



## A PILOT STUDY ON THE EFFECT OF “PRANAYAMA” ON STRESS AMONG PARENTS OF CHILDREN WITH AUTISM

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**ABSTRACT** **Background:** Autism is a Pervasive Developmental Disorder (PDD) characterized by severe, complex and permanent behavioral and cognitive disabilities. Clinically defined by the child's behavior and performance, this condition affects all areas of performance. Research has shown that parents of children with autism experience more difficulty and frustration with caregiving and behavior management than parents of children with other disabilities. Pranayama as a stress relieving technique will be of great help to the parents of children with autism. **Objective:** To evaluate the effectiveness of pranayama on stress among parents of children with autism at Sumathi occupational therapy center in Pondicherry. **Study Design:** A single group pre and post-test design was chosen for the research. **Methods:** In this study the population comprises of 40 parents of children with autism. The study center is Sumathi occupational therapy center at Pondicherry. Initial assessment was taken on the first day by using the standardized tool of Perceived Stress Scale (PSS) after attaining consent from all the subjects. Then pranayama was taught to the parents by an occupational therapist who was trained in yoga practice in the center. Post-test was taken on 32nd day by using the PSS. **Results:** In the pre-test, 12 subjects (30.0%) had low stress and 28(70.0%) had moderate stress. In the post test, 27(70.0%) were in low stress, 13(30.0%) were in the moderate stress, whereas no persons in severe stress. The mean pretest was 20.15 and mean post-test was 13.4 respectively. Standard deviation of the pretest was 4.42 and post-test standard deviation was 3.71. Confidential interval value is 8.410. The mean difference is 16.77. The t-value is 9.60339. The p-value is < 0.0001. The result is significant at  $p < .0$ . **Conclusion:** The study concluded that pranayama is effective in reducing stress among the parents of children with autism. This study proved that better caregiving and behavior management of their children at home is possible by practicing 'Pranayama', by reducing their stress level.

**KEYWORDS :** Stress, Pranayama, Parents of Children with Autism

### INTRODUCTION

Autism – also referred to as Autism Spectrum Disorder (ASD) – constitutes a diverse group of conditions related to development of the brain. Characteristics may be detected in early childhood, but autism is often not diagnosed until much later.

Autism is a Pervasive Developmental Disorder (PDD) characterized by severe, complex and permanent behavioral and cognitive disabilities. Clinically defined by the child's behavior and performance, this condition affects all areas of performance<sup>9</sup>. Particularly associated with autism are the inability to relate to others and the display of ritualistic, repetitive behaviors. It may exist in isolation or in combination with other disorders and probably has many causes<sup>3</sup>. Occupational therapy is a para medical profession, deals with the physically, mentally and socially handicapped person and treating them by using the holistic approach. Occupational therapist strives to make them independent in the community with or without utilizing the assistive devices.

Practicing family centered care, occupational therapist uses their knowledge, expertise, and informational power to enhance families' ability to manage the difficulties and challenges that an ASD diagnosis can bring, the occupational therapist focuses on the family's strengths and helps the family to cope and engage in meaningful family occupations<sup>18</sup>. Occupational therapist provide family –centered care to promote occupational functioning of the whole family<sup>18</sup>. Yoga helps in occupational functioning of the whole family. Occupational therapist applying the knowledge of yoga will be helpful to the family in coping up with stress. Pranayama is a branch of yoga useful in the management of stress. This research work aim's to apply the technic of 'Pranayama' on stress management among parents of children with autism.

Stress is, in some ways, a psychological/physiological response to stimuli. The stimuli can be externally or internally generated. Stress manifests as worry, fear, anxiety, anger and depression<sup>5</sup>.

Family members are often the primary caregivers for autistic adults and this responsibility may impact on the parents' wellbeing and quality of life<sup>6</sup>. The difficulties of coordinating care and finding appropriate care can create a significant amount of stress for the family<sup>18</sup>.

A wide network of interrelated factors contributes to parental stress. Level of child's functional ability and behavior, limited social

supports, lack of socio-economic resources, poor family functioning affect the psychological and physical health<sup>2</sup> of the parents. A differently abled child in a family is usually a serious stress factor for the parents. It often requires a reorientation and reevaluation of family goals, responsibilities and relationships<sup>1</sup>.

Pranayama meditation is a simple technique of relaxing the mind which enables each individual to confront the problem and suffering without stress or conflict. It is an ancient method of meditation developed 2,500 years ago by Patanjali. It takes very little time to learn and practice, 'Pranayama', throughout life. Pranayama is a very simple exercise that can be practiced by all. Indian yogis discovered the natural link between the breath (Prana), the body and the mind. The Indian Yogic terminology explains the term, Pranayama (prana+ayama) as 'prana' referring to the vital life force and 'ayama' refers to 'control or regulation'. Thus, the term connotes the function of control or regulation of vital life force through breathing<sup>8</sup>. Pranayama is cost effective, non-invasive, complementary and alternative therapy to reduce the level of stress among parents of children with autism.

