



**Research Article**



## **Effect of Suryanamaskar Practices with and Without Yoga Nidra On Stress Among High School Students- A Randomized Controlled Trial**

**Dr. K. Jaiganesh<sup>1</sup>, Dr. S. Parthasarathy<sup>2\*</sup>, and Mr. Duraisamy<sup>3</sup>**

<sup>1</sup>Professor, Department of Physiology, Professor, Department of Anesthesiology, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth, Puducherry, India.

<sup>2</sup> Professor, Department of Anesthesiology, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth Puducherry, India.

<sup>3</sup> Department of Yoga, Tamil Nadu Physical Education and Sports, University, Chennai, India.

**Abstract:** Stress is the dynamic connection that exists between an individual and environment where a stimulus (whatever it is) disrupts a person's homeostasis, causing him or her to react to the circumstances with all resources available. The purpose of this study was to determine the effect of suryanamaskar practises with and without yoganidra on stress levels in high school students. It was hypothesised that the influences of suryanamaskar practises with and without yoga nidra would cause significant differences in stress levels among high school students. To achieve the study's goal, 45 high school students from various schools near Kandigai, Chennai, with ages ranging from 12 to 15 years old, were chosen and divided into two experimental and control groups of 15 students each. Suryanamaskar practices with yoga nidra were performed by Experimental Group I, and Suryanamaskar practices without yoga nidra were performed by Experimental Group II for a period of 6 weeks, for an hour in the morning. The control group was not exposed to any specific training but they participated in the regular activities. Before and after the training, three groups were given pre- and post-tests. The Everly and Girnando Questionnaire was used to assess stress. The data collected from the three groups prior to and after the training period were statistically analysed using Analysis of Covariance (ANCOVA) to determine the significant difference and tested at the 0.05 level of significance. The study's findings revealed that suryanamaskar with and without yoga nidra reduced stress significantly. Suryanamaskar combined with Yoga Nidra is more effective than Suryanamaskar alone.

**Keywords:** Students, Stress, Yoga, Suryanamaskar

---

**\*Corresponding Author**

**Dr. S. Parthasarathy , Professor, Department of Anesthesiology, Mahatma Gandhi Medical College and Research Institute, Sri Balaji Vidyapeeth Puducherry, India.**

**Received On 18 September 2022**

**Revised On 11 October 2022**

**Accepted On 14 October 2022**

**Published On 20 October 2022**

---

**Funding** This research did not receive any specific grant from any funding agencies in the public, commercial or not for profit sectors.

**Citation** Dr. K. Jaiganesh, Dr. S. Parthasarathy, and Mr. Duraisamy , Effect of Suryanamaskar Practices with and Without Yoga Nidra On Stress Among High School Students- A Randomized Controlled Trial.(2022).Int. J. Life Sci. Pharma Res.12(6), L28-33  
<http://dx.doi.org/10.22376/ijpbs/lpr.2022.12.6.SP25.L28-33>

This article is under the CC BY- NC-ND Licence (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)



Copyright @ International Journal of Life Science and Pharma Research, available at [www.ijlpr.com](http://www.ijlpr.com)

## I. INTRODUCTION

In recent years more and more people have moved away from mere rituals and turning to yoga as a method for exploring and improving their inner lives. Surya Namaskar is an integral part of the yogic approach and can be easily integrated into our daily lives for it requires only 5 to 15 minutes of practice daily to obtain remarkably fast and beneficial results. Suryanamaskar is a well-known Indian yogic practice. It consists of a series of yogic postures known as asanas. Previous studies have indicated that yoga could be as effective as or even more efficacious than exercise in getting better of a variety of health-related outcomes. It improves mood states like anxiety, stress, and depression via biochemical and physiological mechanisms like endorphins, mitochondria and a few neurotransmitters. It is therefore ideal for even the most active individuals, such as the busy businessman, the housewife with a family to feed and manage the student who is facing examinations, or the scientist who spends most of his day thinking. Surya Namaskara is more than just a series of physical exercises, though course it stretches, massages, tones, and stimulates all the muscles, vital organs, and physical parts by alternatively flexing the body backward and forwards. Suryanamaskar practice consists of a total of 12 postures and 24 steps in one round. This is done by saluting the "Sun" and chanting the twelve names of the sun god. Based on previously published studies, we emphasize the significance of Suryanamaskar and its effects on the body's physical, psychological, and physiological aspects of the body. It has depth and "completeness as a spiritual practice<sup>1,2</sup>. Yoga has been proven to have innumerable benefits on the physiology of human function.<sup>3,4</sup> Yoga is the classic mind-body remedy, and it is one of the biggest gems of India's distinctive cultural heritage. It has a great deal to offer humanity in terms of comprehending all aspects of our dynamic, multilayered presence as both a science and an art. Yoga is a never-ending process that we must "live" in every point in time. Yoga isn't so much about how numerous techniques we do as it is about how so many times or how long we do them. Yoga is life, and it is how we live in accordance with our Dharma. Yoga Nidra is a powerful meditative technique to relax consciously. It is a state of dynamic sleep. It is a systematic method of inducing complete physical, mental and emotional relaxation. It is a psychic sleep. It is a Raja yoga technique. Yoga Nidra<sup>5</sup> derives from two Sanskrit words, 'Yoga' meaning 'union or one-pointed awareness' and 'Nidra' which means 'sleep'. It is a deep relaxation with inner awareness. It means sleep with a trace of awareness. Yoga Nidra is formulated by the Bihar school of yoga. In this setting, we wished to evaluate the role of suryanamaskar and its addition with yoga Nidra on their role in stress reduction.

