

# Efficacy of Yoga Intervention on Stress Anxiety and Psycho-Physiological Parameters Among Nursing Students

Dr. Jyoti Kathwal <sup>1\*</sup>, Dr. Aditya Sharma <sup>2</sup>, Chanchal Sharma <sup>3</sup>, Bhumesh Kumar <sup>4</sup>

<sup>1</sup> Assistant Professor, College of Nursing, AIIMS Bilaspur, Himachal Pradesh, India

<sup>2</sup> Professor cum Principal, College of Nursing, AIIMS Bilaspur, Himachal Pradesh, India

<sup>3</sup> Tutor, College of Nursing, AIIMS Bilaspur, Himachal Pradesh, India

<sup>4</sup> Yoga Teacher, AIIMS Bilaspur, Himachal Pradesh, India

\*Corresponding Author Email: jyotikathwal@gmail.com

## Abstract

Yoga, an age-old mind-body discipline that incorporates physical postures, breathing techniques, and meditation, has become more well-liked as a stress and anxiety-reduction therapy. This study examines and evaluates efficacy on tailor-made yoga intervention for the nursing students, who commonly experience homesickness and difficulty to adjust with the nursing profession. The study aimed to assess the academic anxiety and stress experienced by the nursing students and impart the yoga intervention for four weeks daily sixty minutes. Study also involved the assessment of the physiological and psychological parameters before and after the intervention. Research from observational studies and randomized controlled trials shows that yoga can improve mood regulation and resilience while dramatically lowering physiological indicators of stress, such as cortisol levels. Similarly the results revealed the lowered stress levels and improvement in psychological and physiological parameters. In conclusion the study results revealed that Yoga as an intervention when implemented in life regularly helps to maintain emotion mental and physical well being.

## Keywords

Anxiety, Nursing, Psycho-Physiological Parameters, Stress, Students, Yoga.

## INTRODUCTION

Derived from the Sanskrit word yuj, the English term "yoga" means "yoking" or "union." According to the scholar Patanjali, the practice combines the eight limbs of yoga, which include dhyana (concentration), asana (movement), and pranayama (breathing). Yoga and meditation are now commonly recognized as non-pharmacologic approaches to improve overall health and reduce stress and anxiety. Numerous demographics, including college-aged students, have demonstrated increased attention and self-awareness as a result of meditation.

Evidence of yoga's existence dates back to the pre-Vedic era (2700 B.C.), and it continued until Patanjali's time. Information regarding yoga practices and related literature from this era may be found mostly in the Vedas (4), Upanishads (108), Smritis, Buddhist teachings, Jainism, Panini, Epics (2), and Puranas (18) etc [1].

All of the yoga systems we practice would fit into one or more of these categories. Each person is a special blend of these four elements. "Working under the guidance of a guru is crucial, according to all of the ancient commentators on yoga. The rationale is that only a guru is able to combine the four basic routes in the way that each seeker needs. Yoga education was traditionally taught by wise, experienced, and informed individuals in families (similar to the education given in western convents) and subsequently by Seers (Rishis, Munis, and Acharyas) in Ashramas (similar to

monasteries).

In contrast, the goal of yoga education is to care for the individual, the 'Being'. A good, balanced, integrated, honest, clean, and transparent individual is thought to be more beneficial to oneself, one's family, society, country, nature, and all of mankind. The teaching of yoga is 'being oriented'. Various living traditions and literature have described the specifics of dealing with the "being oriented" component. "Yoga" is the way that contributes to this significant sector [1] [2] [3].

The aim of this project was to evaluate the efficacy of a Four-week yoga and meditation intervention (Prarthana, Suksham Vyayam, Special Vyayam, Yoga nidra, Pranayam, Dhyana) on B.Sc. Nursing 1st year students' stress perception, anxiety levels, and mindfulness skills. The objectives of the study were

- To identify the efficacy of Yoga intervention on overall anxiety, academic stress and changes in psycho-physiological parameters before and after the intervention.
- To determine the association of stress level and students profile variables.

