

Evaluating Rajyoga Meditation for Mitigating Post-Traumatic Effects in Flood-Impacted Communities

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Abstract: The current review focused to gather the available reports whether Rajyoga meditation have an effective role for overcoming post-traumatic stress disorder (PTSD) and allied reactions in a flood situation. The purpose of this article is to analyses the flood victims' conditions, their psychosomatic illness in Indian context followed by comparing the scenario with slum people of Arambagh Block, Hooghly, West Bengal, India. Role of Rajyoga meditation technique has been recorded and reported for overcoming the state of post-traumatic stress.

This study investigated the efficacy of Rajyoga Meditation (RYM), a practice taught by the Brahma Kumaris Ishwarior Viswavidyalaya, in alleviating post-trauma symptoms among flood survivors. A randomized controlled trial was conducted with 100 survivors (N=50 Nos. Experimental; N=50 Nos. Control). Results indicated that a significant reduction in Depression scores ($p < 0.001$) and a significant improvement in Self-Efficacy ($p < 0.001$) scores compared to the control group. However, no significant changes were observed in Resilience, but Sleep Quality has some insignificant result.

Keywords: Raj Yoga Meditation, Floods, Post Traumatic Stress Disorder, Quasi-Experimental.

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I. INTRODUCTION

Advancement in human civilization through use of science cum technologies and indiscriminant exploitation of natural resources become a great challenge for natural living of human being in this planet. There is sporadic occurrence of different kinds of natural disasters like heat waves, earth quakes, different storms, floods and famine etc. Floods become one of the most frequent and destructive natural disasters worldwide, producing large-scale loss of life, displacement of natural habitat or dwelling units, disruption of livelihoods and long-term social cum economic instability. Beyond the immediate physical harms, flooding situation frequently precipitates a wide range of psychological sequelae among survivors in the affected areas and neighbors also. Such post flooding impacts includes acute stress reactions, persistent anxiety and depression, and clinically significant post-traumatic stress symptoms (PTSS) that can persist for months or years after the event. These post-traumatic reactions undermine functioning, slow recovery and increase demand for mental-health services at a time when infrastructure and professional capacity are often most constrained (Telles, S. et al., 2010).

There are different kinds of conventional psychotherapies techniques like cognitive processing therapy, trauma-focused CBT etc. having good response for overcoming post floods impacts. However, such techniques show robust efficacy in controlled settings only required high resource inputs, trained clinicians and stable service delivery platforms. Such facilities are often unavailable in post-disaster situation specifically. So there is need of alternative effective techniques for overcoming disaster related stress. Consequently, low-cost, scalable, culturally adaptable interventions that target core mechanisms of trauma-hyper arousal, deregulated affect, intrusive recollection and avoidance-have become a pragmatic priority for disaster mental-health responses. Mind-body interventions, particularly yoga and meditation programs have attracted attention because they can be delivered in group formats, taught to non-specialists and adapted for low-resource or displaced populations (Gallegos, A. M., et al., 2017). Here, mind body along with required medicine for psychosomatic disorder treatment also play a vital role in recovery of clinical cases.

Rajyoga meditation (also spelled “Raj Yoga”), taught primarily by the Prajapita Brahma Kumaris Ishwariya Viswa Vidyalaya, popularly called ‘Brahma Kumaris’ is an open-eyed thought channelization process for realization of the self as a calm, witnessing consciousness and the reorientation of attention towards higher self an inner steady source of peace. Its curriculum typically combines a guided attention training, gentle breath-based techniques, and values-oriented discussion. Although Rajyoga is spiritual in orientation, many program evaluations examine its psychophysiological effects (for example, on anxiety, salivary cortisol, and heart-rate variability), making it disaster-mental-health research where stress regulation and autonomic balance are key therapeutic targets. Recent Rajyoga studies report improvements in self-reported anxiety and some biomarkers of autonomic regulation, providing a mechanistic rationale for evaluating Rajyoga in trauma-exposed populations (Naswa, R., et al., 2024).

