an average rate of 8.0% [5].

More research indicates that more than 33% of US elementary and secondary students experience some exam anxiety [6].

Keeping in view the above findings in the literature, we believe that droves of students have exam-related anxiety, particularly among SSLC students. These students struggle significantly with academic activities. If this anxiety is left untreated, performance anxieties continue into adulthood, hindering career choices and lowering the quality of life. Anxiety levels vary from student to student, and only a small fraction of exam-anxious students ever receive adequate anxiety reduction training. Therefore, it is important to measure the anxiety levels in different students and provide proper interventions to resolve it. The goal is to reduce symptoms of examination anxiety, which can lead to problems such as school dropouts, running away, depression, or even suicide, and to help the students face the board exams without distress. For this reason, yoga and pranayama are used as methods to reduce examination anxiety among the 10th-standard students.

This study aimed to assess the level of examination anxiety of 10th-standard students before implementing yoga therapy and pranayama in experimental and control group and also to evaluate the effectiveness of yoga therapy and pranayama in reducing examination anxiety among them.

Methods

Research design

An experimental research design was used for conducting this study.

Sample and sample size

The sample size of the study was 60, students of 10th-standard students from selected high schools in Bangalore.

Sampling technique

Simple random sampling technique was used to select the samples of this study. Sixty students of 10th-standard from the selected from high schools in Bangalore, India Bangalore were

selected. On the first day, the 10th standard students who met the inclusive criteria were selected and their names were recorded. Samples were selected on consecutive days until the sample size reached 60.

Inclusion criteria

The study included 10th standard students, who:

- Were studying in selected high schools Bangalore.
- Able to do yoga and pranayama
- Willing to participate in the study.
- Able to read and write in English or Kannada

Exclusion criteria

The study excluded 10th standard students, who:

- Participated in the pilot study
- Were not available during data collection.
- Were specially challenged.

Data collection procedure

Prior to the study ethical approval was obtained from the institutions' ethical committees. The data was collected from 10th-standard students in Delhi Public School, Bangalore. Written permission was sought and obtained from the authorities concerned. The period of data collection was 4 weeks. Informed consent was taken from each participant and the purpose of the study was explained to them. Students were made comfortable, and privacy was taken into account while conducting this study. Instructions to answer the questionnaire were given. A pre-test was conducted through a modified anxiety rating scale to assess the level of examination anxiety among the participants. Yoga therapy and pranayama were explained and demonstrated to the experimental group along with counselling, and only counselling was given to the control group. Yoga and pranayama were carried out three days a week for four weeks under the supervision of a yoga trainer. After 14 days of initiating the intervention, a posttest was conducted for participants, in both the experimental and the control group to assess their reduction in exam anxiety.

Data analysis

The data obtained was analyzed using descriptive and inferential statistics. Mean and standard deviation were used to assess the pre-test and post-test level of examination anxiety among 10th standard students in experimental and control group. Paired 't' test was used to evaluate the effectiveness of yoga therapy and pranayama in reducing examination anxiety among 10th standard students at $P \leq 0.01$ level of significance.

Results

Socio-demographic variables

Table 1 shows demographic variables such as age, gender, religion, type of family, area of residence, family monthly income, personal history of anxiety.

Anxiety level

Table 2 depicts the pretest level of examination anxiety among 10th standard students in experimental and control group. Among 30, students in experimental group majority 18(60%) of them had severe level and 12(40%) of them had moderate level of examination anxiety, whereas in the control group 22(73.33%) had severe and the remaining 8 (26.67%) of them had moderate level of examination anxiety.

Table 3 describes the mean pre-test scores of examination anxiety among students in experimental and control group. It was observed that, 10th standard students in experimental group had mean pre-test examination anxiety of 100.02 with SD 13.07 whereas in the control group mean pre-test examination anxiety and SD were 104.77 and 12.09 respectively.

Table 4 illustrates post-test level of examination anxiety among 10th standard students in experimental and control group. Among 30 10th-standard students in experimental group, majority 23 (76.67%) had a normal level, 7 (23.33%) of them had moderate level, whereas in control group 17 (56.67%) of them had severe level, 13 (43.33%) of them had a moderate level of examination anxiety.

Table 5 describes a mean post-test score of examination anxiety among 10th standard students in experimental and control group. It was observed that, 10th standard students in experimental group had mean post-test examination anxiety score of 54.01 with SD 7.64 whereas in control group mean post-test examination anxiety score and SD were 101.43 and 11.39 respectively.

