AYUSHDHARA
ISSN: 2393-9583 (P)/ 2393-9591 (O)
An International Journal of Research in AYUSH and Allied Systems

Research Article

EFFICACY OF *YOGA* ON TRAUMA IN ORPHAN CHILDREN DWELLING IN ORPHANAGE HOMES: An EXPERIMENTAL PRE POST STUDY

Asima kumar[1]*, Vijay Kumar[2], Sahana Murthy[2]

*[1]Research Scholar, [2]Assistant Professor, Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Anekal, Bengaluru, Karnataka.

Article info

Article History:
Received: 11-03-2018
Accepted: 01-04-2018

KEYWORDS: PTSD, Trauma, Orphans, *Yoga* therapy, DSM-5.

***Address for correspondence**
Asima kumar
Research Scholar,
Swami Vivekananda Yoga Anusandhana Samsthana # 19, 'Eknath Bhavan', Gavipuram Circle, Kempe Gowda Nagar, Bengaluru – 560 019, India
Email: asimakumar2006@yahoo.com
Phone: 9900513215

ABSTRACT

Orphans and vulnerable children (OVC) are at increased risk for post-traumatic stress disorder (PTSD), depression and anxiety. They are at a substantially greater risk for developmental problems in cognitive, physiological, social, emotional, and behavioural domains. The aim of present study is to diagnosed the presence of trauma and to study the effect of Integrated Approach of Yoga therapy on participants with post trauma stress disorder.

Three orphanages were chosen for the study. The children were divided in to two groups experimental (n=21) and control group (n=21). The children were in the age group 7 to 12. CAPS-CA-5 for DSM-5 (Clinician Administered PTSN Scale child/Adolescent version for Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) was administered prior to the intervention. Only children who satisfied the diagnostic criteria were selected. Yoga group underwent three months of Yoga program in a schedule of 90 min per day, five days per week whereas the Control group followed the routine activities Intervention was given by trained *Yoga* teachers at the Orphanage. The yoga module included Loosening Practices, Breathing practices, *Asanas, Surya Namaskaras, Pranayama,* Yogic Games, Devotional songs and *Bhajans.* Practices were given on weekdays and the participants were assessed after three months.

INTRODUCTION

PTSD is a disorder that develops in people who have experienced a shocking, scary, or dangerous event. It is natural to feel sacred during and after a traumatic situation. Fear triggers many split-second changes in the body to help defend against danger or to avoid it. This "fight-or-flight" response is a sympathetic nervous system reaction meant to protect a person from harm. Nearly everyone will experience a range of reactions after trauma, yet most people recover from initial symptoms naturally. Those who continue to experience problems may be diagnosed with PTSD. People who have PTSD may feel stressed or frightened even when they are not in danger.[1]

What are traumatic events?

Any event like serious accident, physical assault, involved in a war either as a civilian or being part of military operations, being involved in a natural disaster, such as a bushfire, flood or cyclone are traumatic events. Being sexually assaulted or abused, experiencing threatened death, or witnessing someone's death or serious injury has the potential to be traumatic. Almost everyone who experiences trauma will be emotionally affected, and there are many different ways in which people will respond. For some, the effects can be long-lasting but most people will recover quickly with the support of family and friends.

Traumatic events might also affect someone or if he or she is a witnesses to it happening to someone else, Traumatic events are emotionally distressing while most people will recover on their own, for some the experience can lead to mental health issues such as posttraumatic stress disorder (PTSD), depression, anxiety or substance use. It's important to realise that trauma is very different to

other stressful events, like a relationship break-down or the death of a loved one through natural causes.[2]

Impact

Suffering a traumatic event or events fosters an external locus of control. The individual feels that he or she is at the mercy of the world rather than the master of one's own fate. This has serious implications for how the individual leads his or her life in the future. Feeling of helplessness, a tendency to fail to escape from dangerous situations when escape is possible is often felt. It also results in decreased resilience and increased vulnerability to future traumatic events.