Given the scale of flood-related mental-health needs and the constraints on specialized care in many affected regions, there is an urgent need to evaluate scalable, culturally sensitive interventions. Aim of this review article is to:

- Present the published evidence linking yoga/meditation and PTSS with attention to disaster context trials
- Summarize Raj yoga-specific findings on stress, autonomic function, and anxiety
- Identify gaps in the evidence for Raj yoga among flood survivors and
- Propose priorities for rigorous empirical testing and culturally adaptive implementation.

By bridging the disaster-mental-health and Rajyoga literatures, current review seeks to clarify whether Rajyoga merits formal evaluation as a low-resource adjunct for mitigating post-traumatic reactions after flooding (Telles, S etal.) .

II. WHY RAJYOGA MEDITATION IS ESSENTIAL FOR OVERCOMING FLOOD RELATED STRESS?

A growing body of evidence indicates that yoga and meditation interventions can reduce PTSS and associated depressive and anxiety symptoms. There is channelization of pure thought waves of self towards the higher self to attain peaceful state of mind and body through rajyoga practices. Such techniques help to overcome the psychosomatic ailments of disaster situations with least deployment of available resources and strengthening of mental power cum emotions. Systematic reviews and meta-analyses show small to moderate impacts of yoga and related meditative practices on self-reported PTSD outcomes. Several randomized trials in disaster affected cohorts also demonstrate feasibility and short-term symptom benefits, frequently accompanied by changes in autonomic indices such as heart rate variability (HRV). Notably, a randomized controlled trial among Bihar flood survivors also found reductions in PTSS and favorable HRV changes after a brief yoga program, illustrating both clinical promise and biological plausibility for mind-body

approaches in flood contexts. However, heterogeneity in intervention content, dose, study quality, and outcome measurement remains a consistent limitation across this literature. (Jha, K., et al. 2025).

III. PHYSIOLOGICAL BASIS OF RAJYOGA MEDITATION FOR OVERCOMING STRESS IN DISASTER:

Despite convergent evidence that (a) trauma-relevant symptom clusters are responsive to interventions that improve autonomic regulation and emotion-regulation capacity, and (b) Rajyoga can modulate those same physiological and psychological domains in other clinical groups, the literature specifically evaluating Rajyoga among flood-affected people remains scarce. Most disaster context trials have tested ‘Hatha yoga’ or ‘Breath-based yoga’ protocols or ‘secular mindfulness’ programs rather than Rajyoga per se. Conversely, Rajyoga studies typically sample clinical or surgical populations like patients undergoing cardiac or surgical procedures, or people with panic disorder rather than disaster survivors; these studies nonetheless report reductions in anxiety, improved HRV and modulation of cortisol — findings that provide an a priori rationale for testing Rajyoga in flood settings. In short, the direct evidence linking Rajyoga to reduced post traumatic reactions after flooding is presently limited and inferential rather than confirmatory (Jha, K., et al., 2025).

From a mechanistic perspective, multiple, potentially synergistic pathways plausibly connect Rajyoga practice to reductions in PTSS. Such socio physiological basis is summarize as below:

➤ *Autonomic Regulation:*

Meditation and gentle yogic practices shift autonomic balance toward parasympathetic predominance (indexed by HRV) and reduce unwanted physiological biomarkers related to stress (e.g. salivary cortisol), thereby ameliorating hyper arousal and somatic symptoms common in PTSS.

➤ *Top-Down Cognitive-Affective Modulation:*

The cultivation of a non-reactive, witnessing stance may reduce rumination, attenuate intrusive imagery and strengthen attentional control and cognitive reappraisal.

➤ *Psychosocial and Meaning-Making Effects:*

Community-based practice and spiritually framed narratives can foster social support, restore a sense of coherence, and enhance coping resources following collective trauma.

➤ *Behavioral Structuring:*

Regular practice of Rajyoga reintroduces routine and purposeful activity, which itself is protective against helplessness and depressive sequelae in post-disaster environments. Rajyoga’s combination of attentional training, spiritual framing, and community delivery plausibly engages these mechanisms. (Gallegos, A. M., et al. (2017).