Yoga and Pranayama

Table 6 depicts the effectiveness of yoga therapy and pranayama in reduction of examination anxiety among 10th standard students. It is inferred that, in the experimental group, the overall paired 't' test value was 11.60, which is significant to the table value 2.7 at $p \leq 0.01$ level. This proves that yoga therapy and pranayama were effective in reducing examination anxiety among 10th standard students. In contrast, in the control group, the overall paired 't' test value was 0.82, which is not significant to the table value 2.7 at $p \leq 0.01$ level, indicating that there is no change in examination anxiety among the control group.

Discussion

To assess the level of examination anxiety of 10th standard students before implementing yoga therapy and pranayama

It was observed that, in pre-test, among 30 students in experimental group majority 18 (60%) had severe and 12 (40%) of them had moderate level of examination anxiety with mean score of 100.02 whereas in control group 22 (73.33%) of them had severe and remaining 8 (26.67%) of them had moderate level of examination anxiety with mean score of 104.77.

The finding of the present study is supported by the findings of the following studies.

A study conducted on a group of 100 students-50 boys and 50 girls from 10th and 12th grades - aimed to assess the Test Anxiety Levels of Board Exam Students in Tamil Nadu, India, before the board exams. The study discussed exam-related anxiety, finding that among the boys, 8% had

severe, 38% recorded moderate, and 4% had mild anxiety. On the other hand, severe anxiety was not found among girls. The significance of difference between the mean value of male and female students was calculated by independent sample - test and the existing difference was found to be statistically significant. Levene's test showed that the variability among males and females is more or less the same (value = 0.06). [7].

The findings of the present study as well as previous studies showed that students had severe levels of examination anxiety and measures should be undertaken to reduce their anxiety level. In this study a comparison was made between the pre-test and post-test mean scores to evaluate the effectiveness of yoga therapy and pranayama in reducing examination anxiety among 10th standard students. It was observed that, in the experimental group the overall mean pre-test and post-test mean scores were 100.02 and 54.01 respectively with paired 't' value of 11.60, which was above the table value 2.7 at $P \leq 0.01$ level of significance. Hence the research hypothesis H1 is accepted. Whereas in control group, the overall mean pre-test and post-test mean score was 104.77 and 101.43 respectively with paired 't' value of 0.82, which is not significant at $P \leq 0.01$ level of significance.

In an experimental study conducted at Azad University, Iran to evaluate the influence of pranayama in relieving symptoms of test anxiety in 107 postgraduate Iranian students the researchers found average prevalence of test anxiety in the experimental group pre- and post-yoga intervention was 18.48 ± 5.68 and 16.00 ± 4.81 , respectively. Researchers have used the convenience sampling method and randomly assigned the participants into experimental and control groups. The study concluded that pranayama could lead to a significant reduction in perceived levels of anxiety. The researcher suggests that pranayama can be considered for a nervous student or anyone who is familiar with how anxiety manifests itself in the body and mind [8].

The present study and previous studies clearly showed that yoga therapy and pranayama were effective in reducing examination anxiety among 10th standard students.

Effectiveness of yoga therapy and pranayama in reducing examination anxiety among 10th standard students

In this study, a comparison was done between the pre-test and post-test mean scores to evaluate the effectiveness of yoga therapy and pranayama in reducing examination anxiety among 10th standard students.

The finding of the present study is supported by the findings of the following studies.

An experimental study was conducted in Kendriya Vidyalaya, Agra India to evaluate the influence of pranayama on academic performance of 9th and 11th standard students. A sample of 50 students (28 boys, 22 girls) was selected using convenience sampling and randomly assigned. The study findings revealed that the average prevalence of performance post-pranayama intervention was 77.82±11.5 and 99±10.1, respectively. When compared with pre and post, girls who participated in pranayama classes showed significant improvement in performance from 77.7±10.9 to 98±11 and boys were from 77±11.9 to 99.6±11. The study concluded that pranayama could lead to a significant reduction in perceived levels of anxiety. The researcher suggests that pranayama can be considered as a complementary therapy for improving their academic performance [9].

In another study conducted in a private yoga clinic, India to find the effect of yoga on depression and anxiety in women. The average prevalence of depression in experimental group pre and post-yoga intervention was 12.82±/-7.9 and 10.79±/-6.04, respectively, a statistically insignificant decrease (p=0.13). However, when compared the experimental and control group post intervention showed a decrease in state anxiety (p=0.03) and trait anxiety (p<0.001). This researcher suggests that yoga can be considered as a complementary therapy or as an alternative

method for medical therapy in the treatment of anxiety disorders [10].

The present study, along with previous studies clearly showed that yoga therapy and pranayama were effective in reducing examination anxiety among 10th standard students.

Conclusion

This study demonstrated that interventions involving yoga and pranayama can effectively reduce examination anxiety. These methods are worth considering as alternative therapies for managing anxiety. Future research should explore whether reducing anxiety through these techniques has any impact on students' exam performance.