## 2. METHODOLOGY

### 2.1 Study participants

To achieve the purpose of study, 45 high school students from various schools near kandigai, chennai, their aged between 12 to 15 years were selected randomly into experimental and control groups of 15 subjects each. The parental consent and the concerned permission from the school, authorities have been taken. There is neither injection nor any invasion to put the study in ICMR minimal risk category 2017. The academic research committee of the institute permitted to do the study. TNPC/2015/IRC/Yoga/12. The study was in accordance with the declaration of Helsinki.

### 2.2 Study period

The study was done between April 2016 to April 2017. The study was done with appropriate consent with ethical clearance.

### 2.3 Inclusion and exclusion criteria

The inclusion criteria was children whose parental consent was given and willing to do yoga therapy. the exclusion criteria were unwilling patients and with any systemic illnesses like psychiatric and mental illness.

### 2.4 Study design

The selected subjects were divided into two experimental groups and a control group (CG) with 15 subjects each in an experimental group. I underwent suryanamaskar with yoga nidra and experimental group II underwent suryanamaskar without yoga nidra for the period of 6 weeks, five days per week for a maximum of one hour in the morning. The randomization was with a computer generated randomization. The control group (CG) was not exposed to any specific training but they participated in regular activities. A 10 % reduction of stress scores and a power of 80 % and a confidence interval of 95 % suggested a 42 number in sample size with online software.

## 2.5 TRAINING SCHEDULE

Experimental Group I - Suryanamaskar with yoga nidra.

Experimental Group II – Suryanamaskar with out yoga nidra

### Suryanamaskar

#### 2.5.1 Count 1 : Pranamasana (Prayer Pose)

Stand erect with the feet together, let the hands be by the side of the body Join both the palms together like worshiping in Namaskara mudra, rest on the chest, sternum. Set forearm: straight so that the hand position looks like a triangle. It is like a prayer pose, so one can do prayer or homage to the Sun - god. The body is totally relaxed; mind is focused with awareness.

### Breathing

Breathe out completely.

### Spiritual

Anahata Chakra is activated.

#### 2.5.2 Count 2: PIRAIASANA (Crescent Pose)

Raise and stretch the arms above the head touching the Carf. Push the hip and stomach forward, allowing the upper trunk, chest and head with hands mow back ward.

### Breathing

In the hale while moving back ward.

### Spiritual

Visudhi Chakra is activated.

### 2.5.3 Count: 3 PADHA HASTASANA (HAND TO FOOT POSE)

Bend forward, place the palms or fingers of the hand by the sides of the feet. Try to touch the knee with forehead. Keep the knees straight.

#### Breathing

Exhale while bending forward.

#### Spiritual

Swathistana Chakra is activated

### 2.5.4 Count:4 ASHWA SANCHALANASANA

Place the palms nut beside the feet. Stretch the right leg backward as far as possible, the toes 1d knees touching the ground. Fold the left knee, lower the hip, raise the chest up, head tilted backward, eyes gazing upward towards the sky. The total back is curved li an arch.

#### Breathing

Inhale when the chest and head are raised.

#### Spiritual

Ajna Chakra is activated.