The aim and objectives of this study is 1) To assess the level of stress among parents of Autistic children at Sumathi occupational therapy center in Pondicherry. 2) To test the effectiveness of 'Pranayama' on stress among the parents of children with autism at Sumathi occupational therapy center in Pondicherry.

There is significant difference between the pretest and post-test level of stress among the parents of children with autism at selected occupational therapy center in Pondicherry.

Need for the study is to test scientifically the application of Pranayama technique as a stress relieving method for minimizing the level of stress than the need of study. In recent days, the mothers of autistic children face a lot of stress due to lack of awareness on stress coping strategies with their children. Hence a need arises to find out ways and means for the management of stress among Parents of children with autism.

Occupational therapist applying the knowledge in yoga will be helpful to the family in coping up with stress. The rationale of this study is to equip the parents (of children with autism) with awareness on 'Pranayama', as effective tool for stress management.

### Literature review

Thompson, Adam J., (2005) conducted a study on Certified athletic

trainers (ATC'S) highly susceptible to chronic stress and burnout because of the nature of their work. Female ATC's were found to have significantly higher levels of stress than male ATC's. The study also resulted in a strong correlation between chronic stress and burnout in ATC's.

Mehta. M (2007) conducted a study on the experience of stress that varies across each child and is largely influenced by factors such as age, gender and kinds of coping strategies used to deal with stress. In the present study, the effect of age and gender on the experience of stress was studied. Data analysis revealed that age is positively related to increase in physical and psychological symptoms of stress as well as experience of daily hassles and stressful life events. The study revealed that girls seek social support and problem solving modes as coping strategies to stress as compared to boys.

Ravi B (2012) conducted a study on the effect of conventional occupational therapy and yoga in Chronic Low Back Pain. He proved that yoga can be effectively be used as an adjunctive method with conventional occupational therapy in patients with chronic low back pain for a sound physical and mental health. The study showed significant improvement in the back strength, spine range of motion, and social life of the patient.

Hayes S A, Watson S L (2013) conducted a study on the impact of parenting stress: A meta-analysis of studies comparing the experience of parenting stress in parents of children with and without autism spectrum disorder. Researchers commonly report that families of children with autism spectrum disorder (ASD) experience more parenting stress than families of typically developing (TD) children or those diagnosed with other disabilities [e.g., Down syndrome (DS), cerebral palsy, intellectual disability]. The authors re-examined the research using comparison groups to investigate parenting stress and conducted a meta-analysis to pool results across studies.

Yongli Wang, Zhaoming Huang, Feng Kong et al (2017) conducted a study about Parenting stress and life satisfaction in mothers of children with cerebral palsy investigated the mediating effect of social support on the relationship between parenting stress and life satisfaction in Chinese mothers of children with cerebral palsy.

Saishree M (2019) conducted a study about Pranayama on stress among mothers of mentally retarded children shows that a variety of factors influence stress and proved the effectiveness of practicing 'Pranayama', in reducing the stress.

## METHODOLOGY

The study was conducted on parents of children with autism at Sumathi occupational therapy center, Vazhuthavur road, Pondicherry. The Sample size comprised of 40 Parents of children with autism who fulfilled inclusion criteria. A sample for this study was selected through non probability-sampling (purposive sampling) technique.

**Study Design:** A single group pre and post-test design was chosen for the research.

**Inclusion criteria:** Parents willing to join the study. Parents above the age of 18

**Exclusion criteria:** Unwilling parents. Parents are excluded under the age of 18. Father or the partner is not included if the mother declines participation.

Non co-operative parents and Foster parents. As per the Ethical Principles for Medical Research Involving Human Subjects this study was conducted after obtaining written consent from parents in their mothers tongue.

**Statistical tool used:** Students't' test

### Description of the tool

The tool used for this study was Perceived Stress Scale (PSS) is a 14 item questionnaire (Dr. Sheldon Cohen's) to be answered by parents of children with autism, each answer is scored on a scale of 0 to 5 designed to measure the level of stress. Scores are obtained by reverse coding items 4, 5, 7, 9, 10 and 13. On these 4 questions, the scores are changed as follows: 0 =4, 1 =3, 2 =2, 3 =1, and 4 =0. The reverse coded items are then summed with the remaining items 1,2,3,8, 11, 12. The total score is 40. Interpretation of the scores are: low range 0-13,

moderate range 14-26 and high perceived stress range 27-40.

## Data collection procedure

After obtaining the formal permission from the Director of Sumathi Occupational Therapy Center, Pondicherry. The investigator explained the purpose of the study, and the informed written consent form was obtained from the parents of children with autism in their mother tongue. The stress level was assessed by using Perceived Stress Scale as a pretest. The simplest form of Pranayama refers deep inhalation and exhalation. This was repeated 10 times (cycles) twice daily for 30 days. 90% of parents have visited the study center and practised pranayama. The daily practise of pranayama was done individually and weekly once pranayama was practised in a group. The time fixed for intervention is 20 minutes. Investigator monitored all the 10 cycles. It was done twice a day in the morning and evening for one month consecutive days, post-test evaluation was conducted on the 32nd day of the study in the same center. The data collection period was 4 to 6 weeks from April 2021 to May 2021.