Limitations

This study is delimited to:

- The assessment of the level of examination anxiety was based only on the correct responses given to the items in the anxiety scale.
- Data were Collected only from 10th standard students in selected high schools, Bangalore, India.
- 60, 10th standard students.
- 4 weeks of data collection.

Recommendations

- Study may be conducted by comparing the students living in hostel, in a home can have different methods of coping.
- Study may be conducted for the students involved in physical activity / using relaxation methods / listening music etc.
- Study may be conducted by comparing the 10th and 12th standard students to find the effect of yoga and pranayama.

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Conflict of Interest

None

Authors contribution

JAM- Main researcher conducted research, and draft original manuscript; VSM- Co-researcher, reviewed, edited, and finalized manuscript.

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None

Table 1. Frequency and percentage distribution of selected socio-demographic variables of 10th standard students.

Characteristics	Category	Respondents			
		Experimental Group		Control Group	
		N	%	N	%
Age	15 years	20	66.67	26	86.67
	16 years	7	23.33	4	13.33
	17 years or above	3	10	0	0
Gender	Male	18	60	7	23.33
	Female	12	40	23	76.67
Religion	Hindu	16	53.33	10	33.33
	Muslim	6	20	8	26.67
	Christian	8	26.67	12	40
	Others	0	0	0	0
Area of residence	Urban	23	76.67	30	100
	Rural	7	23.33	0	0
Family monthly income	Rs. 5000 or below	1	3.33	0	0
	Rs. 5001-15000	9	30	3	10
	Rs. 15001-25000	14	46.67	8	26.67
	Rs. 25001 or above	6	20	19	63.33
Supporting system	Family members	24	80	29	96.67
	Relatives and friends	5	16.67	1	3.33
	Neighbors	1	3.33	0	0
Personal history of anxiety	Nil	0	0	0	0
	Yes	2	6.67	29	3.33
	No	28	93.33	1	96.67

Table 2. Pre-test level of examination anxiety among 10th standard students in experimental and control group.

Level of Anxiety	Score	Respondents			
		Experimental Group		Control Group	
		N	%	N	%
Low level of anxiety	0-50	0	0	0	0
Moderate level of anxiety	51-100	12	40	8	26.67
Severe Level of anxiety	101-150	18	60	22	73.33
Total		30	100	30	100

Table 3. Mean pre-test score of examination anxiety among 10th standard students in experimental and control group

Area wise anxiety assessment	Max Statement	Max Score	Experimental Group			Control Group		
			Range	Mean	SD	Range	Mean	SD
Assessment of stressors	15	45	8-42	29.85	8.95	12-44	31.09	7.38
Physical Symptom	8	24	4-23	16	4.86	6-21	15.57	4.90
Emotional symptom	14	42	9-42	28.5	8.7	8-43	30.60	7.81
Mental symptom	7	21	8-21	14.45	4.06	10-21	14.01	3.93
Behavioral symptom	6	18	3-18	11.21	3.7	5-18	12.69	3.15
Overall	50	150	32-146	100.02	13.07	41-147	104.77	12.09

Table 4. Post-test level of examination anxiety among 10th standard students in experimental and control group.

Level of Anxiety	Score	Respondents			
		Experimental Group		Control Group	
		N	%	N	%
Low level of anxiety	0-50	23	76.67	0	0
Moderate level of anxiety	51-100	7	23.33	13	43.33
High Level of anxiety	101-150	0	0	17	56.67
Total		30	100	30	100

Table 5. Mean post-test score of examination anxiety among 10th standard students in experimental and control group

Area wise anxiety assessment	Max Statement	Max Score	Experimental Group			Control Group		
			Range	Mean	SD	Range	Mean	SD
			Assessment of stressors	15	45	2-32	17.08	6.33
Physical Symptom	8	24	4-13	8.62	3.04	4-22	15.37	4.24
Emotional symptom	14	42	3-23	14.61	5.61	5-41	29.81	6.91
Mental symptom	7	21	2-16	7.31	2.94	9-20	13.64	3.47
Behavioral symptom	6	18	0-13	6.39	1.92	5-19	12.32	3.04
Overall	50	150	11-97	54.01	7.64	35-141	101.43	11.39

Table 6. Effectiveness of yoga therapy and pranayama in reduction of examination anxiety among 10th standard students

Group	Aspect	BP of Respondents		Paired 't' test
		Mean	SD	
Experimental Group	Pre-test	100.02	13.07	11.60**
	Post-test	54.01	7.64	
Control Group	Pre-test	104.77	12.09	0.82
	Post-test	101.43	11.39	

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