Traumatic experiences, especially repeated ones, as occurs in child abuse, greatly increases the risk for the development of borderline personality disorder, oppositional defiant disorder, conduct disorder, and depression in adult years. Studies have shown a marked increase in medical costs in children who suffered abuse in childhood. Sexual abuse has wide-ranging impacts on the child's ability to have stable and fulfilling romantic relationships during adult years. Dissociative disorders can also result.[3]

PTSD in children

Posttraumatic stress disorder (PTSD) in children and adolescents occurs as a result of a child's exposure to one or more traumatic events, actual or threatened death, serious injury, or sexual violence. The victim may experience the event, witness it, learn about it from close family members or friends, or experience repeated or extreme exposure to aversive details of the event. Potentially traumatic events include physical or sexual assaults, natural disasters, and accidents.

The impact of single-incident trauma (such as a car accident or being beaten up) is different from that of chronic trauma such as ongoing child abuse. In addition to the symptoms of PTSD, sexual assaults have widespread impacts on the victim's psychological functioning and development. Abuse by a caretaker also creates special problems.

The impact of traumatic events on children is often more far reaching than trauma on an adults, not simply because the child has fewer emotional and intellectual resources to cope, but because the child's development is adversely affected. If an adult suffers trauma and a deterioration in functioning, after time when the person heals, he can generally go back to his previous state of functioning, assuming that he has not done serious damage to his relationships, studies, and work. A child, however, will be knocked off of his developmental path and after healing from the trauma will be out of step with his peers and school demands. He will therefore suffer ongoing frustration and disappointments even when he has healed from the trauma.[2]

In the past 10 years, there has been increasing recognition that children who have been exposed to traumatic events can, like trauma-exposed adults, develop PTSD. Practitioners therefore need to be able to recognise and treat post-traumatic stress reactions in children. However, the direct application of adult diagnostic criteria for PTSD can result in the misdiagnosis of post-traumatic stress reactions in children, while research has only recently begun to investigate the effectiveness of different treatments for children with PTSD[3]

Studies indicate that children can develop PTSD after exposure to a range of traumatic stressors, including violent crime, sexual abuse, natural disasters, and war. Where relatively standardized assessment methods have been used, the incidence of PTSD among child survivors of specific disasters ranges from 30 to 60%. As yet there are no epidemiological studies of the prevalence of PTSD among children in the general population; however, community studies in the United States have consistently indicated that around 40% of high school students have experienced some form of domestic or community violence, and between 3 and 6% have PTSD.

MATERIAL AND METHODS

Participants

Out of 60 children interviewed, 40 were chosen for the study based on the inclusion and exclusion criteria. Children were eligible for inclusion by following criteria: a) orphan(s) of any type, b) aged between 6 and 12 years, c) boys, d) apparently healthy without any chronic illness, physical, or mentally handicap. The study was conducted between July 2017 and September 2017 in an orphanage, within a suburban area of Bangalore.

Ethical clearance

The study was approved by the Institutional Ethics Committee of SVYASA (Swami Vivekananda Yoga Anusandhana Samsthana) University. Both signed informed consent from the institution head and signed informed assent from all participants were obtained, upon explaining the study details.

Design

It was a Experimental controlled pre-post study. After the initial process of screening, participants were assigned into two groups: Yoga group and Control group. The Yoga group

underwent the Yoga program for 3-months whereas the Control group underwent routine activity.