## Position- Sugasana

One cycle:

Steps	Type of Breathing	Timing
One	Inspiration	4 seconds
Two	Breath holding	4 seconds
Three	Expiration	6 seconds
Four	Breath holding	2 seconds
Five	Relaxation	20 seconds

**Table 1: Low stress level**

Range	Pre-Test	Post-Test
0-13	12	27

**Table 2: Moderate stress level**

Range	Pre-Test	Post-Test
14-26	28	13

**Table 3: Severe stress level**

Range	Pre-Test	Post-Test
27-40	0	0

**Table 4: Mean, Standard Deviation and t-values**

	Mean	SD	t-value	p-value
Pre test	20.15	4.42	19.62	< 0.0001
Post test	13.4	3.71	13.78	< 0.0001

## RESULTS

The findings of the study revealed that the comparison between the mean and standard deviation of stress among the parents of children with autism. In the pre-test, 12 subjects (30%) had low stress and 28(70%) had moderate stress. In the post test, 27(70.0%) were in low stress, 13(30.0%) were in the moderate stress, whereas no persons were in severe stress. The mean pretest was 20.15 and mean post-test was 13.4 respectively. Standard deviation of the pre- test was 4.42 and post-test standard deviation was 3.71 respectively. The mean difference is 16.77. The t-value is 9.60339. The p-value is < 0.0001. There is significant difference between the pre and post test shown.

## DISCUSSION

Saishree et al (2019) had proved that pranayama is cost effective, non-invasive, complementary and alternative therapy to reduce the level of stress among mothers of mentally retarded children. Similarly Teller S. et al (2008) studied the effect of training in 'Pranayama' on mothers of mentally retarded children and found 'Pranayama' to be useful. A similar study has been carried out by Uma K (2006) et al.

Thus the result of this study matches with the results already published in the literature. Thus the findings of this study is justified. Mothers of grown children with autism continue to have higher stress and report spending more time caregiving and doing chores and less time participating in leisure activities<sup>5</sup>.

Stress is a factor in many modern illnesses. The development of coping skills to deal with stress is an occupational therapist goal for many patients (Cyndi, Barbara, 1990).

The emotional and social stress that these parents undergo have been described by various investigators in the East and West, on the other hand, few studies have shown that stress is not an inevitable

consequence in these parents. However, studies comparing the stress perceived by parents of differently disabled and normal children are limited<sup>1</sup>.

Yoga would help alleviate stress, anxiety, and caregiver burden. Teaching yoga for parents, twice a day and practicing in the therapy center monitored by the therapist would be an effective way to cope up with stress. Pranayama also called as breathing exercise, involves manipulation of breath that is a dynamic bridge between body and mind. Pranayama practiced alone (independently of other yogic practices) has tangible health benefits, particularly over stress, sleep, and cardiovascular parameters<sup>10</sup>.

The current study aimed to prove the beneficial effect of pranayama on stress, among parents of children with autism. At baseline, the participants' level of PSS was low to moderate. Parenting a child diagnosed with autism is a major life challenge that requires ongoing coping skills. Attitudes toward the child's diagnosis can naturally be very negative at first, and require tremendous adaptation to adjust. Practicing pranayama results in a significant improvement in care giving of autism at home.

Yoga has been recommended in Western occupational therapy literature to promote wellbeing<sup>11,12,13,14,&15</sup>. Occupational therapists have specifically used pranayama to facilitate physical and mental relaxation<sup>1</sup>, enhance energy flow and reduce pain during performance of activities of daily living<sup>15</sup>.

Occupational therapists have also used yoga for stress management, to build strength, endurance and flexibility<sup>17,15</sup> and to increase service-users' awareness of their own occupational risk factors<sup>15</sup>.

Occupational therapist utilizes yoga as a therapy to the parents of children with autism to engage in activity of daily living. It is a form of exercise and relaxation. It may be used to meet physical, psychological and /or spiritual needs. Occupational therapist<sup>18, 20</sup> have medical background whereas yoga instructor/ trainer in general does not have the same. Occupational therapist teaching pranayama will aid in stress relief, development of coping skills, mental clarity and calmness.

In the post test results show that persons reduced the level of stress and coordinating care and finding appropriate care can be improved. Occupational therapists can help families learn how to create natural learning opportunities in their day-to-day lives; these successes should enable and empower, improving parental self-efficacy<sup>18</sup>.

The study was concluded that pranayama is cost effective, non-invasive, complementary and alternative therapy<sup>19</sup> to reduce the level of stress among parents of children with autism.

## CONCLUSION

The study confirmed that the assumption which was formulated at the beginning was factual and the study was effective in reducing the stress. The study concluded that Pranayama as a stress relieving technique capable of helping the Parents of children with Autism. It was scientifically and statistically proved to provide better caregiving and behavior management of their children at home by reducing their stress level.

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