## REVIEW OF LITERATURE

The usefulness of yoga as a therapeutic intervention for depression, stress, and anxiety has drawn more attention in recent years. A comprehensive analysis of the literature revealed that although a number of research linked yoga to

beneficial effects, many of them lacked sound methodology. It is challenging to reach firm findings regarding the general efficacy of yoga for anxiety disorders due to the variety of illnesses treated and the irregularities in study design. Nonetheless, findings for disorders like obsessive-compulsive disorder were especially positive [1] [2].

According to other assessments of human trials evaluating yoga's ability to reduce stress and anxiety, most of the research indicated that yoga therapies significantly reduced symptoms. However, the trustworthiness of the results is weakened by the limitations of these research, which frequently included small sample numbers, a lack of randomization, and the absence of control groups. Additionally, there is a need for more study to elucidate these links since, despite the fact that several studies showed biochemical and physiological indicators of stress and anxiety, the results were inconsistent [2].

Results from quasi-experimental research that target certain groups, such women or college students, have been encouraging. For instance, participants' symptoms of stress, anxiety, and sadness have been shown to significantly decrease in organized hatha yoga programs [1] [2] [3]. In the context of postsecondary education, moderate impact sizes have been noted, indicating possible advantages for this population [4]. However, more thorough randomized

controlled trials are required to support these findings due to the general danger of bias in many studies and the absence of strict safety reporting.

Finally, there is rising support for using yoga as an alternative intervention to support mental health in clinical and educational contexts. Even while early research indicates that yoga can improve wellbeing and quality of life, especially for some populations, well-designed studies are still required to prove yoga's efficacy as a treatment for stress and anxiety [5]. Overall, research suggests that yoga may be used as a supplemental strategy, but further study is necessary to determine its effectiveness and direct clinical practice.

### MATERIAL AND METHODS

A quantitative research approach with pre experimental design was adopted. And purposive sampling technique was adopted to enroll 33 nursing students to assess the effect of yoga on stress management. Pre and post intervention data was collected and following Yoga intervention was imparted for four weeks daily in the morning for 60 minutes and the details of the intervention is mentioned below (refer table 01).

**Table 01.** Yoga Intervention

Sr. No.	Practice	Term	Duration
1.	ॐ Chanting	3 Avrtan	1 minute
2.	Prarthana: 1. Sangachdhavm 2. Ath yog 3. Yog chit vriti.	1 Avrtan	2 minute
3.	Suksham Vyayam- legs, knees, waist, shoulders, neck	10-10 Avrtan	6 minute
4.	Special Vyayam: 1. Hands up and down, 2. From suryanamaskar position -3, 3. With bhujang –parvat asan.	20-20 Avrtan	2 minute
5.	Standing Asan:- Tadasana, Virabhadrasana variation- 2, Utanasana, Chatushpadasana	1 Avrtan - with 15 seconds stability	2 minute
6.	Sitting Asan:- Vajrasana, Mandukasana 1, 2, 3, Ustrasana, Parvatasana (from Vajrasana), Marjarasana	1 Avrtan - with 15 seconds stability	3 minute
7.	Asans lying down on Back:- Uthita Padasana, Halasana, Viparita Karni, Sarvangasana, Setubandhasana, Shirshasana	1 Avrtan - with 15 seconds stability	2 minute
8.	Asans lying down on stomach:- Makarasana, Balasana, Bhujangasana, Adhomukhisvanasana	1 Avrtan - with 15 seconds stability	2 minute
9.	Yoga nidra: 1. With Shavasana 2. Following Yama: Stya, Ahinsa, Astey, Brahmcharya Aprigrah 3. Following Niyama: Shauch, Santosh, Tap, Svadhayay, Ishvar Pranidhan 4. Following Samtvam yog Uchyate	1 Avrtan	15 minute

