

Impact of Pranayama and Mindfulness Meditation on Aggression and Anxiety among Visually Impaired Students

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Abstract: *This study aimed to investigate the impact of Pranayama and Mindfulness Meditation on reducing aggression and anxiety among visually impaired students. Thirty (30) students were purposively selected and divided into an experimental group and a control group. The experimental group underwent a 13weeks (Four days per week) training regimen involving Pranayama and Mindfulness Meditation, while the control group received no intervention. Pre - test and post - test scores on aggression and anxiety were compared. The findings revealed a significant reduction in aggression and anxiety levels in the experimental group, highlighting the potential benefits of these practices for visually impaired students.*

Keywords: Pranayama, Meditation, Aggression, Anxiety and Visually Impaired Students

1. Introduction

Yoga is a practice that dates back more than 5, 000 years to India and is used to balance and harmonize the body, mind, and emotions. Yoga is beneficial for managing various lifestyle disorders (Liu XC & Pan L. et al.2014). The practice of Yoga is thought to have originated at the birth of civilization. The science of yoga dates back thousands of years, even before the fundamental religions or belief systems emerged. According to Hindu legend, Shiva is the first yogi or Adiyogi, and thus the first Guru or AdiGuru. Many thousand years ago, on the shores of Lake Kantisarovar within the mountain range, Adiyogi poured his profound knowledge into the fabled Saptarishis, or “seven sages”. The sages spread this strong yogi’s science throughout the world, including Asia, East, Northern Africa, and South America. Curiously, contemporary students have noticed and amazed at the close resemblance observed between ancient societies around the world. (Dr. Ishwar V. Basavaraddi.2015). Many studies have investigated the effect of yoga practices on biochemical, electrophysiological cellular genetic and neuromuscular outcome measures. This has provided an access for diseases to be practically treated with yoga and is also being recognized today as a means of treatment on global level. Yoga, which has historically been a mind - body practise with spiritual enlightenment as its ultimate objective, is a science of health management rather than a cure for treating particular disorders (Jyotsna, VP.2014). Several hundred research investigations conducted over the past 40 years have shown a number of notable findings, including modifications in the psychological and transpersonal domains (Shapiro, S. L & Walsh, R, 2003). Environmental pollution, rapid industrialization, overcrowding, sedentary lifestyle due to massive use of software technology, situational stress and anxiety are main responsible factors for deterioration of

human physical health. With increased awareness and interest in health and natural remedies, breathing techniques (Pranayamas) are gaining importance and becoming acceptable throughout the world. Similarly, Yoga seems to improve stress and anxiety in levels equivalent or even greater than these reported (Caroline et al., 2007). Yogic breathing is a unique method for balancing the autonomic nervous system and influencing psychological and stress - related disorders. Yogic breathing techniques enhance well - being, mood, attention, mental focus, anxiety, and stress tolerance (Brown, R. P & Gerbarg, P. L, 2005). Yogic exercise and pranayama are psychophysical practices to culture body and mind. Yogic exercise and pranayama are known to significantly improve health status and reduce stress and anxiety in our daily life (Pradhan, K 2018). The meditation practise proved efficient at reversing negative mindset by identifying negative components of emotions (stress, social anxiety, and hostility) and eliminating them via contemplation (Yang - Gyeong Yoo RN & Duck - Joo Lee, et al., 2016). Global scientific and technical advancement is proof of peoples increased creativity, emotional sensitivity, and violence (Nagendra & Nagarathna, et al., 1997). Aggression is defined as when one person intentionally hurts or attempts to hurt another person, either verbally or physically (Ram Kumar Gupta & Shailendra Singh, et al., 2015). The brains amygdale and limbic system regulate aggressive behaviour (Adams, 1968).

Purpose of the study

The purpose of this study was to evaluate the effects of Pranayama and Mindfulness Meditation on Aggression and Anxiety in visually impaired students.

2. Methodology

Selection of the Subjects

For the purpose of present study Thirty (30) visually impaired school students were selected for this study. Shree Hanuman Prasad Poddar Andha Vidyalaya, Varanasi, Uttar Pradesh, India, Subjects were selected using a purposive sampling technique for the study.

