

Part I: Concept of PTSD (Post Traumatic Stress Disorder) according to Modern and Indian Spiritual Lore

Part II: Effect of Yoga on Mental Alertness in Students and School Teachers affected by Tsunami Disaster

By

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ABSTRACT

PART-I CONCEPT OF PTSD (POST-TRAUMATIC STRESS DISORDER) ACCORDING TO MODERN TEXTS AND INDIAN SPIRITUAL LORE

PTSD (Post Traumatic Stress Disorder) is a psychiatric disorder which can occur following the experience or witnessing of life-threatening or traumatic events. Four types of natural disasters have been studied in developing countries. Earthquakes composed 68% of the agents, cyclones 14%, floods 11%, and volcanoes 8%. No tsunamis have been studied. (Norris, FH 2004) In modern texts, PTSD is considered as one of the main psychological disorder and they have a few management techniques to overcome these problems after the natural disasters, specialized post-disaster mental health services are very essential to overcome the mental stress (Roussos A et al, 2005). PTSD is not a new disorder. There are written accounts of similar symptoms that go back to ancient times, and there is clear documentation in the historical medical literature starting with the Civil War, when a PTSD-like disorder was known as "Da Costa's Syndrome. "In Indian scriptures", we have ample number of instances which can be compared to the state of traumatic stress disorders. This study compiles the concepts of PTSD, mainly the stress-born conditions due to any external factors especially natural disasters or wars etc. In *Mahabharata* where sage Vyasa wrote about the whole society falling apart after the *Kurukshetra* war. Depression, anger, disappointment, guilt and shame reigned among the people both who had actively participated in the war, as well as the ones who had passively watched it. Some of the reasons, lakñaëas mentioned by Vyasa are holds good even to the present conditions of PTSD (Ma. Bha.10/2/12). Sage Vyasa has mentioned management techniques for these disorders like sadä prañöavyä vruddhasammataù (Ma.Bha.10/2/22) -

listen and to understand the sayings of elders. Even now this plays an important role in the management of psychological problems in modern treatment in the form of counseling therapy. In the same way, these kinds of disorders are also found in our ancient texts like Mahābhārata, Bhagavadgēta and in Āyurvedic classical texts. Here, PTSD is considered under one among the Mānasika vyādhi, where certain management techniques are well-explained.

SUMMARY AND CONCLUSIONS

1. Posttraumatic Stress Disorder, or PTSD, is a psychiatric disorder that can occur following the experience or witnessing of life-threatening events such as military combat, natural disasters, terrorist incidents, serious accidents, or violent personal assaults.
2. The concept of PTSD is not new to the medical field. There are enough written accounts of similar symptoms that go back to ancient times.
3. It has been very well dealt in the Indian spiritual texts like Mahaabhaarata Bhagavadgiita, Pataījali yoga sūtra, Yoga vasiñōa and in Ayurvedic classical texts.
4. In *Mahabharata* where sage *Vyasa* wrote about the whole society falling apart after the *Kurukshetra* War. Depression, anger, disappointment, guilt and shame reigned among the people both who had actively participated in the war, as well as the ones who had passively watched it. Some of the reasons, lakñāēas mentioned by *Vyasa* are holds good even to the present conditions of PTSD. (Ma. Bha.10,12)
5. Sage *Vyasa* has mentioned management techniques for these disorders like *sadā prañōavyā vruddhasammataū* (Ma.Bha.10/2/22) - listen and to understand the sayings of elders. Even now this plays an important role in the management of psychological problems in modern treatment in the form of counseling therapy.
6. In *Pataījali yoga sūtra*, there are five kinds of thought waves are explained, in which some causes painful and others not painful. (P.Y.S.1/5)
7. *Acharya Pataījali*, mentions *Yoga* is the control of thought-waves in the mind. (P.Y.S.1/2)
8. In *Ayurveda*, these kinds of disorders are considered under *Manasika vyadhis*. *Acharya Caraka*, explains different kinds of psychological disorders, in which he has mentioned that the unwholesome climatic

conditions is one of the major cause for individual sufferings or miseries. (Ca. Vi. 6/5)

9. In *Caraka samhita*, *Nidana sthana*, mentions different kinds of impairments like, *Cittodvega Dhi-Druthi-Smruthi Vibramsha* that refers to stress, depression and other different kinds of psychic disorders which results after the natural disasters.
10. Bhagavadgētā, clearly explains the causes of emotion and four keys to unlock the psychological problems by mentioning Rāja yoga, Bhakti yoga, Jñāna yoga, Karma yoga. (Bha.Gi.2/62-63 , Bha.Gi.5,6)

Hence this Indian spiritual lore comprehensively gives authentic explanation for the concept of PTSD and its effective management.

PART – 2 EXPERIMENTAL RESEARCH

EFFECT OF YOGA ON PERFORMANCE IN AN ATTENTION TASK IN STUDENTS AND TEACHERS AFFECTED BY TSUNAMI DISASTER

Aim: The present study was aimed to assess mental attention in students and school teachers affected by tsunami disaster through integrated yoga module.

Subjects: The students and teachers participated in a twelve days Integrated Yoga module (IYM) at Port Blair, Andaman & Nicobar Islands. Out of 525, 478 students with age ranging between 15 to 20 years, (mean age \pm SD 17.38 ± 1.87) and 108 teachers out of 111 age ranging 25 to 50 years (mean age \pm SD 37.49 ± 9.25) were divided into 2 groups each, viz. Endogenous (333) & Mainland (145) students group and Endogenous (72) & Mainland (36) teachers group.