Sr. No.	Practice	Term	Duration
10.	Pranayam: 1. Dirgh Shvasan 2. Bhastika 3. Nadishoshan (with the ratio of 1:2:3:2) 4. Bharamari	30 Avrtan 250 Avrtan 10 Avrtan 10 Avrtan	2 minute 4 minute 5 minute 3 minute
11.	Dhyan: 1. ॐ - 3 Avrtan 2. Onkar dhyan - Onkar bindu 3. ॐ - 3 Avrtan	1 Avrtan	10 minute
12.	Ending with shanty mantra- Sarve bhavantu sukhina...	10 Avrtan	1 minute

### RESULTS AND DISCUSSION

Data revealed that samples were between 18-20years of age and mean age was 19.12 with standard deviation of 0.94. As yoga is celebrated every year in India at all the academic and professional institutes therefore 84.8% of the study samples had experience of yoga, whereas 15.2% reported to have no experience of Yoga in their life. Meditation was reported by 69.7% of the study samples and 12.1% reported to have no experience of it. Study sample reported to spend upto five hours for studying, also 54.5% had lived in hostel. Researches reveal that living away from the home can be a confounding variable to develop stress and anxiety as a result of things like homesickness, social isolation, academic obligations, and adjusting to community living. According to studies, a sizable portion of students living in dorms suffer from moderate to high levels of stress. Common stressors include a lack of privacy, stringent rules, and interpersonal problems among roommates. For example, studies on medical students revealed that 65% of them had moderate stress and 9% had high stress, which was frequently related to the demands of their studies and the lack of emotional support from their families [6].

All study participants were healthy other than one who was taking medications for celiac disease. Majority of study samples were Hindu (90.9%). Parents occupation revealed that mothers were majorly homemakers and fathers of study participants were farmers (21.2%), self employed (21.2%) and government employee (24.2%) (refer table 2).

**Table 2.** Students Profile

Variable	Fr	%
<b>1 Age</b>		
18yrs	11	33.3
19yrs	9	27.3
20yrs	11	33.3
21yrs	2	6.1

Variable	Fr	%
<b>Yoga experience</b>		
Yes	28	84.8
To some extent	5	15.2
No	nil	nil
<b>Meditation Experience</b>		
Yes	23	69.7
To some extent	6	18.2
No	4	12.1
<b>Hours spent studying(per day)</b>		
<1	nil	nil
1-5	20	60/6
5-10	13	39.4
>10	nil	nil
<b>Previous experience of stay in hostel</b>		
Yes	16	51.5
no	17	48.5
<b>Type of Family</b>		
Nuclear	18	54.5
Joint	15	45.5
Extended	nil	nil
<b>No. of Siblings</b>		
One	15	45.5
Two	10	30.3
More than two	8	24.2
<b>Medication history</b>		
Yes	32	96
No	1(for celiac disease)	3

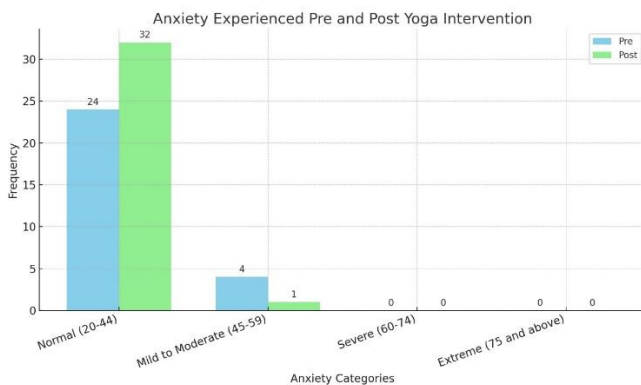
Variable	Fr	%
<b>Religion</b>		
Hindu	30	90.9
Muslim	2	6.1
Christian	1	3
Sikh	Nil	Nil
others	Nil	Nil
<b>Fathers' occupation</b>		
Farmer	7	21.2
Self employed	7	21.2
Private Employee	9	27.3
Govt Employee	8	24.2
Other	2	6.1
<b>Mothers' Occupation</b>		
Homemaker	28	84.8
Self employee	1	3
Private Employee	nil	nil
Govt Employee	4	12.1

