

Research Article

# A Comparative Study on Effect of Suryanamaskara and Krida Yoga in Adolescent Children with Respect to Coping Skills on Educational Anxiety and Stress

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**Abstract** Previous studies have separately reported the effects of physical exercise and yoga in children, showing physical, cognitive and emotional benefits. The present randomized controlled trial assessed the effects of Suryanamaskara intervention to Krida Yoga intervention on Educational Anxiety and stress, in school children. 74 school children between age group 14 to 15 years were randomized as Suryanamaskara intervention and Krida Yoga groups {n=37 each}. Both groups were blind assessed as per the convenient sampling. After allocation, using: (i) the Galvanic skin stress resistance test and (ii) Educational Anxiety inventory recordings were made. The Suryanamaskara group practiced yoga (Loosening techniques, Suryanamaskar and guided relaxation), 45 minutes each day, 2 days a week for 8 weeks. During this time the Krida yoga group had Krida yoga games from Dattaram Pol and guided relaxation in place. Both groups were assessed at the end of 16 weeks. Data were analyzed with paired t-test using SPSS. All the changes reported below are based on after-before comparisons, within each group. Both groups showed significant relief in the Educational anxiety inventory with improved results in bringing down the anxiety level ( $p=0.000$ ). Both groups showed a significant change in their stress level during GSSR test, the ( $p < 0.000$ ), while the Suryanamaskar group showed higher interference scores ( $p=0.000$ ) than the Krida Yoga group ( $p=0.000$ ). Total in general there was an improved reduction of stress and academic anxiety in both the yoga groups ( $t > 1.96$ ). Suryanamaskar and Krida Yoga had significant improvement with Suryanamaskara group showing better significance compared to Krida yoga group and are useful additions in combinations to the school routine.

**Keywords** *Adolescents; Krida Yoga; Suryanamaskara*

## 1. Introduction

Adolescence is defined as the phase of human life, when a child is changing from his infancy to adulthood. WHO groups the age from 10 to 19 yrs. Further to state this is the crucial period when a child undergoes a tremendous biological change from the infancy to early teenage. In today's scenario factors like early onset puberty, socio-economic cultures, urbanization, global

communication, changing sexual attitudes and behaviors play a major role in modulating the development of the child (WHO - Adolescent development).

**Academic Stress** In today's highly competitive world, students face various academic problems including exam stress, disinterest in attending classes and inability to understand the subject. Examination stress is the feeling of anxiety or apprehension over one's performance in the exams. It can lead to students being unable to perform to the best of their abilities in exams (<http://www.iitr.ac.in>). Academic anxiety is the major source of stress among adolescents and it may lead to low self-esteem. Many psychological problems such as depression and suicide occur as a result of low self-esteem (Nikitha et al., 2014). Further the society offer plenty of distractions and unwelcome attractions (Hagen and Nayar, 2014). Due to numerous factors and pressures of the 21<sup>st</sup> century adolescent children are having difficulty in coping with the responsibilities, problems in calm and thoughtful manner of reacting. Research shows an increased crime rate and suicidal tendencies among the teenage group worldwide and drastic increase in India (NDTV India - Associated Press, 2012).

Research has highlighted that tailor-made therapy techniques which would include behavioral therapy, educating children and training them in social behavior would foster better adaptive skills to the situation (Blake and Hamrin, 2007). Yoga based intervention shows benefits in managing negative emotions which in turn helps improving greater kinesthetic awareness and improved self-image (Conboy et al., 2013). Surya Namaskar quiets the brain and aides enhanced focus. Today, youngsters confront a ferocious rivalry and ought to embrace Surya Namaskar in their day by day plan as it helps continuance control and decreases the sentiment tension and anxiety, particularly amid exams. General routine of Surya Namaskar gives quality and imperativeness to the body (Shimpi et al., 2014). Yoga is a process of all round personality development physical, mental, emotional and spiritual. Games play an important part in this process. Krida will turn into yoga if we keep constant awareness while playing which in turn will bring love, harmony, peace and bliss. The only apparatus used in Krida yoga is mind-body (Pol, 1996). This suggests that yoga-based health promotion programs are well received by children and can favorably change the lifestyle related diseases and also improve their Academic performance.

