



Impact of Mindfulness Program on Anxiety in Senior Secondary Students

Pummy Sheoran
PeaceFiles,
Aurangabad, Maharashtra
peacefiles.org

Abstract— Anxiety is becoming a serious and prevalent problem among the present day students. The problem becomes more profound during crucial stages of career like the senior secondary stage. Continued anxiety may lead the students into unhealthy ways of coping which then become other symptoms like alcohol and drug use, dissociation responses, eating disorders and other unhealthy behaviours designed to avoid anxiety. The implications of anxiety on psychological health of young students call for an investigation into effective intervention techniques. The ways in which anxiety is treated are varied and the use of alternative therapies is gaining momentum. Among the alternative therapies, mindfulness is proving to have a positive effect on health and psychological well-being. The present study was designed to evaluate the impact of mindfulness based intervention in reducing anxiety among senior secondary students. To determine the effectiveness of this intervention, a randomised pre-test and post-test control group design was used. A total of 77 senior secondary students referred for anxiety counselling were evaluated using Spielberger State Trait Anxiety Inventory (STAI). They were then divided into experimental and control groups randomly. The experimental group (N=39) participated in two weekly mindfulness classes of 45 minutes duration for 6 weeks. The control group (N=38) was assigned to a waiting list. After 6 weeks, the mean scores of the two groups were compared using ANOVA and t-test. The post-test scores of students who participated in mindfulness program showed significant decrease in state anxiety as well as trait anxiety. The study suggests that mindfulness can be considered as a complementary or alternative therapy in the treatment of anxiety problems among students.

Index Terms— Alternative therapy, anxiety, complementary therapy, mindfulness, stress, students.

INTRODUCTION

The student phase is supposed to be one of the most exciting and interesting phases in the life-span of an individual. There are new learnings and new possibilities and each day could be a reason to explore the immense potential a human is bestowed with. However, sadly enough, the present day student is more anxious and stressed out than ever before.

Anxiety

Anxiety is one of the most common psychological disorders in school-aged children and adolescents worldwide [1]. The prevalence rates of anxiety range from 4.0% to 25.0%, with an average rate of 8.0% [2] [3]. Moreover, anxiety among

a large number of children and adolescents goes undiagnosed owing to the internalized nature of its symptoms [4].

Anxiety is an emotional state that is generated from a number of internal representations of potential future dangers [5]. In the psychiatric manual DSM-V [6], prolonged anxiety is described in terms of symptoms such as feeling restless, fatigued, keyed-up, irritable, suffering from muscular tension, and being unable to sleep or concentrate. Academic performance, pressure to succeed, and post-graduation plans are significant sources of stress, depression and anxiety among students [7]. In India, the main documented cause of anxiety among school children and adolescents is parents' high educational expectations and pressure for academic achievement [8].

Mindfulness

Mindfulness is the English translation of "Sati" in Pali, an ancient language from northern India. Sati means: memory, recognition, consciousness, intentness of mind, wakefulness of mind, mindfulness, alertness, lucidity of mind, self-possession, conscience, self-consciousness [9]. In psychological terms, mindfulness is defined as the awareness that emerges through paying attention on purpose, in the present moment, non-judgmentally to the unfolding of experience moment by moment [10]. Though we are always paying attention to something, but what is important in mindfulness is paying attention on purpose, focussing our attention on object of our choice. Paying attention in the present moment implies being willing to let go off the past and future and experience life in the here-and-now. Non-judgmentally stands for a state of non-evaluation of our experiences as good or bad, just observing them as it is and letting go.

Mindfulness is both a skill and practice. The first and perhaps the most well-known mindfulness-based intervention to gain empirical support in the treatment of psychological symptoms is mindfulness-based stress reduction (MBSR), developed by Jon Kabat-Zinn in the early 1980s [11]. Mindfulness principles have been integrated into other notable therapeutic interventions such as Dialectical Behavioral Therapy [12] and Acceptance and Commitment Therapy [13].



REVIEW OF LITERATURE

Research shows that anxiety has its own social and emotional burdens. Some of the most common consequences of anxiety among students include poor social and coping skills, often leading to avoidance of social interactions [14] [15], loneliness, low self-esteem, perceptions of social rejection, and difficulty forming friendships [15][16]. Importantly, school avoidance, decreased problem-solving abilities, and lower academic achievement have also been noted as consequences [17] [18] [19].

Studies show that mindfulness meditation program resulted in decreased state and trait anxiety, enhanced social skills, and improved academic performance among adolescents with learning disabilities [20]. In another study, participants randomly assigned to an 8-week MBSR training group were compared to waitlisted controls on self-report measures of depression, anxiety, and psychopathology and on neural reactivity as measured by functional magnetic resonance imaging (fMRI) after watching sad films [21]. Participants exposed to Mindfulness Based Stress Reduction (MBSR) displayed significantly less anxiety, depression, and somatic distress relative to the control group [21]. A recent meta-analysis of 39 studies supports the efficacy of mindfulness-based therapy for reducing anxiety and depression symptoms [22]. Mindfulness meditation leads to increased positive affect and decreased anxiety and negative affect [21] [23] [24] [25] [26]. Mindfulness meditation decreased anxiety levels, while also significantly lowering stress levels in nursing students [27]. Hoge and colleagues [28] found that MBSR outperformed an active stress-management education program in a group of individuals with generalized anxiety disorder.

