

ABSTRACT

BACKGROUND

Modern life, beset with tensions and anxiety, continues to crush people with an increasing number of deaths and deteriorating quality of life.

Despite technological growth and enhanced material standards of living, the real quality of living in terms of love, happiness and peace are nowhere in sight.

As science and technology are progressing, on one hand, new types of diseases are erupting thus paving the way for deteriorating quality of life. The reason for all this is stress, which we observed in the recent past, triggers Anxiety, Depression, Verbal Aggression, etc. The best way to fight stress is *Yoga*.

Yoga and spirituality contain secrets of the structure and laws of the entire universe. Through this wisdom, *Yoga* offers a unique new way of life to modern man. *Yoga* which comprises of *yogāsanas*, breathing techniques (*prānāyāma*) and meditation is known for its applications in physical fitness and a better quality of life. *Yoga* is also effective in decreasing anxiety, confusion, tension and depression (Deshpande, Nagendra & Raghuram 2008). Not only therapeutic values but also psychological, spiritual and philosophical values are accessible and achievable through *Yogic* practices. Many have immensely benefited from these practices.

Many scientific studies were done in the recent past to investigate the effect of *Yoga* and mindful meditation techniques on emotional states such as anxiety and depression. But we found that very few studies in the case of *Ānāpānasati* Meditation, a mindful breathing technique has been done. Mindful meditation techniques such as Mindfulness-Based Stress Reduction (MBSR) have shown significant improvements in psychological wellbeing. Hence, we took up scientific studies on the effect of *Ānāpānasati* Meditation also on improving the overall psychological well-being. We

had designed the present study to test the effect of *Ānāpānasati* Meditation on emotions such as anxiety, anger and depression in adults.

AIM

The study is aimed to investigate the effect of *Ānāpānasati* Meditation on anxiety, verbal aggression and depression.

OBJECTIVES:

1. To investigate the effect of *Ānāpānasati* Meditation on levels of anxiety as assessed using the scores of State-Trait Anxiety Inventory (STAI)
2. To investigate the effect of *Ānāpānasati* Meditation on levels of verbal aggression as assessed using the scores of Verbal Aggressiveness Scale (VAS)
3. To investigate the effect of *Ānāpānasati* Meditation on levels of depression as assessed using the scores of Beck Depression Inventory-II (BDI)

METHODS

Participants:

The subjects were recruited from a stream of visitors to Pyramid Valley International, Bangalore, and Pyramid Spiritual Science Academy, Bengaluru. A total of 140 subjects were recruited for the study.

Inclusion Criteria:

Both males and females in the age group of 20 to 65 years were included in the study.

Exclusion Criteria:

People with diabetes, cancer and hypertension were excluded from the study on self-report by the participants. Since the study period was 6 months, only chronic diseases were excluded.

Design:

This is a Randomized Controlled Study (RCT) and participants were recruited from Pyramid Valley International, Bengaluru and Pyramid Spiritual Science Academy, Bengaluru. We limited the sample size to 140 participants based on previous studies that had a demonstrated effect size of 0.4; with the power set to 0.8 with a 5% level of significance. GPower was used for sample size computation. Initially, 140 participants consented to participate in the study, but at the end of the screening, 10 participants withdrew as they were not interested. Ultimately, 130 participants were considered. We divided the participants randomly into experimental and control groups consisting of 65 participants each. We assigned Identification numbers (ID) to participants and picked up the assigned IDs from the set of IDs and allocated them to both the groups in such a way that the experimental group got the first ID and the control group got the next ID. We repeated the procedure till all the IDs got over. We informed the participants about their group through a sealed envelope. We did not disclose the identities of the participants of both groups i.e., participants in the experimental group did not know the participants of the control group. Similarly, participants in the control group did not know the participants of the experimental group.

We used the State-Trait Anxiety Inventory (STAI), a self-report questionnaire as the scale to study the effect of the intervention on anxiety. STAI consists of two parts, state anxiety and trait anxiety, each consisting of 20 questions which take values from 1 to 4. The present endeavour considered the state anxiety part (STAI-S) of the questionnaire for a study, which indicates the current state of anxiety in a specific situation when compared to trait anxiety which is a general tendency of the individual.

We used the Verbal Aggressiveness Scale developed by Infante and Wigley (A. Infante & Wigley, 1986) to study the effect of *Ānāpānasati* Meditation on verbal aggression. It contains 20 items scored on a 5-point linear rating format with reverse scoring in 10 out of 20 items.

We used the Beck Depression Inventory-II (Beck, 1966, 1996) as the scale for measuring the effectiveness of intervention of depression. On this scale, we have 21 items for a scoring record.

We ensured that the experimental group members were given instructions by experts in respect of *Ānāpānasati* Meditation'. They continued the practice of '*Ānāpānasati*' for one hour a day for the duration of the experiment. The control group on the other hand continued their routine work with no *Ānāpānasati* Meditation.