### 2.5.5 Count-5 SETHU BANDHA ASANA (Bridge Pose)

Raise the hip and right leg up. Take the Left leg back, joined together with the right leg. Bring the weight or the body towards the shoulder. Support the weight or the bud)' with the straight hands. Now the body, from head to toe is adjusted to straight line and looks like a bridge.

#### Breathing

Hold the breath support the weight of the body.

#### Spiritual

Manipuraha Chakra is activated.

### 2.5.6 Count-6 ASTANGA NAMASKARA (Salute with 8 parts)

Lower the knees, chest, and chin to the floor. The hip, buttocks, and ~lbcloll1en arc kept in raised position.

#### Breathing

Exhale while lowering.

#### Spiritual

Swathistana Chakra is activated

### 2.5.7 Count-7 BHUJANGASANA (Cobra Pose)

Lower the buttocks and hips to the floor. Stretch the toes out . Raise the head and spine gradually, supported by back muscles 75% raise the shoulders along with chest supporting 25%, tilt the head backward gazing upward, the back is. now curved like <In arch. The arms must remain slightly bent at the elbows.

#### Breathing

Inhale while raising the torso. **Spiritual:** Anahatha Chakra is activated.

### 2.5.8 Count-8 PARVATHASANA (mountain pose)

Raise the hip and buttocks up, and lower the trunk down and the head pushed in between the arms, so that the body looks like a triangle.

#### Breathing

Exhale to assume the posture. **Spiritual:** Visudhi Chakra is activated

### 2.5.9 Count-9 ASHWA SANCHALANASANA (Equestrian pose)

Bring the same right leg forward in between the hands, The left leg is lowered and stretched backward placing the knee on the floor. Push the pelvis forward, raise the trunk up, tilt the head backward gazing upward. Assume the position - 4. (one can change the other leg also.)

#### Breathing

Inhale while raising tire chest lip.

#### Spiritual

Ajna chakra is activated.

### 2.5.10 Count -10 PADHA HASTASANA (Hand to foot pose)

Bring the left leg forward next to right fool. Assume the position- 3

#### Breathing

Exhale Completely.

#### Spiritual

Swathistana Chakra is activated

### 2.5.11 Count-11 PIRAI ASANA (Crescent Pose)

Raise the torso up, hands raised above the head touching the cars. Push the hip and stomach forward, following the upper trunk, chest and head with hands move beck ward. Assume the position - 2.

#### Breathing

Inhale while a assuming the pose.

#### Spiritual

Visudhi Chakra is activated.

### 2.5.12 Count-12 PRANAAM ASANA (Prayer Pose)

Come back to erect standing position bring the hands to namaskara mudra. Assume the position – I.

#### Breathing

Exhale to assume tire position.

#### Spiritual

Anahatha Chakra is activated

Then lower the hands, relax the legs and body. Take deep long breaths to settle the breath and heartbeat to normal. Take sufficient break and repeat the 12 steps with left leg stretching back in position 4, bringing forward in position - 9. Two rounds make one complete set. After completing each set (2 x 12 Positions) one should energize all the inner visceral parts with ujjayee breath (5 times). The practitioner can gradually increase the sets to 12. To increase flexibility position to position, and move 5 times. The last set is done energizing in each, position with ujjayee breath Slimes. The practitioner can feel the expansion and contraction of each ujjayee energizing different inner parts and areas in each position. After completing the practice, lie down, observe "Shanti Asana" for rest, and relaxation for a few minutes.