➤ *Natural Floods Reported*

• *Floods: The Most Frequent and Disruptive Hazard*

Among all natural hazards, floods are universally recognized as the most frequent, widespread, and economically damaging. The World Health Organization

(WHO) notes that floods affect more people globally than any other type of natural disaster. Between 1998 and 2017, floods affected more than 2 billion people worldwide (WHO, 2018).

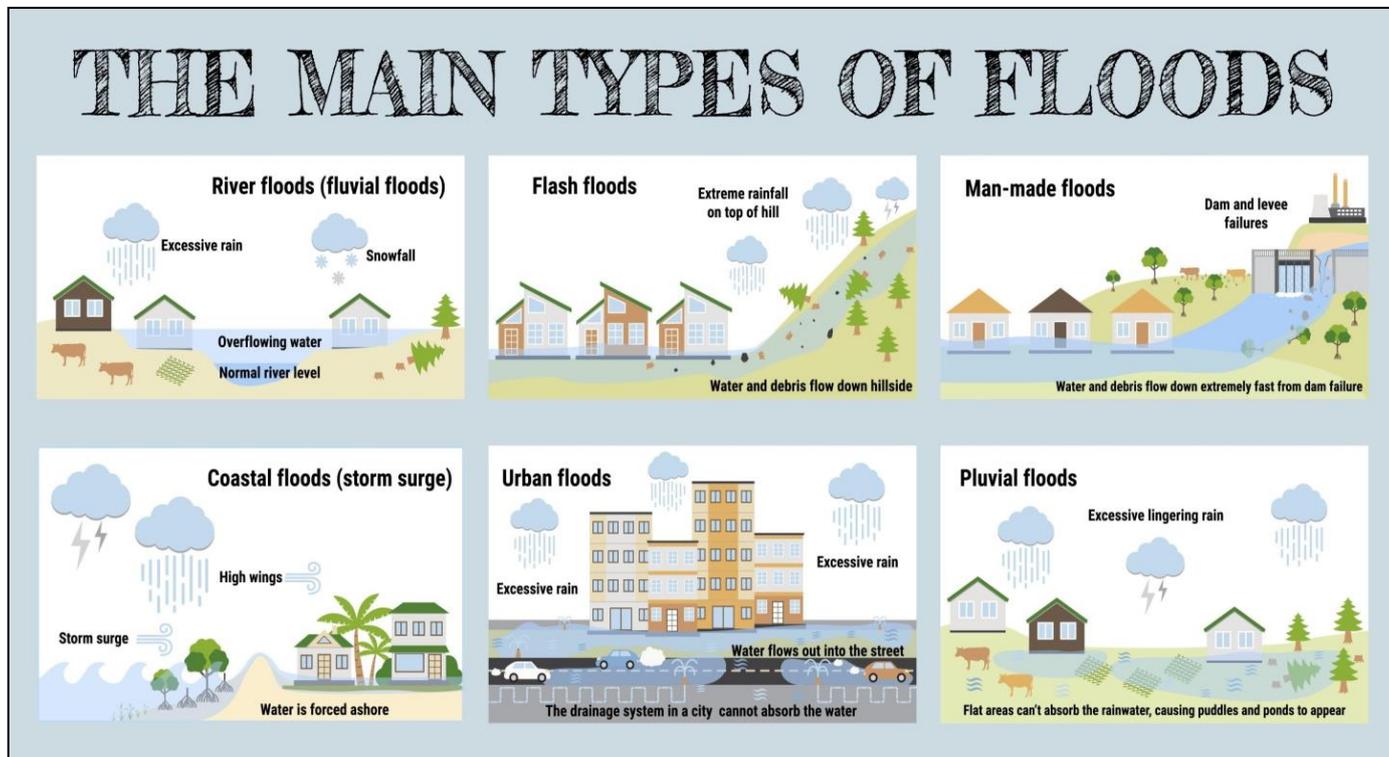


Fig 1 The Main Types of Floods

Floods are natural disasters that can have profound psychological effects on individuals, leading to post-traumatic stress disorder (PTSD) symptoms. Rajyoga Meditation has gained recognition as a potential intervention for reducing stress and trauma-related symptoms. This review aims to explore the existing literature on the effectiveness of meditation as an intervention for reducing post-traumatic stress in flood-affected individuals. Natural calamities like floods influence both the land and the population. Due to its geographic location, West Bengal is considered the most disaster-prone region in India and experiences a high incidence of natural catastrophes. Disasters produce massive destruction that results in the loss of life, property, and infrastructure, and studies have revealed a range of psychological suffering in the victims, including summarization, sadness, anxiety, and post-traumatic stress disorder (Mc Farlane, Clayer, & Bookless, 1997).

According to studies, the high flood risk makes an already underprivileged population's low health and educational outcomes worse. Flooding has a significant impact on survivors' psychological health, particularly in low-income areas where there are few resources for post-disaster recovery and coping mechanisms. However, the necessity for psychosocial support among flood survivors in India is little supported by scientific research (Kar, Sharma, Murali, & Mehrotra, 2004). Interactions between flooding,