Assessments:

We ensured the tests by examiners before and after six months of *Ānāpānasati* Meditation in a room devoid of any disturbance or distractions. The invigilators coded and segregated the completed questionnaire cum response sheets for scoring after the study. A person not involved in the group formation evaluated the coded response sheets. A person not involved in the present study decoded the response sheets after noting the scores prior and post-administration to the respondents and the data were later prepared.

Intervention:

We administered *Ānāpānasati* Meditation as an intervention for the experimental group for six months. In this practice, we used breathing as the object of concentration. Breathing is not a physical object that arouses a distraction in the minds. It is a quiet, natural, unfluctuating and effortless process.

We administered meditation in easy steps. The practice was simply to sit comfortably in any posture convenient to them and to clasp their hands together. They are to be mindful of breathing

in and breathing out for one hour in one go every day. We advised them to restart if they happened to be unmindful of breathing during the practice of this technique. Mindful breathing facilitates experiencing knowledge besides awareness and joy. Clear comprehension is the outcome.

The demonstration of the meditation technique included the steps mentioned below.

1. To sit comfortably
2. To cross the legs (when we sit on a chair or a sofa)
3. To keep the hands together—one palm on another
4. To silence the mouth
5. To sit erect
6. To close both the eyes and
7. To observe breathing in and out while in this posture

(This practice is a mere observation of breathing in and breathing out by the consciousness [mind] with closed eyes. This procedure is mindful breathing).

Monthly Verification Program:

We ensured monthly verification of the intervention practice through the well-experienced supervisors. These supervisors have been in close contact with the participants to assist in the practice. The participants attended meditation classes once a week regularly in our designated meditation center for the duration of the intervention. We appended the photographs of the meditation center in the Pyramid Valley. The details of the participants are in the appendix.

Data Extraction:

We employed the prescribed questionnaires for the collection of data. Experienced meditator supervisors have undertaken the assignment. We carried out the scoring of the questionnaires as per the instructions in the manual.

Data Analysis:

We analysed the Data using the repeated measures ANOVA test. SPSS version 10.0 was used for the data analysis.

Results

A total of 140 participants enrolled, 130 were considered for randomization, as 10 participants were not interested in the study. Hence, there were 130 participants for the randomization. At the end of the randomization, 65 participants each were allotted to both experimental and control groups. In the follow-up, we lost 6 participants from the experimental group and 5 participants from the control group and a total of 119 participants have completed the six-month intervention successfully consisting of 59 participants in the experimental group and 60 participants in the control group. At the end of the six-month intervention, we analyzed the final BDI, STAI and VAS scores of all 119 participants from both groups.

The results of all three studies are as follows:

1. Anxiety:

We have analyzed the STAI scores before and after *Ānāpānasati* Meditation for both the experimental and control groups, using repeated-measures ANOVA. The experimental group has shown a significant reduction in STAI ($p < 0.05$) score after the intervention, whereas in the control group the reduction in STAI score was not significant. A comparison of the results shows that

there was a decline of anxiety in the experimental group from 47.61 ± 7.41 to 44.58 ± 5.08 whereas there is an increase in anxiety level 50.55 ± 4.25 to 52.02 ± 4.41 in the control group.

2. Verbal Aggression:

We took up and analyzed the VAS scores before and after *Ānāpānasati* Meditation for both the experimental and control groups using repeated-measures ANOVA. The experimental group has shown a significant reduction ($p < 0.05$) in the VAS score (66.53 ± 6.93 to 46.97 ± 6.79) after the intervention, whereas that was not a significant decrease ($p = 0.19$) in the control group in VAS scores (66.73 ± 12.15 to 64.97 ± 13.16).

3. Depression:

We analyzed the BDI scores collected before and after *Ānāpānasati* Meditation for both the experimental and control groups using repeated-measures ANOVA. The experimental group showed a significant reduction ($p < 0.05$) in the BDI score (25.78 ± 9.32 to 4.02 ± 5.33) whereas the BDI score (15.33 ± 11.43 to 16.60 ± 12.77) in the control group has increased.

4. Conclusion:

The results of the study have shown that the practice of *Ānāpānasati* Meditation has brought significant improvement in reducing the levels of anxiety, depression and verbal aggressiveness.

There was a decline in anxiety levels from pre-score 47.61 ± 7.41 to post-score 44.58 ± 5.08 in the experimental group. In verbal aggression, comparative figures of pre and post-intervention show a decline from 66.53 ± 6.93 & 46.97 ± 6.79 . There was also a decline of depression in the experimental group from 25.78 ± 9.32 to 4.02 ± 5.33 .

This study has revealed that *Ānāpānasati* Meditation had been effective in decreasing levels of anxiety, depression and verbal aggression as per their VAS, STAI and BDI scores after six months

of intervention. The subjects who practiced *Ānāpānasati* Meditation showed a dip when compared to the control group who did not practice Meditation.

As this is simple and easy to practice, we recommend the same for regular exercise to reduce their stress, anxiety and consequent depression levels and feel more energetic and positive in one's approach.

Keywords – *Ānāpānasati* Meditation, Mindfulness, Verbal Aggressiveness Scale, State-Trait Anxiety Scale, Beck Depression Inventory Scale.