Experimental design

Random group design was used for the purpose of the present study. First, the subjects were equally divided into two groups (Group 'A' n=15, Group 'B' n=15) with Thirty (30) samples. 'A' represents the experimental group, and 'B' represents the control group. Prior to the administration of the test, pre - test scores for Aggression and Anxiety. After thirteen weeks of training, post - test scores were collected on Aggression and Anxiety. The experimental group perform the Pranayama (20 minutes) i. e., Nadi Shodhana Pranayama, Bhramari Pranayama, Ujjayi Pranayama and Kapalbhathi Pranayama. Mindfulness Meditation (20 minutes) practice was i. e., Mindfulness meditation (breathing technique) total duration of practice was 40 minutes for four days/weeks. The control group did not receive any instructions.

Table 1: Training schedule for pranayama and meditation practices

S. no	Pranayama & Meditation	Duration	Repetition
1.	Nadi Shodhana Pranayama	5 minutes	5 times
2.	Bhramari Pranayama	5 minutes	5 times
3.	Ujjayi Pranayama	5 minutes	5 times
4.	Kapalbhathi Pranayama	5 minutes	2 times/100 Strokes
Five Minutes Rest in Savasana			
5.	Mindfulness Meditation (Breathing Technique)	20 minutes continue	1 times

Table 2: Selected parameters & measuring tools

Sl. no	Psychological Variables	Test/ Questionnaire	Author Name	Units
1	Anxiety	Anxiety Questionnaire	Nist and Diehl, 1990	By Scoring
2	Aggression	Aggression Questionnaire	Dr. G. C. Patti	By Scoring

Data Collection Procedure:

In this study, total of two psychological variables was selected, i. e., (1) Aggression and (2) Anxiety.

1) Aggression

Objects: To measure the aggression of the subjects.

Tools: Dr. G. C. Patti aggression questionnaire.

Method: The standardized psychological tool devised by Dr. G. C. Patti was used to quantify the aggression. There were sixteen (16) statements and each statement consisted of three response answer. The respondents checked the box next to the answer that most closely matched their answers. Every participant had a proper space and was seated in their assigned place. And they were given proper information before filling the questionnaire. The subjects were asked to

tick the box next to each response on a questionnaire in Braille format that they believed accurately reflected their personalities. Each statement's score was totalled up and given its own individual score.

According to Dr. G. C. Patti aggression scale, each question is given an alternative score for the three answers. For example, 17 points for a first answer to the first question, 32 points for a second answer, and 45 points for a third answer. And by adding those scores, the aggression score is calculated. Highest scoring is the aggression above 572 and lowest scoring is the aggression 412, lowest score is the low aggression proneness and higher score is the high aggression proneness.

2) Anxiety

Objects: Anxiety level of the subjects.

Tools: Nist and Diehl, 1990 Anxiety Questionnaire.

Method: The individuals Anxiety Questionnaire was measured using a standardized Nist and Diehl questionnaire. There were ten (10) statements about various types of anxiousness. There were five response levels, "Never", "Rarely", "Sometimes", "Often" and "Always". Each subject was seated in their designated place with proper space. Also, before they filled out the questionnaire, they received accurate information. The subjects were asked to tick the box next to each response on a questionnaire in Braille format that they believed accurately reflected their personalities. Each statement's score was totalled up and given its own individual score.

Scoring: Each statement was assessed on 5 points likart scale namely 1 = Never, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Always. Scores were obtained in the range of 10 to 50. A low score (10 - 19) indicates less suffering from anxiety, scores from (20 - 35) indicate probably healthy stress and tension, scores from (36 - 50) suggest unhealthy level of anxiety.

Statistical procedure

To the effect of Pranayama and Mindfulness Meditation practices on Aggression and Anxiety Analysis of Covariance, significance level was set at.05 levels. For the purpose of the analysis of data was used SPSS - 24 Software.

3. Results and Findings

Results and findings Data were collected on thirty (30) subjects belonging to two groups i. e. one experimental and one control group to study the effect of Pranayama and Mindfulness Meditation practices on the Aggression and Anxiety among visually impaired school students. The subjects of both groups were compared on Aggression and Anxiety. The results of analysis of covariance were presented below: Aggression and Anxiety.

