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"A Study To Evaluate The Effectiveness Of Yoga To Reduce Level Of Stress Among Nursing Students In Selected Nursing Colleges At Rajahmundry"

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Abstract
The concern of stress amongst the nursing student is widespread because of the academic requirements and the responsibility in practice that could have adverse effects on their mental health and academic achievements. The current research was a bid to examine the efficacy of a structured yoga program in decreasing stress levels among nursing students in chosen nursing colleges. The one-group pre-test post-test quasi experimental design based on quantitative research was adopted. Simple random sampling was used to select sixty nursing students. The Perceived Stress Scale was used to measure the baseline levels of stress before the intervention. The participants were then taken through structured yoga program comprising of the chosen asanas, breathing exercises, relaxation systems of 60 minutes per day during 30 days. The same tool was used to determine the level of post-test stress. The findings showed that the levels of stress decreased significantly after the yoga intervention, and the new pattern of moderate stress in the pre-test phase was significantly replaced by the low stress in the post-test. The paired t-test compared the pre-test and post-test mean stress scores statistically to prove that there was a significant difference between the two groups. There was no major relationship between the intensity of post-test stress and the demographic variables chosen. The results indicate that yoga is a promising, safe, and drugless intervention in the process of stress reduction among nursing students. The inclusion of yoga in the nursing education program can lead to psychological well-being and the ability of students to cope with academic and clinical stress.

Keywords: Yoga, Stress, Nursing students, Perceived Stress Scale, Non-pharmacological intervention

1. INTRODUCTION

Stress is a familiar psychological reaction, which is undergone by the university students as they adjust to the academic demands, socialization, and performance expectations. The level of stress can be very high among students pursuing health professional programs because of close-term examinations, rigorous courses, and expectations to achieve clinical competence. Students of nursing are vulnerable to specific stressors associated with clinical exposure, patient care responsibilities, and emotional work, and they can have an adverse impact on their mental health and academic performance. Elstad et al. (2020) have proven that the stress levels in university students are often even high, and effective stress-management interventions in the academic setting should be implemented. Experimental stress has been linked to anxiety, depression, lower level of life satisfaction, and poor psychological health in students. Uncontrolled stress can also undermine learning outcomes, clinical decision-making, and professional preparedness in the nursing education sphere. Falsafi (2016) stated that the students who undergo high stress levels are more susceptible to psychological distress and it is important to implement preventive and early interventions. Moreover, as the findings reported by Kalavalli et al. (2022) provide, academic stress is a major issue among undergraduate nursing students, which is why stress-reduction methods targeted at this group should be considered relevant.

Since pharmacological stress management is limited and has negative possibilities, the non-pharmacological ones have become a more popular topic of scholarly and clinical research. Yoga, meditation, and mindfulness as mind-body practices are becoming more and more widely accepted as safe, cheap, and holistic methods of enhancing mental well-being. In their article, Breedvelt et al. (2019) presented a solid evidence-based piece of information indicating that mind-body interventions are highly effective in terms of stress, anxiety, and depressive symptoms reduction in tertiary education students. Equally, Ciezar-Andersen et al. (2021) have made the yoga intervention a potential tool to help psychological well-being in healthcare students. Yoga is a combination of physical postures, controlled breathing and relaxation methods, which encourages the balance between the body and the mind. It has been demonstrated that regular yoga practice can help to regulate stress response, have a beneficial effect on emotional regulation, and be psychologically more resilient. In a randomized controlled trial, Castellote-Caballero et al. (2024)

were able to show that yoga had a significant positive effect on mental health outcomes of university students. Chauhan et al. (2024) also reinforced the use of yoga to lessen depression, anxiety, and stress in medical students, which is applicable to the education of health professionals.

Studies whose results specifically address nursing students have demonstrated positive results in terms of the efficacy of yoga in stress management. According to Kaur and Bajwa (2018), the stress level in nursing students significantly reduced after yoga therapy. Alan et al. (2024) reported that the participants with the help of laughter yoga showed an improvement in stress-coping behaviours in the early period of the university education. The results indicate that yoga-related interventions can help to upgrade adaptive coping skills when academic transitions are critical. Another form of yoga, which integrates voluntary laughter with breathing exercises, is Laughter yoga, which has also received attention due to its psychological value. In the randomized controlled trial, Aslan et al. (2025) revealed that the use of laughter yoga was effective in perceived stress and anxiety among nursing students. Similar findings were made by Eraydin and Alpar (2022) who concluded that the use of laughter-based interventions increased psychological well-being and life satisfaction among nursing students during the COVID-19 pandemic. Erkin and Kocaçal (2024) also supported these results by a systematic review, revealing that laughter yoga is a useful nursing intervention in stress management.