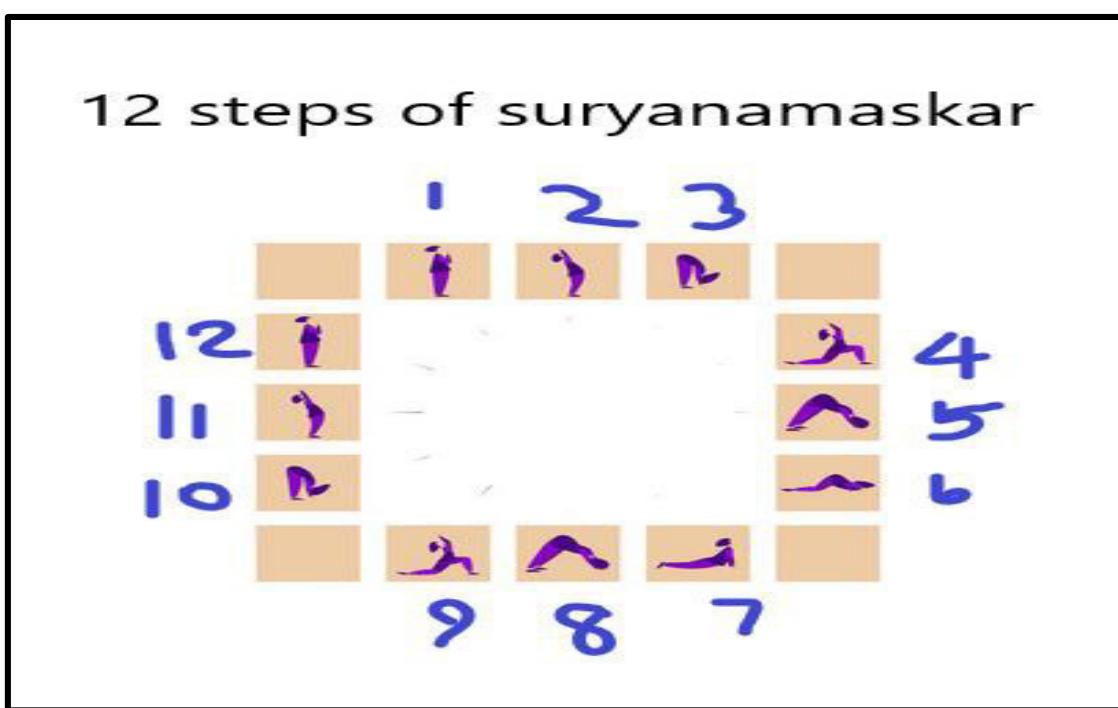


Fig 1 showing the essential steps of surya namaskar

#### Yoga Nidra

Yoga nidra lasts generally for 20 to 40 minutes. Separate techniques are available for unhealthy persons. Choose a quiet room. Learn from a tape or record. Do it in Shavasana; can be seated in a chair too. Do follow the instructions mentally. Be relaxed. Be refrain from sleep. Light, loose clothing should be worn. Do either in the morning or in the evening. Do it on an empty stomach. No pillow should be used. Get guidance from an experienced teacher. The selected variables, anxiety and stress measured by Questionnaire.

#### 3. STATISTICAL ANALYSES

It's a simple convenient sample of willing 45 students without any co morbid illnesses. They were randomized using computer generated number and divided into three groups of 15 each, after intervention, the data were put in an excel sheet and analyzed with SPSS software 20(USA) and ANCOVA analyses was used with p value of less than 0.05 was taken as significant.

#### 4. RESULTS AND DISCUSSION

The demographic variables between the groups were similar. There was no statistical significance (p Value 0.5) The analysis of Covariance on the data obtained for Stress of Pre and Post-test of EXP GI, EXP GII and CG have been presented in Table I.

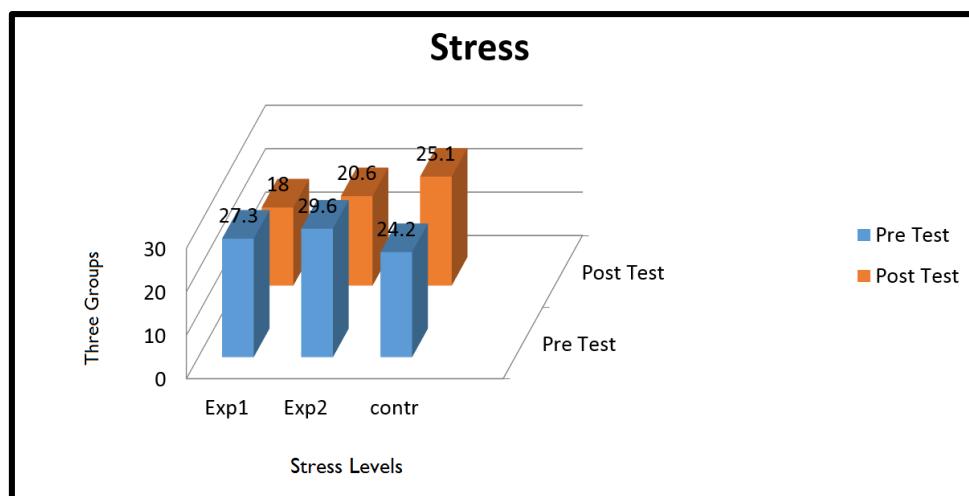
**TABLE – I ANALYSIS OF COVARIANCE OF DATA ON STRESS AMONG EXPGI, EXPGII AND CONTROL GROUPS**