### Section A - Deals with self-rated anxiety among nursing students

Zung Self rating scale was used with permission for collecting the data related to anxiety among study participants. Results revealed that prior to the intervention four of the participants experienced mild to moderate anxiety which decreased post intervention and only one study participant experienced mild to moderate anxiety (refer table 3). Moreover the mean score before the intervention was 24.18 with standard deviation 12.55 and mean score dropped to 18.42 with standard deviation of 7.45.(refer fig 1) This suggested that the anxiety was significantly dropped with yoga intervention as the score for no anxiety was less than 44 and standard deviation also indicated that the study participants are at the same level with lesser variation on the pattern of anxiety. Similar results were reported that stress and anxiety among nursing students reduced with eight weeks yoga program and improved resilience with emotional wellbeing. Literature indicates that yoga has potential utility in nursing education in order to foster better mental health [7] [8] [9].

**Table 3.** Anxiety Experienced pre and post Yoga Intervention

Zung Self rated anxiety	Normal (20-44)		mild to moderate (45-59)		Severe (60- 74)		Extreme (75 and above)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Frequency	24	32	4	1	Nil	Nil	Nil	Nil
Percentage	87.9	(97%)	12.1	(3%)	Nil	Nil	Nil	Nil



**Figure 1**

**Table 4.** Self-Perceived Stress pre and post Yoga Intervention

Self-Perceived Stress	Normal (20-44)		mild to moderate (45-59)		Severe (60- 74)		Extreme (75 and above)	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Frequency	27	32	6	1	Nil	Nil	Nil	Nil
Percentage	81.8%	97%	18.2%	3%	Nil	Nil	Nil	Nil

### Section B – Deals with overall perceived stress among nursing students

Data revealed that 18.2 % of study participants experienced Mild to moderate stress and it was reduced to only three percent with yoga intervention. The mean score before intervention was 30.54 ( $\pm$  11.05) which improved with yoga intervention 26.81 ( $\pm$  9.85). (refer table 4) This evidently reflected that yoga intervention was able to reduce stress among nursing students.

Researches have shown that systematic yoga programs, which are typically run over a few weeks, significantly reduce stress levels. For example, after participating in a yoga

program that includes breathing exercises, physical postures, and relaxation methods across many sessions, 215 undergraduate nursing students' subjective stress levels

considerably decreased. While follow-up testing revealed significant stress reduction, the majority of individuals reported relatively mild stress levels following the yoga sessions, whereas initial tests revealed moderate to high levels of stress [10].

Pranayama (breathing techniques), meditation, and asanas (yoga postures) were all part a five-day-a-week strategy and findings confirmed yoga's ability to improve coping strategies and mental resilience in high-stress educational environments by showing a substantial drop in perceived stress levels after the intervention [11].

**Section C – Deals with Academic Anxiety among nursing students**

The data collected before the yoga intervention revealed that academic anxiety was mild among 33.3% whereas it was moderate among 30.3%, however, the severe academic anxiety was found in 21.2% of the study participants and 6.1% reported extreme academic anxiety. The post intervention showed no anxiety among any of the study participants (refer table 5). The mean score also suggest that yoga intervention helped the nursing students to overcome academic anxiety as pre intervention mean score was 20.09 ± 8.36 and post intervention mean score was 7.48 SD ± 18.4.

This indicated that Yoga intervention was effective in decreasing the academic anxiety.

**Table 5.** Academic Anxiety Prior to the Yoga intervention

Assessment Rating	Fr	Percentage
Normal (0-8)	3	9.1
Mild (9-16)	11	33.3
Moderate (17-24)	10	30.3
Severe (25-32)	7	21.2
Extreme (33-40)	2	6.1

Similar results have been found that Yoga has ability to promote mental health and lessen anxiety associated to school or college and improves emotional well-being [12].