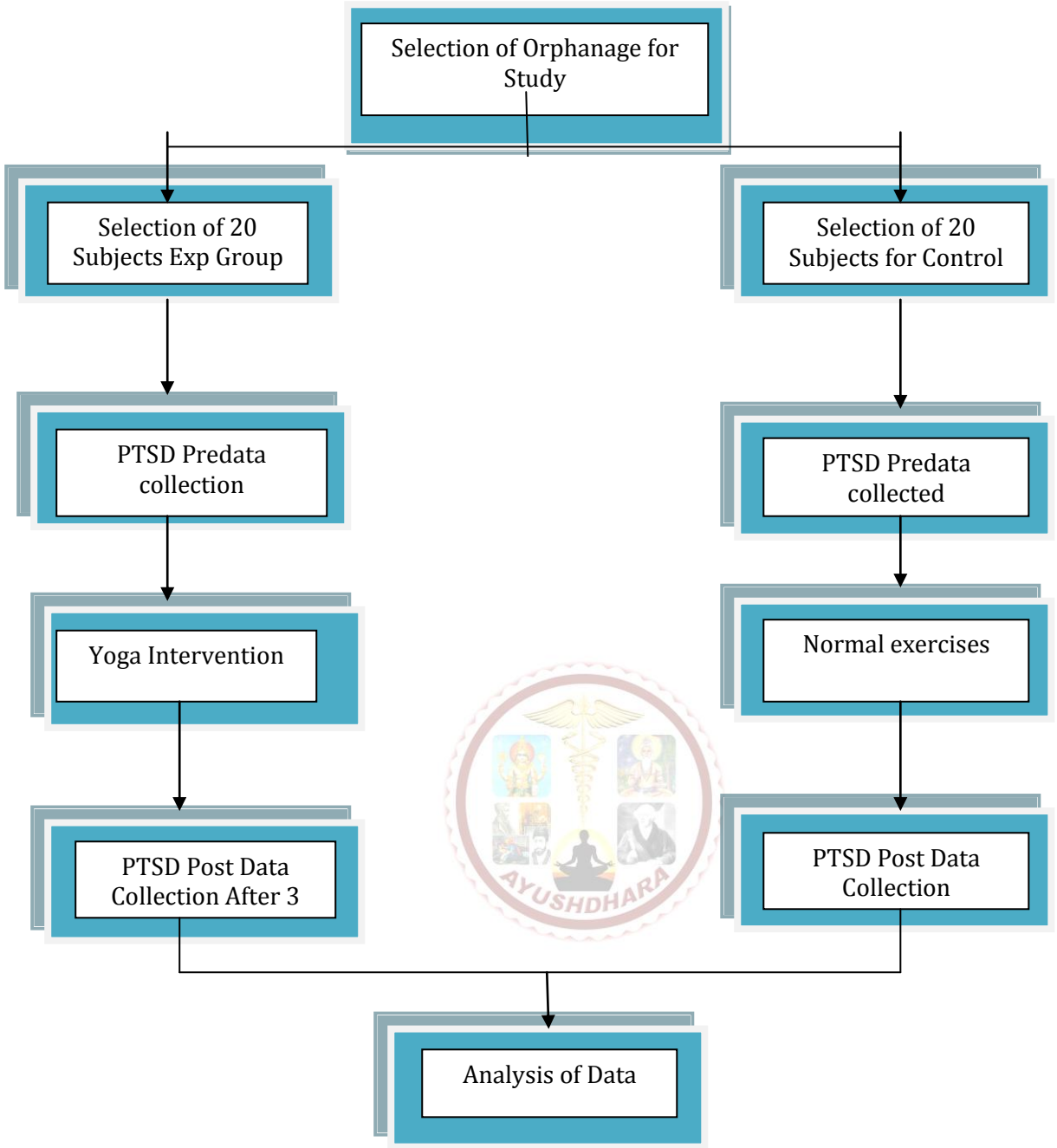
Yoga intervention

The 3 months yoga module of 1 hour per day was designed for children. The module consisted of physical postures (*Asanas*), voluntary regulated breathing (*Pranayama*), relaxation techniques, *Yogic* games, and *Bhajan* singing. Details of the intervention are summarized in Table