its consequences and restoration leading to health and well-being outcomes for individuals, there are often complex pathways and mechanisms that affect well-being. Kate (Walker-Springett, Butler & Adger, 2015). According to Bubeck, Otto, and Weichselgartner (2017), floods can have a variety of repercussions on civilizations, including damage to property, loss of life, injuries, and mental health effects. One such method that may help with the psychorehabilitation of those exposed to flooding is psychological care provided by emergency personnel. In order to determine "whether exposure to floods and psychopathological symptoms like PTSD and depression are correlated, a recent cross-sectional study from Kashmir examined the effects of distinct social support from family and relatives in adult survivors" (Dar, Iqbal, Prakash, & Paul, 2018, p.234).

An individual would have extreme sadness, anxiety, and post-traumatic stress disorder (PTSD) as a result of the devastating flooding and trauma of losing their house, loved ones, way of life, source of income, crops, and livestock. Previous research has shown that post-traumatic depression is prevalent among flood survivors worldwide and that flood victims have long-term psychosocial impacts such as pain, anguish, learned helplessness, and social dysfunction, all of which can eventually result in depression (Shah et al., 2022). In South Asia, financial crises following disasters are seen as a risk factor for PTSD since they can cause mental

stress. Following a disaster, variables such as the destruction of homes and property, physical injury to oneself, family member physical injury, and family member death may all have an impact on the chance of developing PTSD (Pyariet al., 2012). Individuals experienced increased suicide ideation, negative cognition, sleep deprivation, avoidance, emotional numbness and mood, and other psychiatric co-morbidities after flood exposure. Natural causes of flooding are generally the result of climate change (Jamshed et al., 2020).

IV. FLOW CHART OR PICTORIAL DIAGRAM ON IMPACTS OF FLOODS

➤ *The Physiology of Stress in Disasters:*

To understand why interventions like Rajyoga Meditation are effective, one must first understand the biological mechanism of trauma. Post-traumatic reactions are not just "in the mind"; they are deeply rooted in the body's physiological survival mechanisms.