1) Aggression

Table 1.1: Mean and Standard Deviation of Aggression for post testing Control and Experimental Group

Group	Mean	Standard Deviation	N
Control Group	541.47	36.190	15
Experimental Group	469.67	47.174	15
Total	505.57	55.135	30

Mean and Standard Deviation of Control and Experimental group for Aggression during post - test are given in the Table 1.1. The post - test mean and standard deviation of Aggression in the control group were 541.47 ± 36.190 . And the post - test mean and standard deviation of Aggression for experimental group are 469.67 ± 47.174 . Also the mean and standard deviation for all the students i. e.30 is 505.57 ± 55.135 .

Table 1.2: Descriptive Statistics for the post - test data after Adjustment with the initial difference in Relation to Aggression: Adjusted post - test mean

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control Group	542.266 ^a	9.021	523.756	560.776
Experimental Group	468.867 ^a	9.021	450.358	487.377

The following values are used to evaluate covariates that are included in the model: Pre groups = 545.40.

Table 1.4: Post Hoc Comparison for the group adjusted paired means in post - test Aggression

(I) Group (J) Group	Mean difference (I - J)	Std. Error	P value	95% Confidence Interval for Difference	
				Lower Bound	Upper Bound
Control Experimental	73.399*	12.761	.000	47.214	99.583
Experimental Control	- 73.399	12.761	.000	- 99.583	- 47.214

According to estimated marginal means

- a. The mean difference is statistically significant at the 0.05 level.
- b. Adjusted for multiple comparisons: The least significant difference (equal to no adjustments).

Since the F - ratio in the above mentioned table (Table No 1.3) is significant; a pair wise comparison has been made in Table No 1.4. After reading the Table No1.4 it may be noted here that p - value is less than 0.05, it is significant at 0.5 level. Thus following conclusion can be drawing.

There is a significant difference between the adjusted post - test mean of the experimental group and the control group on the basis of aggression during post - testing.

Adjusted post - test mean of Aggression shown in the above table are different with Table No 1.1 because here we eliminated the effect of covariant on the basis of initial difference in pre test score.

Table 1.3: Analysis of Co - variance (ANCOVA) table for post - test data in relations to Aggression

Source	Sum of Squares	df	Mean Square	F	P value
Corrected Model	55215.225 ^a	2	27607.613	22.629	.000
Intercept	421.130	1	421.130	.345	.562
Pre	16550.925	1	16550.925	13.566	.001
Treatment Group	40358.388	1	40358.388	33.08	.000
Error	32940.141	27	1220.005		
Total	7756085.000	30			
Corrected Total	88155.367	29			

a. R Squared = .626 (Adjusted R Squared = .599)

Table 1.3 represented the ANCOVA for Aggression which showed the significant difference between the experimental and control group after being adjusted the pre - test covariate. The F - value found in the table is 33.08 which is significant at.05 level of significance since P - value for treatment group is.000 which is less than.05.

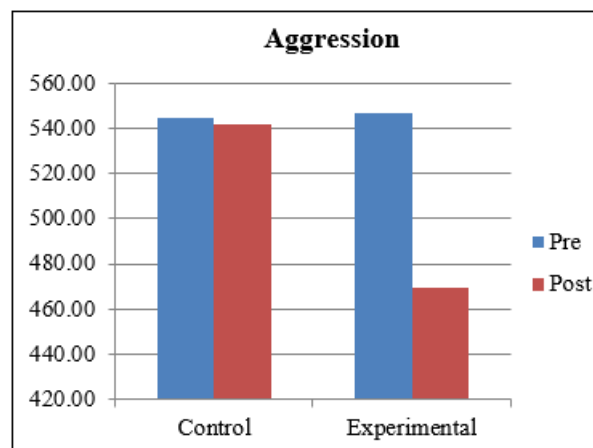


Figure 1: Graphical Representation of Aggression of Pre & Post Test Mean of Control and Experimental group

The above figure presents the graphical representation of the pre and post - test mean of Aggression for both the experimental and control group.

2) Anxiety

Table 2.1: Mean and Standard Deviation of Anxiety for post testing Control and Experimental Group

Group	Mean	Standard Deviation	N
Control Group	20.53	1.885	15
Experimental Group	19.93	1.280	15
Total	20.23	1.612	30

Mean and Standard Deviation of Control and Experimental group for Anxiety during post - test are given in the Table 2.1. The post - test mean and standard deviation of Anxiety in the control group were 20.53 ± 1.885 . And the post - test mean and standard deviation of Anxiety for experimental group are 19.93 ± 1.280 . Also the mean and standard deviation for all the students i. e.30 is 20.23 ± 1.612 .