### **Research Hypothesis**

Suryanamaskara practice and Krida Yoga Practice has equal benefits in helping Adolescent children to cope with the Stress and Academic Anxiety.

## **2. Materials and Methods**

### **Subjects**

Students of 9<sup>th</sup> grade, 14-15yrs of age in an urban schooling in Bangalore. Randomized sampling

### **Inclusion Criteria**

- Age: Mid Adolescents 14 -15yrs age group
- Sex: Male and Female.
- Students who are pursuing 9<sup>th</sup> grade in an urban schooling in Bangalore.

### Exclusion Criteria

- Students who are not willing to participate in the study.
- Those who are on psychiatric medicines and physically disabled.

### Design of the Study: 2 Groups Pre-post Design

Adolescent children were divided into 2 groups of 37 numbers in each group. One group was Suryanamaskara Intervention module-I and other group Krida Yoga intervention module-II for a period of 8 weeks 2 days per week.

### Ethical Consideration

- Informed consent of the respondents obtained before administering the questionnaire.
- The participants in the study were explained in detail about the nature of the study and the voluntary nature of participation.
- Confidentiality was assured as part of the research process.

### Assessment Tools

- The instruments used in this study: Educational Anxiety Inventory by Dr. Vishal Sood, Dr. (Mrs.) Arti Anand.
- Galvonic Stress Response - The Neulog galvanic skin response logger sensor NUL-217, was used to measure the responses.

### Methods of Intervention

Suryanamaskara Group practiced 10 mns of loosening exercises to loosen the joints and remove lethargy and to bring awareness to the various parts of the body, followed by 24 rounds of Suryanamaskara. Ending by guided relaxation for 8mns. Suryanamaskara is found to be higher on the R-dispositions of physical relaxation, mental quietening, at ease/peace, rested and refreshed, strength and awareness and joy and lower on sleepiness, and stress dispositions-somatic stress, worry, and negative emotion (Godse, Godse, Shejwal, 2015).

Krida yoga group practiced 5mns of loosening practices followed by 26mns of Krida yoga from Dattaram Pol Krida Yoga practices ending the sessions with a guided relaxation for 8mns. Krida yoga games not only reveal one's character, they form it. Krida yoga gives a chance to free the pent-up emotions and thus releases a lot of stress and also help us understand our excitements and culture our emotions. They create a field of energy, breaking the barriers of Tamas, converting Rajas energy to Satvic (Pol, 1996).

### Statistical Techniques

Mean, Standard deviation, Paired t-test.

## 3. Results

Data was analyzed using IBM Statistical SPSS 20 Package. The data were assessed for normal distribution using the Shapirowilk test.

In Table 1, there was a significant difference in the Galvanic Stress Response scores for Post-SN (M=22534.32, SD=6635.39) and Pre-SN (M=27855.74, SD=6635.39), with 95% confidence interval of difference;  $t(36) = 5.456$  ( $t > 1.96$ ),  $p = 0.000$  which shows a very high significance.

**Table 1:** Galvonic Stress Response – Test (SN - Suryanamaskar Group)

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	27855.74	37	6635.39	1090.85	3343.35	7299.48	5.456	36	0.000***
Post	22534.32	37	4955.29	814.64					

$p < 0.05$  not significant;  $p < 0.005$ \*Significant;  $p < 0.001$ \*\*Very Significant;  $p < 0.000$ \*\*\*Highly significant.