**Section D– Deals with Changes in Psycho -physiological parameter among nursing students**

Data revealed that yoga intervention improved the psychological and physiological parameters (refer table 6 & 7). Researches have shown similar results, however only psychological impact was assessed in previous researches and another insight has been gained that the intervention when conducted on regular basis sustain the effect.

**Table 6.** Impact of Yoga on Psychological parameters

Psychological Impact	Anxious mood		Tension		Fears		Intellectual ability		Depressed Mood	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Not experienced	10	11	5	8	15	10	17	13	12	20
Mild	13	19	16	13	4	14	9	11	14	10
Moderate	7	3	7	12	10	7	5	8	6	3
Severe	2	Nil	5	Nil	4	2	2	1	1	Nil
Extreme	1	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
Mean	1.12	0.76	1.36	1.12	1.09	1.03	0.82	0.91	0.91	0.48
S.D	1.02	0.61	0.93	0.78	1.13	0.88	1.10	0.88	0.91	0.67

**Table 7.** Impact of Yoga on Physiological parameters

Physiological Impact	Somatic - muscular		Somatic - sensory		CVS S/S		Resp S/S		GI S/S		Genito Urinary S/S		Autonomic s/s		Insomnia	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Not experienced	19	27	20	24	25	27	28	30	24	26	25	28	19	21	24	28
Mild	6	5	10	6	04	5	02	2	05	4	05	4	10	9	05	3
Moderate	06	01	01	02	01	01	01	01	02	02	02	01	02	02	03	01
Severe	01	Nil	01	01	03	Nil	02	Nil	01	01	01	Nil	01	Nil	01	01
Extreme	01	Nil	01	Nil	Nil	Nil	Nil	Nil	01	Nil	Nil	Nil	01	01	Nil	Nil
Mean	0.76	0.21	0.58	0.39	0.55	0.33	0.39	0.12	0.48	0.33	0.39	0.18	0.64	0.52	0.42	0.73
S.D	1.06	0.48	0.94	0.75	1.20	0.82	1.09	0.42	0.97	0.74	0.86	0.46	0.96	0.87	0.79	1.01

Nursing students' mental health and academic attention improved as a result of an organized yoga program that improved their self-compassion, mindfulness, and coping

mechanisms. By encouraging relaxation and emotional control, yoga treatments can have a significant influence on nursing students' academic and personal life. In another

study, nursing students who frequently practiced yoga reported lower levels of academic stress and anxiety over time [12].

No association of post intervention scores of stress, anxiety and academic performance, was found with students' profile variables. hence it was concluded that the yoga intervention was effective to overcome the stress.

### CONCLUSION

The study results revealed that Yoga as an intervention when implemented in life regularly helps to maintain emotion mental and physical well being. According to research published in BMC Complementary Medicine and Therapies, yoga can help students manage their academic stress, focus, and cognitive function. Weekly yoga sessions have been demonstrated to lower perceived stress and anxiety, especially among nursing students, suggesting the possibility of both stress alleviation and academic development [13]. Also, through breathing and physical exercises that alter stress response systems, yoga helps patients with mental health conditions like PTSD and anxiety. Over time, this improves their physical and emotional resilience [14].