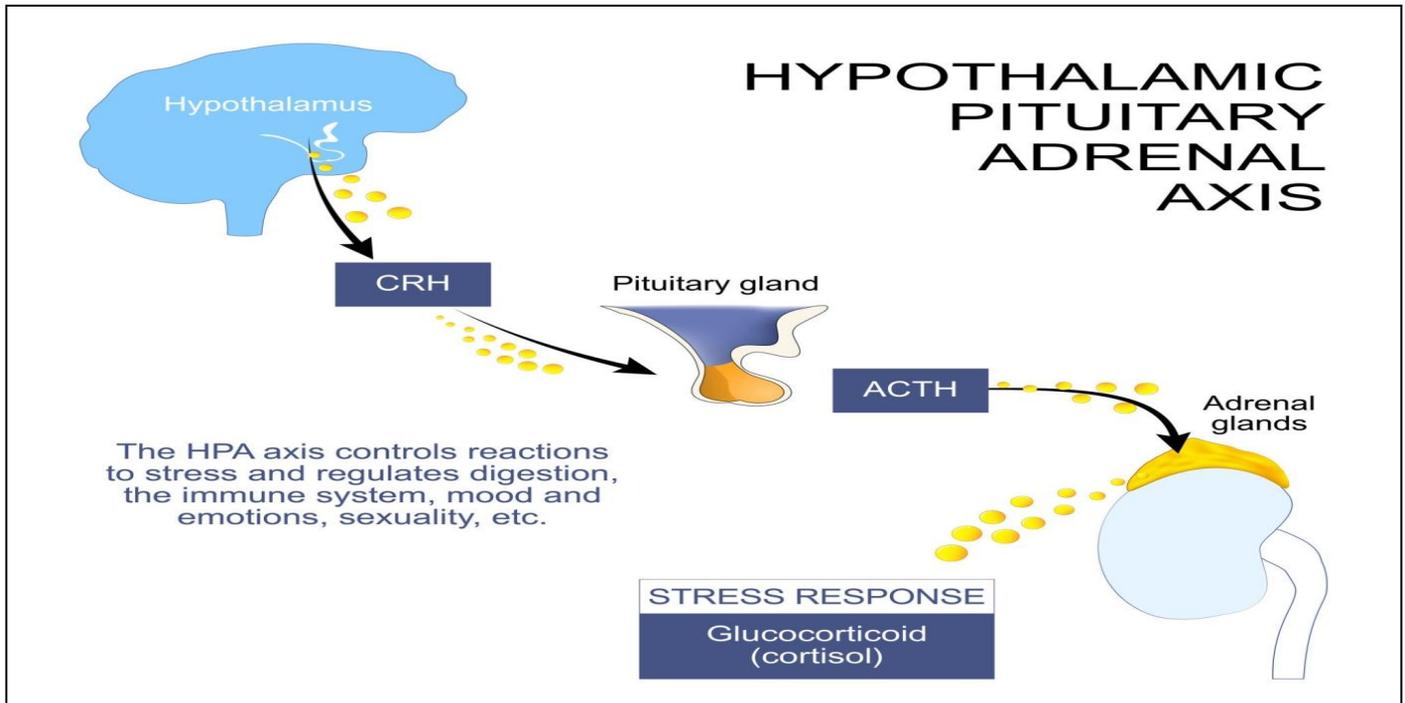


Fig 2 Hypothalamic Pituitary Adrenal Axis

➤ *Brief Description of Your Study Areas and its Observations Recorded*

Study Area My study was conducted in Village – Sekhpur, Baro Domgal, Choto Domgal, Manikpur & Salepur under G.P. Salepur – I & II & Arambagh town, Hatbasanta Pur under Arambagh block, Hooghly district, West Bengal — a flood-prone region.

V. RESULT

The statistical analysis revealed significant differences in two of the four primary variables:

➤ *Depression*

The experimental group showed a large and statistically significant reduction in depression.

- Control Mean: 3.27 (+_ 0.25)
- Experimental Mean: 2.48 (+_ 0.38)
- Significance: $t(97) = 12.29, p < 0.001$

➤ *All Sub-Scales of Depression Showed Consistent Improvement in the Meditation Group:*

- Emotional State: Reduced from 3.30 to 2.71

- Cognitive Functioning: Reduced from 3.16 to 2.56
- Physical Symptoms: Reduced from 3.32 to 2.51
- Social Interaction: Reduced from 3.23 to 2.34
- Motivation and Interest: Reduced from 3.33 to 2.28

➤ *Self-Efficacy (SES)*

Self-efficacy scores improved significantly in the group practicing Rajyoga.

- Control Mean: 2.68
- Experimental Mean: 2.94
- Significance: $p < 0.001$

➤ *Resilience and Sleep Quality*

Interestingly, neither resilience nor sleep quality showed significant changes during the study period.

