

Sustainability of yoga practice among the victims of natural disaster in Kerala: A follow-up study

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ABSTRACT--*Natural disasters take a huge toll on mankind affecting their health and economical status. Nearly 8.5 million people across 141 countries has been affected by disasters in 2018.¹ Psychological problems such as depression, anxiety, post-traumatic stress disorder (PTSD), and other unspecified types of stress are commonly seen among the people who are exposed to extreme traumatic events like natural disasters.^{2,3} Studies suggests resilience as one of the key factor to recover from psychological trauma owing to natural disasters which helps the victims to revive positive life.⁴ Yoga is regarded as a tool to mitigate mental health issues arising due to natural disasters.*

Keywords-- *Sustainability of yoga practice among the victims of natural disaster in Kerala: A follow-up study*

I. INTRODUCTION

Studies reports that yoga practice reduce self rated symptoms like fear, anxiety, disturbed sleep, and sadness in the survivors of natural disasters.^{5,6} The present study is conducted among the victims of flood in Kerala. The Kerala Flood of 2018 had a detrimental effect on economy, which affected lakhs of people and killed more than 400 innocent lives.⁷ Here we explore the sustainability of yoga practice among the victims of flood in Kerala, who used yoga as a tool to mitigate their mental stress. This is a follow-up study among those participants enrolled in yoga program immediately after the flood and has shown positive improvement in their coping to stress. This study further explores whether yoga is used by the victims even after attaining a stable mental state.

II. METHODS

Thirty two volunteers who were part of a yoga training program were enrolled in to this follow-up study to assess the sustainability of yoga practice among them. These participants were those individuals who lost home or relatives or friends or other belongings as a result of the recent flood. All of them had received a yoga program which included 20 minutes of breathing exercises and 10 minutes of meditation in the previous phase of the study (Table 1). Written consent was obtained from these participants.

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Table 1: Interventions provided to the participants

Practice	Method	Duration/cycle
Nadishudi Pranayam (Alternate nostril breathing)	This practice starts with an exhalation through the left nostril followed by inhalation and exhalation through the same nostril and then inhalation through the right nostril. This is followed as a cycle. ⁶	5 rounds
Brahmari Pranayam (Humming bee breathing)	This practice involves exhalation with a humming sound with closed mouth and index fingers pressed at the pinna of the ears. ⁶	5 rounds
Guided relaxation technique	Involves self awareness and relaxation in corpse pose(shavasana). ⁶	10 minutes

The information on yoga practice was collected after two months of the original yoga program, through a self reported Visual Analogue Scale (VAS) on utility of yoga and impact of yoga on their mental health. Visual analogue scales are psychometric scales used to measure subjective characteristics or attitudes of participants.⁸ The scoring of VAS were calculated by measuring the distance from the left end of the analog scale which corresponds to 'zero' and right end which corresponds to 'ten', right end being the highest stage of usefulness of yoga and quality of life whereas left end being the least.

Additionally, a likert scale was also used to assess the regularity of yoga practice among these participants. The likert scale was 3 item scales which categorized the yoga practice as regular, sometimes, never. The data were analyzed using Microsoft excel 2010 software.

III. RESULTS

All the participants enrolled have completed the study. Out of 32 participants 15 were females and 17 were males with an average of 37.8(SD±8.9). The study results are derived as descriptive data.

Usefulness of yoga

Nearly 3/4th of the participants (62.5%) said that yoga has been extremely useful for them during the period of high stress. They had an average VAS score of 8.1± 0.93. 28% of the participants expressed yoga to help them on fairly which is neither great nor bad. The average VAS score for this group is 5.8±0.44. The rest of the

participants (12%) rated yoga to be moderately useful for them. The average VAS score for this group was 3.5 ± 0.6 . None of the participants gave a low score less than 3 in the VAS. The scores ranged between 3 and 10.

Quality of mental health

Quality of mental health measured on a VAS has shown 68.7% has shown good improvement in the quality of mental health which had an average VAS score of 8.33 ± 9.6 . Nearly 18.75% has average mental health improvement that averaged 5.4 ± 0.53 on VAS score. Nine percent of the participants showed below average improvement in mental health with an average VAS score of 3.7 ± 0.7 .

Practice of yoga

Regularity of the practice of yoga post the yoga program conducted during flood was evaluated using the likert scale. Out of 32 participants 19(59%) participants reported that they did practiced yoga after the cessation of supervised yoga training which they received during the active flood phase. However, they rated their practice as irregular, which falls under the category of "Sometimes" in the likert scale given to them. 25% of the participants claimed to practice yoga daily whereas three (9%) participants reported that they have stopped practicing yoga immediately after the cessation of the 15 days yoga program.

IV. DISCUSSION

Yoga, which has its root in Indian philosophy, is known to exhibit both mental and physical well-being in humans. The effects of yoga therapy includes alleviation of stress, promotes cardiac function and improvement in mood.⁹ Studies and reviews has reported yoga to be effective in alleviating the distress post natural disaster.^{5,6,10} All these studies demonstrated the effectiveness of yoga in dealing with post-traumatic stress. However, all these studies are conducted as an one-time measure designs with no-follow-up on the utility and practice of yoga by these victims. Given the kind of impact these kind of natural disaster have on the victims, they are vulnerable and their focus may be monitored continuously to provide sustainable relief.¹¹

Pranayama and meditation has a great role in mitigating post-traumatic stress disorders. It further has beneficial effects on autonomic nervous system dysregulation and positively influences the psychoneuroimmunologic markers which are affected during stress and anxiety induced by natural calamities.^{12,13}

The present study followed up a group of individuals affected by the flood who received yoga interventions to cope-up with the post-traumatic distress. The results has shown the effective utilization of yoga by these participants which is reflecting on their mental health. Most of the participants acknowledged the usefulness of yoga in dealing with their mental health conditions.

This is first study to demonstrate the continuity of yoga practice among the group of people who started practicing yoga during the natural emergencies. Being a quantitative approach is one limitation of the study as it fails to bring out the concerns and opinion of the participants in their own way. The VAS used limit the participants from expressing their views in a greater extend.

Regular practitioners of yoga exhibited greater mental health in our study which is promising that yoga can be utilized as a tool in extremely difficult life situation. Most of the participants had reported to have intermittent practice. This signifies the need to have constant monitoring over practice for an increased duration. The author

also acknowledge that he has not recorded the duration of yoga practice in terms of minutes and days which could have added more value.

A mixed method design is recommended in all the future studies as it can carve the design of yoga programs in case of natural emergencies.

V. CONCLUSION

Yoga is actively embraced by the victims of natural disaster and is being persuaded by these groups as a means to improve their resilience and cope with the loss. Large scale studies should include a follow-up phase to understand the effective utility and perceived usefulness of yoga among these vulnerable populations.

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