**Table 2:** Galvonic Stress Response – Test (KY – Krida Yoga Group)

Group KY	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	29927.65	37	6521.51	1072.13	1143.38	7231.20	8.352	36	0.000***
Post	20377.55	37	6958.59	1143.98					

In Table 2, there was a significant difference in the Galvanic Stress Response scores for Post-KY (M=20377.55, SD=6958.59) and Pre-KY (M=29927.65, SD=6521.51), with 95% confidence interval of difference;  $t(36) = 8.352$  ( $t > 1.96$ ),  $p = 0.000$  which shows equally a very high significance.

**Table 3:** Educational Anxiety Inventory (SN - Suryanamaskar Group)

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	118.35	37	23.43	3.853	13.296	27.677	5.778	36	0.000***
Post	97.86	37	21.82	3.587					

There was a significant difference in the Educational Anxiety Inventory scores for Post-SN (M=97.86, SD=21.82) and Pre-SN (M=118.35, SD=23.43), with 95% confidence interval of difference;  $t(36) = 5.778$  ( $t > 1.96$ ),  $p = 0.000$  which shows a very high significance in bringing down the academic anxiety level.

**Table 4:** Educational Anxiety Inventory (KY – Krida Yoga Group)

Group SN	Mean	N	Std.	Std. Error	95% Confidence Interval of the Difference		t	df	p-value
					Upper	Lower			
Pre	119.49	37	23.91	3.93	8.903	21.367	4.926	36	0.000***
Post	104.35	37	24.00	3.94					

There was a significant difference in the Educational Anxiety Inventory scores for Post-KY (M=104.35, SD=24.00) and Pre-KY (M=119.49, SD=23.91), with 95% confidence interval of difference;  $t(36) = 4.926$  ( $t > 1.96$ ),  $p = 0.000$  which shows equally a very high significance.

It can be inferred from the test results that there was statistically a very significant difference between the baseline and the post data in terms of reducing the educational anxiety and stress level in both the groups with  $p\text{-value}=0.000$  and  $t>1.96$ .

#### 4. Discussion

The findings in this study reveal that the practice of yoga has brought about improvement in managing and reducing stress and anxiety among other things. In the present study it evident that in both form of yoga Suryanamaskara and Krida Yoga most students enjoyed the classes and felt benefits. Most students wanted to continue yoga and would continue if it were offered in school. Positive reports include a greater kinaesthetic awareness, which some students associated with a greater respect for the body and improved self-image. Among students reporting psychological benefits, many cited stress reduction; many used yoga to manage negative emotions; and some propagated more optimism. Most thought yoga could reduce interest in the use of drugs and alcohol and increase social cohesion with family and peers. We found that a yoga program is feasible in this sample of 9<sup>th</sup> graders, especially after benefits are perceived. We also found evidence that yoga may lead to emergent positive benefits in health behaviours not directly prescribed by the program. These results suggest that school-based yoga programs may be appropriate for promoting healthy behaviours at a societal level by focusing on the prevention of negative patterns during the adolescent transition.

As mentioned earlier, research on the effects of yoga on children and young people's mental health and well-being is at an early stage. When introducing yoga to children, we think it is important to keep in mind what Shakta Khalsa - a pioneer in teaching yoga to children suggests: children's yoga is not a simplified version of yoga for adults, it is unique practice. Khalsa also emphasizes that it is important to meet children where they are, and that they experience yoga as fun. The basic motivation of teachers should be that yoga strengthen children's self-esteem and focus through their consciousness of themselves from within (Hagen and Nayer, 2014). Also, earlier investigative studies have shown that the yoga program helped students (a) feel calm and focused, (b) gave them strategies to control their behaviour in stressful situations, and (c) supported a positive self-esteem (Case-Smith et al., 2010).

#### 5. Conclusion

Adolescents are an important asset of a country because they will become tomorrow's young men and women and will provide the human potential required for the country's development. From the findings it may be concluded that, there was a significant difference in bringing down the stress level and educational anxiety in adolescent students after the yoga intervention. Also, the result of the study provides a direction to schools to reduce the stress, and educational anxiety using different strategies. Thus, it is the responsibility of family and school to provide stress free and congenial environment to adolescents for their academic growth and well-being.

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