Test	Experimental Group - I	Experimental Group - II	Control Group	Source of Variance	Sum of Square	DF	Mean Squares	"F" Ratio
<b>Pre Test</b>	27.333	29.600	24.267	B	214.9333	2	107.4667	1.43
				W	3139.867	42	74.75873	
<b>Post Test</b>	18.000	20.667	25.133	B	389.73	2	194.8667	3.32*
				W	2461.07	42	58.59683	
<b>Adjusted Post Test</b>	17.79	18.64	27.37	B	802.907	2	401.4535	36.01*
				W	457.0309	41	11.1471	
<b>Mean Gain</b>	27.333	29.600	24.267					

\*Significant at 0.05 level of confidence

Table value for significance at 0.05 level of confidence with df 2 and 42 was 3.21 and Table value for df 2 and 41 was 3.22. The obtained F-ratio values were higher than the table value; it indicates that there was significant difference among the post

test and adjusted post-test means of the Experimental Group – I (Suryanamaskar with yoga nidra practices), Experimental Group – II (Suryanamaskar without yoga nidra practices) and the Control group (No Practices) on Stress.



**FIG: I THE ADJUSTED POST TEST MEAN VALUE ON STRESS OF EXPGI, EXPGII AND CONTROL GROUPS**

The results of the study showed that stress reduced significantly as a result of suryanamaskar with and without yoga nidra. Hence, the hypothesis was accepted at 0.05 level of confidence. Systematic suryanamaskar with and without yoga Nidra reduce stress. The above findings can also be substantiated by observation of a few other experts.<sup>6</sup> Yoga therapy has been proven useful in many conditions of anxiety, and depression of both sexes<sup>7-9</sup>, we tried to combine Surya namaskar to get the results. Godse et al<sup>10</sup> have proved the usefulness of Suryanamaskar but there are few studies on the combined treatment. We did not have dropouts. There were no side effects in our study. Even though there are innumerable proved benefits with Yoga therapy<sup>11, 12</sup>, we have combined suryanamaskar with yoga to prove that stress reduction is higher than doing alone. Suryanamaskara, a yogic practice, was found to be effective in promoting relaxation attitudes such as physical relaxation, mental quiet, , rested and refreshed, power and understanding, and joy, as well as reducing sleepiness, bodily stress, concern, and negative feeling on a dispositional level<sup>13</sup>. Tripathi's findings goes along with our results. Godse's study<sup>14</sup> will have ramifications for the use of suryanamaskar as a relaxation strategic plan for high-stress

college students, as well as for stress reduction at the dispositional level. Further research in this area can add to the existing body of information on the benefits of suryanamaskar as a yogic practice. Yoga, various asanas, and pranayama all have been studied as interventions. However, while suryanamaskar is a widely isolated practice, it is essential to study it through disciplines such as psychology, anthropology, as well as other social sciences. In one study<sup>15</sup>, the yoga nidra group had significantly lower levels of life stress intensity than the control group. When compared to the control group, the yoga group had significantly higher self-esteem scores. This study compares Yoga nidra with Yoga while we have established that a combination therapy is more effective. Suryanamaskar<sup>16</sup> is effective in promoting R-dispositions such as mental quiet, ease/peace, rest and refreshment, resilience, awareness, and joy. Suryanamaskar group had lower stress dispositions (worry, and negative emotion, somatic stress) than control group. Suryanamaskar<sup>17</sup> helps improve physical fitness constituents like muscle strength, flexibility, cardiovascular fitness, and cognition. Suryanamaskar has the potential to be a useful tool for increasing physical fitness, discouraging physical inactivity, and promoting healthy behaviour in school-aged children. To affirm this, high-quality

longitudinal randomized control trials must be conducted. It has been demonstrated that stress levels in first-year B.Sc nursing students have decreased<sup>18</sup>. There was no significant correlation between stress level and age, order of birth, gender, family type, religion, family income, or place of residence. Even though there are such numerous studies on the effect of Suryanamaskar and stress levels ours is one of the rare studies of their combined use.