Table 2.2: Descriptive Statistics for the post - test data after Adjustment with the initial difference in Relation to Anxiety: Adjusted post - test mean

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Control Group	20.939 ^a	.280	20.365	21.513
Experimental Group	19.528 ^a	.280	18.954	20.101

The following values are used to evaluate covariates that are included in the model: Pre groups = 20.63.

Adjusted post - test mean of Anxiety shown in the above table are different with Table No 2.1 because here we eliminated the effect of covariant on the basis of initial difference in pre test score.

Table 2.3: Analysis of Co - variance (ANCOVA) table for post - test data in relations to Anxiety

Source	Sum of Squares	df	Mean Square	F	P value
Corrected Model	45.421 ^a	2	22.711	20.477	.000
Intercept	5.797	1	5.797	5.227	.030
Pre	42.721	1	42.721	38.519	.000
Treatment Group	13.393	1	13.393	12.076	.002
Error	29.945	27	1.109		
Total	12357.000	30			
Corrected Total	75.367	29			

a. R Squared = .603 (Adjusted R Squared = .573)

Table 2.3 represented the ANCOVA for Anxiety which showed the significant difference between the experimental and control group after being adjusted the pre - test

covariate. The F - value found in the table is 12.076 which is significant at .05 level of significance since P - value for treatment group is .002 which is less than .05.

Table 2.4: Post Hoc Comparison for the group adjusted paired means in post - test Anxiety

(I) Group (J) Group	Mean difference (I - J)	Std. Error	P value	95% Confidence Interval for Difference	
				Lower Bound	Upper Bound
Control Experimental	1.411*	.406	.002	.578	2.245
Experimental Control	- 1.411*	.406	.002	- 2.245	-.578

According to estimated marginal means

- a. The mean difference is statistically significant at the 0.05 level.
- b. Adjusted for multiple comparisons: The least significant difference (equal to no adjustments).

Since the F - ratio in the above mentioned table (Table No 2.3) is significant; a pair wise comparison has been made in Table No 2.4. After reading the Table No 2.4 it may be noted here that p - value is less than 0.05, it is significant at 0.05 level. Thus, following conclusion can be drawn.

There is a significant difference between the adjusted post - test mean of the experimental group and the control group on the basis of Anxiety during post - testing.

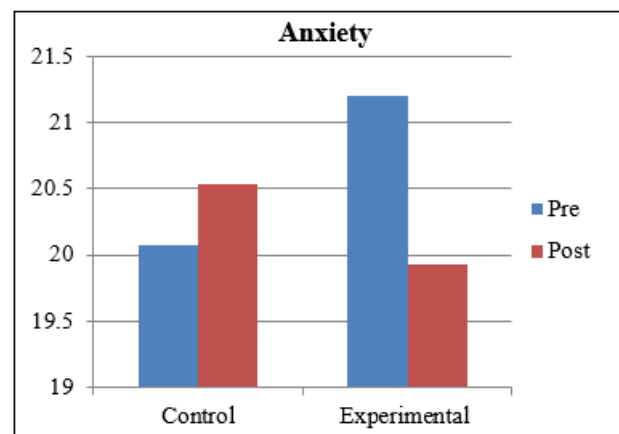


Figure 2: Graphical Representation of Anxiety of Pre & Post Test Mean of Control and Experimental group

The above figure presents the graphical representation of the pre and post - test mean of Anxiety for both the experimental and control group.

4. Results of the Study

- 1) The results of an Analysis of Co - variance (ANCOVA) to find out the Effect of pranayama and mindfulness

meditation on Aggression where F - ratio of 33.08 (P=.000) It was found to be statistically significant at the.05 level.

- 2) The results of an Analysis of Co - variance (ANCOVA) to find out the Effect of pranayama and mindfulness meditation on Anxiety where F - ratio of 12.076 (P=.002) It was found to be statistically significant at the.05 level.

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5. Conclusion

The study concludes that Pranayama and mindfulness meditation significantly improve Aggression and Anxiety among visually impaired students. These findings underscore the potential of these practices to enhance the psychological wellbeing of this population, advocating for their inclusion in mental health and educational programs.

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