Assessments: The Six Letters Cancellation Test (SLCT) for both students and teachers and Visual Reaction Time (VRT) test for teachers were administered on first and 13th day.

Intervention: The Integrated Yoga Module (IYM) was specially designed for these students and teachers by experts in yoga and modern medicine including psychiatry for dealing with Post Traumatic Stress Disorder (PTSD) and taught by trained yoga instructors. 12 days of Personality Development camp (PDC) for students and Yoga Introductory Course (YIC) for Teachers was conducted. The yoga module consisted yoga postures, breathing practices, meditation, yoga

games and lectures on philosophy of yoga, health, natural disaster, stress management.

Data Analysis: The base line data were tested for normal distribution. The SLCT of endogenous students and teachers group was tested for normalcy by Kolmogorov-Smirnov test and was found to be normal. Hence, analysis was done using Paired Sample T test. The SLCT of mainland students and teachers were tested for normalcy by Kolmogorov-Smirnov test and were found to be not normal. Hence, analysis was done using Wilcoxon Signed Ranks Test. The VRT of endogenous teachers was tested for normalcy by Kolmogorov –Smirnov test & found to be not normal. Hence, analysis was done using Wilcoxon Signed Ranks Test. The VRT of mainland teachers was tested for normalcy by Shapiro-Wilk test & found to be normal. Hence, Paired Sample T test was done. Mann-Whitney and Independent sample T test are used to analyse the post data between the groups and gender effect.

Results: It showed significant improvement in both the tests (SLCT & VRT) in all the groups. The percentage of improvement in each group is as follows: Endogenous students – SLCT (23.31%), Mainland students - SLCT (17.28%), Endogenous teachers – SLCT (13.07%), Mainland teachers- SLCT (12.44%). Endogenous teachers – VRT (Right-17.85%, Left-20.79%) and Mainland teachers- VRT (R-14.39%, Left-15.57%). Thus all the groups showed significant improvement in SLCT (students & teachers groups) and in VRT (teachers group). There is no significant difference in SLCT scores, between the students groups ($p=0.312$) and there is a no significant change between the teachers groups ($p=0.878$). Endogenous students group showed significant changes ($p<0.05$) with gender effect but not significant in Mainland students group ($p>0.05$). Between the groups VRT - showed significant changes in Left hand data ($p<0.05$) but not significant in Right hand data ($p>0.05$).

SUMMARY AND CONCLUSIONS

Yoga helps in the improvement of performance in an attention task in students and school teachers affected by Tsunami disaster. The present study was conducted to assess the efficacy of yoga on mental attention in students and school teachers affected by tsunami disaster. In this study, students ($n=478$, age range = 15-20 years) and teachers ($n=108$, age range = 25-50 years) were assigned into two groups each namely endogenous and Mainlanders groups.

The number of subjects in each group was endogenous students (n=333), mainland students (n=145), endogenous teachers (n=72), mainland teachers (n=36). The groups had interventions of yogic module (Students-PDC-Personality Development Camp; Teachers-YIC-Yoga Introductory Course) to enhance mental attention. As assessments Six Letter Cancellation Test (for both students & teachers groups) and Visual Reaction Time test (for teachers group) were used. The data analysis was done after checking the normality test. Paired Sample T test showed significant increase in the SLCT scores of Endogenous students and Endogenous teachers group ($p < 0.001$, two tailed). Wilcoxon Signed Ranks Test showed significant increase in the SLCT scores of Mainland students ($p < 0.001$, two tailed) and Mainland teachers group ($p = 0.001$, two tailed). Wilcoxon Signed Ranks Test showed significant improvement in the VRT scores of Endogenous teachers ($p < 0.001$, two tailed). Paired Sample T test showed significant improvement in the VRT scores of Mainland teachers ($p < 0.001$, two tailed). Mann-Whitney Test was used to compare SLCT scores of both the groups (Endogenous students and Mainland students group) and showed no significant changes in post data ($p = 0.312$). Mann-Whitney Test was used to compare VRT scores of both the groups (Endogenous teachers & Mainland teachers group) and showed significant changes in left hand and not in right hand. (Rt. $p = 0.110$ and Lt. $p = 0.038$). Independent sample T test was used to compare SLCT scores of both the groups (Endogenous teachers and Mainland teachers group) and showed no significant changes in post data ($p = 0.878$).

The results shown, favors the hypothesis, i.e., It has shown improvement of mental attention following yogic intervention. There was a significant improvement in mental attention in all groups. Yoga plays a significant role in improving mental attention in people who were affected by Tsunami-natural disaster.

Students:

At baseline, on SLCT the mainland students had better attention than endogenous students. The improvement after IYM for 12 days in mental attention was better in endogenous students.

Teachers:

SLCT: At baseline, on SLCT the Mainland teachers had better attention than endogenous teachers. After IYM, both endogenous and Mainland teachers improved with no difference between the groups (Mann-Whitney test,

p=0.244).

VRT: i) At baseline, on Right hand performance, the mainland teachers had better attention than endogenous teachers. Improvement in Right hand was better in endogenous teachers than the mainland teachers (p=0.003).

ii) At baseline, on Left hand performance, the mainland teachers had better attention than endogenous teachers. Improvement in Left hand was not significant different in endogenous and mainland teachers.

Key words: yoga, mental attention, tsunami victims