Table 1: Yoga Module

S. NO	Description	Time Duration Daily	Frequency
1	Loosening practices Jogging Forward, backward, side *Mukha Dhouti* Twisting, Forward Backward Bending Side bending Shoulder rotation Neck rotation	10 mins	Daily
2	Breathing practices Hands in and out Hands Stretch Ankle Stretch Dog breathing Rabbit Breathing Tiger breathing	10 mins	Daily
3	**Standing posture** *Trikonasana* *Privritta Trikonasana* *Virabhadrasana* *Ardhakatichakrasana* *Vrkshana* *Garudasana* **Sitting postures** *Vakrasana* *Ardhamatsyaendrasana* *Gomukhasana* *Pachimottasana* *Jhanusirsasana* **Prone posture** *Shalabasana* *Dhanurasana* **Supine postures** *Chakrasana* *Sarvangasana* *Halasana* *Matsyasana*	15 mins	Daily
4	*Surya Namaskara* 12 rounds	10 mins	Alternate days
5	*Pranayama* session Sectional breathing *Kapalbhati* *Nadi Shuddhi*	10 mins	Alternate days
6	Yogic games Group awareness	15 mins	Alternate days
7	Devotional Songs *Bhajans* Patriotic songs	15 mins	Alternate days

Flow Chart



RESULTS AND DISCUSSIONS

Paired Sample T-Test For Yoga And Control Group

Intrusive Symptoms

		Mean	STD Deviation	STD Mean Error	T value	P value
Yoga Group	Pre intrusive	8.67	2.8	.62	7.777	.000
Yoga Group	Post intrusive	5.05	2.2	.49		
Control Group	Pre intrusive	12.05	2.7	.59	2.267	.035
Control Group	Post intrusive	11.62	2.6	.56		

For yoga group the mean of pre intrusive symptoms mean was 8.67, std deviation was 2.852. The mean of post intrusive symptoms mean was 5.05, std deviation was 2.247. the T- value was 7.777 and P- value .000. The control group mean of pre intrusive symptoms was 12.05, std deviation was 2,711.The post intrusive mean was 11.62 and std deviation was 2.559. the T- value was 2.257 and p-value was.035

Avoidance Symptoms

		Mean	STD Deviation	STD Mean Error	T value	P value
Yoga group	Pre avoidance	2.48	1.69	.37	5.087	.000
Yoga group	Post avoidance	1.10	.83	.18		
Control group	Pre avoidance	3.90	1.64	.36	2.169	.042
Control group	Post avoidance	3.71	1.59	.35		

For yoga group the mean of pre avoidance symptoms mean was 2,48, std deviation was 1.692. The mean of post avoidance symptoms mean was 1.10, std deviation was .831. the T- value was 5.087 and P- value.000. The control group mean of pre avoidance symptoms was 3.90, std deviation was 1.640. The post avoidance mean was 3,71 and std deviation was 1.586. the T- value was 2.169 and p-value was .042

Cognition Symptoms

		Mean	STD Deviation	STD Mean Error	T value	P value
Yoga group	Pre cognition	9.76	5.8	1.26	4.630	.000
Yoga group	Post cognition	6.24	3.0	.66		
Control group	Precognition	13.05	4.0	.87	1.826	.083
Control group	Post cognition	12.90	3.9	.85		

For yoga group the mean of pre cognition symptoms mean was 9.76,std deviation was 5,770. The mean of post cognition symptoms mean was 6.24, std deviation was 3.032. the T- value was 4.630 and P- value.000. The control group mean of pre cognition symptoms was 13.05, std deviation was 3,993. The post cognition mean was 12.90 and std deviation was 3.910. the T- value was 1.826 and p-value was.083

Arousal Symptoms

		Mean	STD Deviation	STD Mean Error	T value	P value
Yoga Group	Pre arousal	7.76	2.49	.543	5.959	.000
Yoga group	Post arousal	4.86	1.77	.386		
Control group	Pre arousal	12.43	3.06	.668	2.961	.008
Control group	Post arousal	12.05	2.75	.600		