SIGNIFICANCE OF STUDY

The world is moving at a fast pace trapping the present generation in the whirlwind of continuous momentum. The present day student is no exception to this phenomenon. There's a lot that catches the mind's attention, every moment of the day. Classroom projects and assignments, examination schedules, choice of education stream and careers, adjustment with peers, parents and teachers, self-esteem and body image issues, romantic relations and break-ups – there's a lot that is going on in the lives and minds of present day students that is sufficient to overwhelm their minds at any given time. Continued anxiety may lead the students into unhealthy ways of coping which then become other symptoms like alcohol and drug use, dissociation responses, eating disorders and other unhealthy behaviours designed to avoid anxiety. Anxiety, depression, mental health and daily stresses have also been found to have positive relationship with suicidal ideations [29] [30]. The adverse effects of anxiety on the physiological as well as psychological health necessitate the implementation of

effective anxiety management and anxiety reduction techniques.

Mindfulness practices focus on being present in the moment and can thereby alleviate the suffering that often accompanies depression and anxiety. Though mindfulness based interventions for anxiety have been researched time and again, there is comparatively limited data on the effectiveness of mindfulness in reducing anxiety among school students. The present study attempts to fill this gap and open newer vistas for the application and research of mindfulness based programs in the arena of anxiety management at school levels.

Objectives

1. To determine the impact of mindfulness program on State Anxiety among senior secondary students.
2. To determine the impact of mindfulness program on Trait Anxiety among senior secondary students.

DESIGN AND METHODOLOGY

Design and Participants

The study uses a randomized control group Pre-test Post-test design. A total of 77 senior secondary students (Mean Age= 16.23 ± 0.90) who were referred for anxiety counselling at PeaceFiles Counselling Centre were divided into experimental and control groups randomly.

Assessment Tool

Speilberger State Trait Anxiety Inventory (STAI): To measure the anxiety levels of the students, form Y of State-Trait Anxiety Inventory (STAI) [31] was used. Form Y, the most popular version of STAI, has 20 items for assessing trait anxiety and 20 for state anxiety. State anxiety items include: "I am tense; I am worried" and "I feel calm; I feel secure." Trait anxiety items include: "I worry too much over something that really doesn't matter" and "I am content; I am a steady person." All items are rated on a 4-point scale (e.g., from "Almost Never" to "Almost Always"). Higher scores indicate greater anxiety.

Internal consistency coefficients for the scale have ranged from .86 to .95; test-retest reliability coefficients have ranged from .65 to .75 over a 2-month interval [31]. Test-retest coefficients for this measure in the present study ranged from .69 to .89. Considerable evidence attests to the construct and concurrent validity of the scale [32].

Procedure

The participants (N=77) were placed at random in Experimental (N=39; Mean Age= 16.11 ± 0.97) and Control (N=38; Mean Age= 16.37 ± 0.82) Groups. To ensure equivalence between the Experimental and Control Groups, the



Pre-Test Means of State Anxiety (SA) and Trait Anxiety (TA) were compared between the Experimental Group (EG) and Control Group (CG) using two way ANOVA. After equivalence of the groups was established, the Experimental Group was exposed to Mindfulness based intervention program, while the Control Group constituted of waitlisted participants.

The intervention program was based on mindfulness training and practice through simple exercises. The exercises included mindful breathing, body scan, mindful walking, mindful eating, mindful listening, mindful talking, mindful thinking, mindful feeling and mindfulness meditation.

After the intervention period of 6 weeks, Post-Tests were conducted. The Post-Test Means of State Anxiety (SA) and Trait Anxiety (TA) were also compared between the Experimental and Control Groups using two way ANOVA. The significance of differences between the Pre-Test and Post-Test Means State and Trait Anxiety among the Experimental and Control Groups were analysed using t- test.

RESULTS

Figures and Tables

RESULT OF TWO WAY ANOVA FOR PRE-INTERVENTION DIFFERENCES BETWEEN GROUPS

Source of Variance	df	SS	MSS	F-ratio	Remark
Among Groups	3	478.75	159.58	7.71	P > 0.01
Between Groups SSB (EG, CG))	1	1.49	1.49	0.07	P > 0.01
Between Groups SSB (SA,TA)	1	476.89	476.89	23.03	P > 0.01
Between Groups SSB (Interaction)	1	0.36	0.36	0.02	P > 0.01
Within Groups	150	3127.16	20.71		
Total	153	4084.65	659.04		

Table values of F-ratio for df (150, 3) at 0.05 and 0.01 level of confidence are 8.53 and 26.12 respectively.

Table values of F-ratio for df (150, 1) at 0.05 and 0.01 level of confidence are 254.32 and 6366.48 respectively.