### REFERENCES

- [1] Kirkwood G, Rampes H, Tuffrey V, Richardson J, Pilkington K. Yoga for anxiety: a systematic review of the research evidence. *Br J Sports Med.* 2005 Dec;39(12):884-91; discussion 891. doi: 10.1136/bjism.2005.018069. PMID: 16306493; PMCID: PMC1725091.
- [2] Li AW, Goldsmith CA. The effects of yoga on anxiety and stress. *Altern Med Rev.* 2012 Mar;17(1):21-35. PMID: 22502620.
- [3] Shohani M, Badfar G, Nasirkandy MP, Kaikhavani S, Rahmati S, Modmeli Y, Soleymani A, Azami M. The Effect of Yoga on Stress, Anxiety, and Depression in Women. *Int J Prev Med.* 2018 Feb 21;9:21. doi: 10.4103/ijpvm.IJPVM\_242\_16. PMID: 29541436; PMCID: PMC5843960.
- [4] Breedvelt JFF, Amanvermez Y, Harrer M, Karyotaki E, Gilbody S, Bockting CLH, Cuijpers P, Ebert DD. The Effects of Meditation, Yoga, and Mindfulness on Depression, Anxiety, and Stress in Tertiary Education Students: A Meta-Analysis. *Front Psychiatry.* 2019 Apr 24;10:193. doi: 10.3389/fpsy.2019.00193. PMID: 31068842; PMCID: PMC6491852.
- [5] Berent GR, Zeck JM, Leischner JA, Berent EA. Yoga as an alternative intervention for promoting a healthy lifestyle among college students. *J Addict Nurs.* 2014 Oct-Dec; 25(4):167-71. doi: 10.1097/JAN.000000000000046. PMID: 25514685.
- [6] Vidya Kadam, & Santosh p.Dobhal. (2024). Prevalence of Depression, Anxiety and stress among medical hostel lite girl students belong to 18 to 26 year. *International Journal of Allied Medical Sciences and Clinical Research*, 12(1), 40–46. Retrieved from <https://ijamscr.com/ijamscr/article/view/1450>
- [7] Mathad, MD, Rajesh, SK, Pradhan, B. Effect of Yoga on Psychological Functioning of Nursing Students: A Randomized Wait List Control Trial. *Journal of Clinical and Diagnostic Research.* 2017;11(5)
- [8] Anand, P, Tuli, A, Chauhan, M. Effect of Yogic Asanas on Anxiety and General Well-Being of Nursing Students. *International Journal of Health Sciences and Research.* 2018;8(5):25–30
- [9] Birdee, GS, Yeh, GY, Wayne, PM, Phillips, RS, Davis, RB, Gardiner, P. Clinical applications of yoga for the pediatric population: A systematic review. *Academic Pediatrics.* 2009;9(4):212–220.
- [10] Kalavalli, M & Chinnathambi, Kanniammal & Mahendra, Jaideep & Jayakumar, Malarvizhi. (2022). Effect Of Yoga On Perceived Academic Stress Among Undergraduate Nursing Students In The Selected Colleges. *Journal of Pharmaceutical Negative Results.* 13. 132-135. 10.47750/pnr.2022.13.S02.20
- [11] Effect Of Yoga On Perceived Academic Stress Among Undergraduate Nursing Students In The Selected Colleges. (2022). *Journal of Pharmaceutical Negative Results*, 132-135. <https://doi.org/10.47750/pnr.2022.13.S02.20>  
[https://www.ijhsr.org/IJHSR\\_Vol.8\\_Issue.9\\_Sep2018/IJHSR\\_Abstract.021.html](https://www.ijhsr.org/IJHSR_Vol.8_Issue.9_Sep2018/IJHSR_Abstract.021.html)
- [12] Castellote-Caballero Y, Carcelén-Fraile MDC, Aibar-Almazán A, Rivas-Campo Y, González-Martín AM. Yoga as a therapeutic approach to mental health in university students: a randomized controlled trial. *Front Public Health [Internet].* 2024;12:1406937. Available from: <http://dx.doi.org/10.3389/fpubh.2024.1406937>
- [13] Ford J. Yoga for health and well-being in nursing students: An integrative review. *J Nurs Educ [Internet].* 2024;63(1):17–23. Available from: <http://dx.doi.org/10.3928/01484834-20231112-02>
- [14] Effect of yoga on perceived academic stress among undergraduate nursing students in the selected colleges. *pnr [Internet].* 2022;13(S02). Available from: <http://dx.doi.org/10.47750/pnr.2022.13.s02.20>