For yoga group the mean of pre arousal symptoms mean was 7.76, std deviation was 2.488. The mean of post arousal symptoms mean was 4.86, std deviation was 1.769 the T- value was 5.959 and P- value.000. The control group mean of pre arousal symptoms was 12.43, std deviation was 3.059. The post arousal mean was 12.05 and std deviation was 2.747. the T- value was 2.961 and p-value was .008

Total PTSD Symptoms

		Mean	STD Deviation	STD Mean Error	T value	P value
Yoga group	Total pre ptsd	28.67	9.70	2.12	7.395	.000
Yoga group	Total post ptsd	17.24	5.13	1.12		
Control group	Total pre ptsd	41.43	8.35	1.82	4.104	.001
Control group	Total post ptsd	40.29	7.82	1.71		

For yoga group the mean of pre PTSD symptoms mean was 28.67, std deviation was 9.697. The mean of post PTSD symptoms mean was 17.24, std deviation was 5.127 the T- value was 7.395 and P- value.000. The control group mean of pre PTSD symptoms was 41.43, std deviation was 8.352. The post PTSD mean was 40.29 and std deviation was 7.824. the T- value was 4.104 and p-value was.001

DISCUSSION

The aim was to study if *Yoga* helped improvement of PTSD symptoms in children. The study showed significant improvement showed p=0.00 in the scores of Intrusive, Avoidance, Cognition and Arousal symptoms as compared to control group. The total PTDS symptoms were also reduced.

Earlier findings of studies on *Yoga* were aligned with the present study. When yoga postures performed with a gap in between, provides relaxation to body, and ultimately enhances cognition. Previous studies on *Yoga* techniques which consisted of sequence of *Yoga* postures and with relaxation techniques, found improvement in selective attention, and inhibition of the cortical region. *Suryanamakara,* when performed with rhythmic breathing develop internal awareness which might have influenced the cognitive outcome measures in the present study.[4]

In a study of Influence of *Yoga*-Based Personality Development Program on Psychomotor Performance and Self-efficacy in School Children it was found that the performance in (trail making task) TMT-A and B of the yoga group showed a significantly higher number of attempts with a reduction in time taken to complete the task and a number of wrong attempts compared with control group. Results suggest that yoga practice enhances self-efficacy and processing speed with fine motor coordination, visual-motor integration, visual perception, planning ability, and cognitive performance.[7]

In a study of Spatial and verbal memory test scores following yoga and fine arts camps for school children examined how meditation influenced the process of remembering, a subsequent study examined the effects of a combination of *Yoga* practices on hemisphere-specific memory tasks. Groups trained in *Yoga* showed a significant increase in spatial test scores at retest, suggesting that yoga breathing improved performance in a right hemisphere specific memory test.[8]

Children with trauma-related distress showed improvements in symptoms after participation in an 8-week *Yoga* program compared to controls. It showed that *Yoga* is a feasible and acceptable activity with self-reported benefits to child mental and physical health.[9] Another study showed improved executive function in Orphan adolescence after yoga intervention.[10]

In a study to see the effect of *Yoga* Reducing Trauma-Related Distress and Emotional and Behavioral Difficulties Among Children Living in Orphanages in Haiti showed improvements in symptoms after participation in an 8-week yoga program compared to controls.[9]

Another study of Effects of *Vinyasa Yoga* on Affect and Stress among College Students suggested that *Yoga* practice is associated with acute improvements in affect in a young-adult college population.[11]

Findings of this study is in support of earlier studies indicating positive effect of *Yoga* in reducing stress related symptoms.

Improvement observed in control group may be due to uncontrolled physical activities in schools, time and growth effect.