## 5. CONCLUSION

Suryanamaskar with and without yoga Nidra helps to reduce the stress among the high school students when compare the control group. A combination of Suryanamaskar with Yoga

## 8. REFERENCES

1. Bhavanani AB, Ramanathan M, Balaji R, Pushpa D. Immediate effects of Suryanamaskar on reaction time and heart rate in female volunteers. Indian J Physiol Pharmacol. 2013 Apr-Jun;57(2):199-204.
2. Bhavanani AB, Udupa K, Madanmohan, Ravindra P. A comparative study of slow and fast suryanamaskar on physiological function. Int J Yoga. 2011 Jul;4(2):71-6. doi: 10.4103/0973-6131.85489.
3. V.Duraisami, R Ramanan. Parthasarathy S“Effect of Yogic Practices on Vital Capacity – A Pilot Study Among University Men Students.” IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 10, 2018, pp 63-65.
4. V. Duraisamy, R Ramanan. S Parthasarathy. Effect of Yogic Practices on Vital Capacity – A Pilot Study Among University Men Students. IOSR Journal of Dental and Medical Sciences (IOSR-JDMS).2018: (17), 10 Ver. 9, PP 63-65
5. Ananda Balayogi Bhavanani.. Yoga Practices for Prevention and Management of Lifestyle Disorders. Ann. SBV, July - Dec, 2013 2(2).
6. Pandi-Perumal SR, Spence DW, Srivastava N, Kanchibhotla D, Kumar K, Sharma GS, Gupta R, Batmanabane G. The Origin and Clinical Relevance of Yoga Nidra. Sleep Vigil. 2022;6(1):61-84. doi: 10.1007/s41782-022-00202-7.
7. Sobana R, Parthasarathy S, Duraisamy, Jaiganesh K, Vadivel S. The effect of yoga therapy on selected psychological variables among male patients with insomnia. J Clin Diagn Res. 2013 Jan;7(1):55-7. DOI: 10.7860/JCDR/2012/5056.2669.
8. Parthasarathy S, Jaiganesh K, Duraisamy. Effect of Integrated Yoga Module on Selected Psychological Variables among Women with Anxiety Problem. West Indian Med J. 2014 Jan;63(1):78-80. DOI: 10.7727/wimj.2012.054.
9. Jaiganesh K, Duraisami V, Parthasarathy S. Combined effect of inclusive games and yogic relaxation on the selected domestic skills among physically challenged boys. International Journal of Yoga. 2011; 4 (2) 100-101
10. Godse AS, Shejwal BR, Godse AA. Effects of suryanamaskar on relaxation among college students with high stress in Pune, India. Int J Yoga. 2015 Jan;8(1):15-21. doi: 10.4103/0973-6131.146049.
11. Bhavanani AB. Yoga is not an intervention but may be yogopathy is. Int J Yoga. 2012 Jul;5(2):157-8. doi: 10.4103/0973-6131.98247. PMID: 22870003; PMCID: PMC3410198.
12. Bhavanani AB, Ramanathan M, Balaji R, Pushpa D. Comparative immediate effect of different yoga asanas on heart rate and blood pressure in healthy young volunteers. Int J Yoga. 2014;7:89–95. <https://doi.org/10.4103/0973-6131.133870>.
13. Tripathi MN, Kumari S, Ganpat TS. Psychophysiological effects of yoga on stress in college students. J Educ Health Promot. 2018 Mar 1;7:43. doi: 10.4103/jehp.jehp\_74\_17.
14. Godse AS, Shejwal BR, Godse AA. Effects of suryanamaskar on relaxation among college students with high stress in Pune, India. Int J Yoga. 2015;8:15–21.
15. Kim Sang Dol,Effects of a yoga nidra on the life stress and self-esteem in university students,Complementary Therapies in Clinical Practice,2019: 35;232-236. <https://doi.org/10.1016/j.ctcp.2019.03.004>.
16. Godse AS, Shejwal BR, Godse AA. Effects of suryanamaskar on relaxation among college students with high stress in Pune, India. Int J Yoga 2015;8:15-21.
17. Kanojia AK, Bagwe HS, Agarwal BM. A review of the physiological effects of Suryanamaskar in children. MGM J Med Sci 2022;9:410-8.
18. Ruchika rani, Ashok kumar, Poonam Sharma. Effect Of Yoga Nidra On Stress Level Among B.Sc Nursing First Year Students. Nursing and midwifery research journal: 2013; 9(2). 10.33698/NRF0156

Nidra is more effective than Surya namaskar alone in the reduction of stress. A multicentric trial will possibly establish the role with more authenticity.

## 6. Authors contribution statement

Dr KJ has designed and conceptualized, VD has done the data collection SPS has done the write up and communication  
Financial aid – NIL

## 7. CONFLICT OF INTEREST

Conflict of interest declared none.