RESULT OF TWO WAY ANOVA FOR POST-INTERVENTION DIFFERENCES BETWEEN GROUPS

Source of Variance	df	SS	MSS	F ratio	Remark
Among Groups	3	15623.15	5207.72	285.25	P < 0.01
Between Groups SSB	1	15367.81	15367.81	841.76	P < 0.01

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(EG, CG))					
Between Groups SSB (SA, TA)	1	208.06	208.06	11.40	P > 0.01
Between Groups SSB (Interaction)	1	47.28	47.28	2.59	P > 0.01
Within Groups	150	2756.76	18.26		
Total	153	34003.05	20849.12		

Table values of F-ratio for df (3, 150) at 0.05 and 0.01 level of confidence are 2.66 and 3.91 respectively.

Table values of F-ratio for df (1, 150) at 0.05 and 0.01 level of confidence are 3.90 and 6.81 respectively.

Table values of F-ratio for df (150, 1) at 0.05 and 0.01 level of confidence are 254.32 and 6366.48 respectively.

SIGNIFICANCE OF DIFFERENCE BETWEEN PRE-TEST AND POST- TEST MEANS OF STATE ANXIETY (SA) AND TRAIT ANXIETY (TA) BETWEEN EXPERIMENTAL GROUP (EG, N=39) AND CONTROL GROUP (CG, N=38)

D V	Groups	Mean	SD	SE _D	t' - Value	Remark	
State Anxiety	E G	Pre Test	53.82	10.14	1.97	10.90	P < 0.01
		Post Test	32.38	6.93			
	C G	Pre Test	53.53	9.99	2.30	0.02	P > 0.01
		Post Test	53.47	10.06			
Trait Anxiety	E G	Pre Test	50.21	9.52	1.85	10.30	P < 0.01
		Post Test	31.15	6.55			
	C G	Pre Test	50.11	9.52	2.18	0.04	P > 0.01
		Post Test	50.03	9.51			

Table values of t' (df=38) at 0.05 and 0.01 level of confidence are 2.02 and 2.71 respectively.

Table values of t' (df=37) at 0.05 and 0.01 level of confidence are 2.02 and 2.71 respectively.

Table 1 presents the Pre-Intervention differences between the study groups. The differences between the EG and CG were not significant (P>0.01). State Anxiety and Trait Anxiety groups also showed no significant difference. The interaction between treatment condition and study variables was also not significant. Thus, the Pre- intervention equivalence between the EG and CG was adequately established.

The F- value as seen in Table 2 for variance between the Experimental and Control Groups was 841.76, which is significant at 0.01 level of confidence. The interaction between groups was not found to be significant.



Table 3 summarizes the differences in the Mean Pre-Test and Post-Test scores on State Anxiety and Trait Anxiety between the Experimental and Control Groups. The Mean Pre-Test and Post-Test scores of State Anxiety in the Experimental and Control Groups were 53.82 and 32.38 respectively, and the t-value was 10.90 which is significant at 0.01 level of confidence. Thus, the Post-Test scores of State Anxiety were significantly lower than the Pre-Test scores ($P < 0.01$). On the other hand, the Post-Test scores of Control Group were slightly lower than the Pre-Test scores, the difference not being significant.

In case of Trait Anxiety also, Post-Test scores of Control Group were slightly lower than the Pre-Test scores, but the difference was not significant. However, the Experimental Group showed significantly reduction in Post-Test Scores. The Mean Pre-Test and Post-Test scores on Trait Anxiety in the Experimental Group were 50.21 and 31.15 respectively, and the t-value was 10.30 which is significant at 0.01 level of confidence.

DISCUSSION

In the current study we see a significant decrease in anxiety levels of the participants after mindfulness based intervention. Moreover, the differences were seen not only in State Anxiety but also in Trait Anxiety. The findings indicate that mindfulness could be considered to have an impact on even the more stable aspects of an individual's personality and behaviour.

It may be inferred that the benefits of mindfulness came from the fact that it allowed the participants to focus completely on the present. As anxiety is based on fears, worries and uncertainties related to future, when they started being mindfully engaged, they became less prone to experiencing anxiety provoking thoughts.

Mindfulness practice helped in developing the acceptance and letting-go muscles of the mind. As the participants learnt to accept the circumstances, events and situations in the present, the concerns of 'what might happen' or 'what might not happen' in future started becoming less and less worrisome to them. They started feeling less 'worried', less 'tense', less 'jittery', less 'confused', more 'at ease', more 'content', more 'calm', more 'steady' and more 'relaxed'.

SUGGESTIONS FOR FURTHER RESEARCH

The following suggestions are recommended for further research:

1. The primary suggestion for future research involves replication of the study on larger samples,
2. The present study uses self-report measures of anxiety. It should be replicated using bio-markers as measures of anxiety.

3. Longitudinal research design covering the long term impact of mindfulness will help in assessing the rate of relapses.

CONCLUSION

The current findings suggest that mindfulness based intervention techniques offer effective interventions for reducing anxiety among senior secondary students. The results corroborate with the findings of previous research [21] [22] [23] [23] [25] [26] [27].

Given the effectiveness of mindfulness programme in reducing anxiety among students, it is recommended that mindfulness training and practice should be given space and consideration in school curricula. Mindfulness should also be more and more used as a complementary and alternative therapy in the management of anxiety and related problems.

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