CONCLUSION

Children with PTSD showed improvements in symptoms after participation in an 3 months yoga program compared to controls. *Yoga* is a feasible and acceptable activity with self-reported benefits to child mental and physical health. Additional research is needed to further evaluate the effect of yoga to relieve trauma-related distress and promote well-being among children. The findings of this study extended previous research on either stress or trauma in children, the results were assessed simultaneously in this study. Yoga group children reported higher reduction in PTSD symptoms.

REFERENCES

1. NIMH »Post-Traumatic Stress Disorder [Internet]. [cited 2018 Jan 4]. Available from: https://www.nimh.nih.gov/health/topics/post-traumatic-stress-disorder-ptsd/index.shtml
2. What are Traumatic Events? | Phoenix Australia [Internet]. [cited 2018 Jan 4]. Available from: http://phoenixaustralia.org/recovery/what-are-traumatic-events/
3. Treating Children With PTSD| Anxiety and Depression Association of America, ADAA [Internet]. [cited 2018 Jan 4]. Available from: https://adaa.org/learn-from-us/from-the-experts/podcasts/treating-children-ptsd#
4. Posttraumatic Stress Disorder in Children: Practice Essentials, Background, Patho-physiology [Internet]. [cited 2018 Jan 4]. Available from: https://emedicine.medscape.com/article/918844-overview
5. Post-Traumatic Stress Disorder in Children [Internet]. [cited 2018 Jan 4]. Available from: http://www.stanfordchildrens.org/en/topic/default?id=post-traumatic-stress-disorder-in-children-90-P02579
6. Ganpat T, Kumar S, Ramarao N, Devi T. Surya namaskara training for enhancing selective

attention in orphan boys: A randomized control study. Saudi J Sport Med [Internet]. 2015 [cited 2017 Jan 22];15(1):37. Available from: http://www.sjosm.org/text.asp?2015/15/1/37/149534

7. Das M, Deepeshwar S, Subramanya P, Manjunath NK. Influence of Yoga-Based Personality Development Program on Psychomotor Performance and Self-efficacy in School Children. Front Pediatr [Internet]. 2016 [cited 2017 Mar 14];4:62. Available from: http://www.ncbi.nlm.nih.gov/pubmed/27379220
8. Manjunath NK, Telles S. Spatial and verbal memory test scores following yoga and fine arts camps for school children. Indian J Physiol Pharmacol [Internet]. 2004 Jul [cited 2017 Feb 6];48(3):353–6. Available from: http://www.ncbi.nlm.nih.gov/pubmed/15648409
9. Culver KA, Whetten K, Boyd DL, O'Donnell K. Yoga to Reduce Trauma-Related Distress and Emotional and Behavioral Difficulties Among Children Living in Orphanages in Haiti: A Pilot Study. J Altern Complement Med [Internet]. 2015 Sep [cited 2017 Jan 24];21(9):539–45. Available from: http://www.ncbi.nlm.nih.gov/pubmed/26090580
10. Purohit SP, Pradhan B. Effect of yoga program on executive functions of adolescents dwelling in an orphan home: A randomized controlled study. J Tradit Complement Med [Internet]. 2017 Jan [cited 2017 Mar 13];7(1):99–105. Available from: http://linkinghub.elsevier.com/retrieve/pii/S2225411016300013
11. Gaskins RB, Jennings E, Thind H, Becker BM, Bock BC. Acute and Cumulative Effects of Vinyasa Yoga on Affect and Stress among College Students Participating in an Eight-week Yoga Program: A Pilot Study. Int J Yoga Therap [Internet]. 2014 [cited 2017 Jan 24];24:63–70. Available from: http://www.ncbi.nlm.nih.gov/pubmed/25858652

Cite this article as:
Asima kumar, Vijay Kumar, Sahana Murthy. Efficacy of Yoga on Trauma in Orphan Children Dwelling In Orphanage Homes: An Experimental Pre Post Study. AYUSHDHARA, 2017;4(6):1402-1408.
Source of support: Nil, Conflict of interest: None Declared