- Resilience: Control (3.35) vs. Experimental (3.30), $p = 0.51$ (ns).
- Sleep Quality: Control (2.58) vs. Experimental (2.62), $p = 0.50$ (ns).

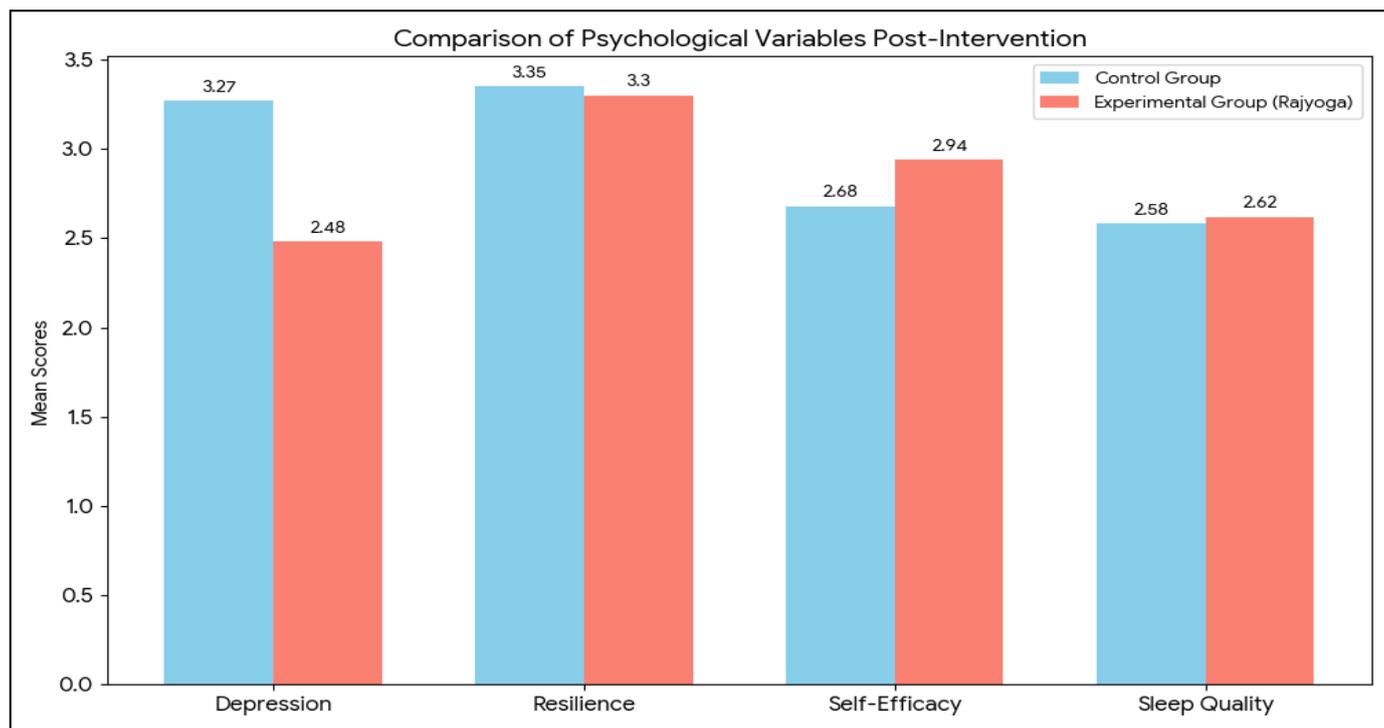


Fig 3 Comparison of Psychological Variables Post-Intervention

VI. CONCLUSION

- Significant benefits for Depression & Self-Efficacy in this test.
- Insignificant benefits for Resilience & Sleep Quality test.

➤ Future Scope

- Policy maker may integrate Rajyoga meditation in disaster relief protocols.
- Requires execution of longitudinal studies.
- Explore the exact level and interplay of biological markers in future research.
- Include Rajyoga in standard Disaster Management Protocols.
- Focus on "Psychological First Aid."
- Future studies should use biological markers (HRV, Cortisol).

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