The evidence in favor of yoga does not only concern the population of the students. According to Corrigan et al. (2022), yoga practices are flexible and can be used therapeutically, with positive mental health effects of yoga-based interventions reported in a wide range of populations. Fenton et al. (2025) pointed out the increasing trend of mindfulness- and yoga-based interventions in nursing education to help students be well. Kaya et al. (2025) further discovered that yoga based on laughter that was performed prior to clinical exposure had a positive effect on the perception and meaning of stress in the lives of first-year nursing students. Although there is increasing data on the use of yoga as a stress-management approach, there has been very little research done on the use of structured yoga intervention among the nursing students in particular regional settings. The possible cultural, institutional, and educational influences may affect stress experience and intervention results. Thus, the evidence that can be created to provide context-specific data to justify the inclusion of yoga in the nursing education curriculum is necessary. The goal of the present research is to compare the role of yoga in alleviating stress levels in nursing students of the chosen nursing colleges to extend the evidence-based practice of enhancing mental health and academic performance.

The main purpose of this research was to consider how effectively a structured yoga program can decrease levels of stress in nursing students in the chosen nursing colleges. The research also had the purpose of determining the pre-test and post-test levels of stress in nursing students and the relationship between post-intervention levels of stress and the chosen demographic variables.

2. METHODOLOGY

2.1 Study Design and Research Approach

The current research design was a quantitative research design consisting of the quasi experimental one group pre-test post-test design aimed at establishing the effectiveness of yoga in stress reduction in nursing students. Quantitative approach was deemed suitable because it enables objective measurement of the level of stress through standard tools as well as an ability to compare the results after and before the intervention statistically. One-group pre-test post-test design was chosen to measure the changes on perceived stress after a structured yoga program because this type of design allows intra group comparisons, and it is typically applied in interventional studies that are carried out in learning and clinical institutions where it may not be possible to randomize or control groups.

2.2 Study Setting

The research was carried out in the chosen colleges of nursing in Rajahmundry, Andhra Pradesh, India. These institutions have been selected according to their accessibility, availability of nursing students and administrative viability. The chosen colleges offer undergraduate nursing education and predispose students to strict academic programs and clinical training that are identified factors of high levels of stress. The study was done in the institutional setting which provided the convenience of the people to participate and high compliance to the yoga intervention protocol.

2.3 Study Population

Students of nursing in certain nursing colleges at Rajahmundry were the target population of the study. Nursing students constitute one of the populations that are prone to stress because of academic assignments, clinical demands, examinations, and the demands of the profession. The population that was available consisted of students who were available at the time of data collection and were within the eligibility criteria set to take part in the study.

2.4 Sample Size and Sampling Technique

Sixty nursing students were enlisted in the research. The sample size was selected because of the

feasibility reasons and compatibility with other studies of interventions among groups of students. The participants were selected using simple random sampling technique on the list of eligible students by the institutions. The selection was done using this sampling method to reduce selection bias and to guarantee that each of the eligible students had an equal chance of being selected into the study.

2.5 Eligibility Criteria

The selection of the participants was determined by the set inclusion and exclusion criteria. The study included nursing students who were willing to participate in the study, were available throughout the intervention period and could learn and practice yoga. To control the confounding variables and provide the safety of the participants, students who already practiced yoga on a regular basis or had conditions that contraindicated yoga practice were excluded.

2.6 Variables of the Study

In the current research, yoga was taken as an independent variable and the degree of stress among the nursing students was the dependent variable. The extraneous variables were selected demographic variables, such as age, gender, religion, marital status, type of diet, family type, year of study and place of residence in order to determine whether they had a potential relationship with the post intervention stress levels.

2.7 Data Collection Instrument

A structured tool with two sections was taken to gather data. The initial part took the demographic data which concerned the personal and academic traits of the participants. The second part involved the use of Perceived Stress Scale (PSS), which is standardized and has been in wide use to assess the level to which people have perceived situations in their lives as stressful. The scale measures unpredictability, uncontrollability and overload feelings during the last month. The level of stress was developed as low, moderate, and high through the given scoring schemes.

2.8 Validity and Reliability of the Instrument

The expert review of the data collection instrument by professionals in the fields of nursing, mental health and yoga therapy determined its content validity. Their recommendations have been taken into consideration to make them more clear, relevant, and culturally acceptable. Previous studies have reported the use of the Perceived Stress Scale with acceptable psychometric properties and its reliability was tested before the actual study and this guarantees that the scale of stress is constant and accurate in measuring it.

2.9 Description of the Yoga Intervention

The intervention would involve a structured yoga program that would facilitate relaxation and stress mitigation. I had yoga sessions that were comprised of chosen asanas, breathing exercises (pranayama), and relaxation techniques. The sessions were 60 minutes long and daily with the duration being 30 consecutive days. The yoga program was given under supervision to provide proper performance and protection to the participants. The intervention would be easy, simple and easy to learn by beginners so that they can apply yoga practices in their everyday life.

2.10 Data Collection Procedure

The data was collected in a period of one month, between 20 December 2022 and 21 January 2023. Before the data collection, the institutional authorities were approached formally and informed consent was obtained with the participants. The perception of stress level was measured by Perceived Stress Scale before the yoga program. After the pre-test, the participants were exposed to the structured yoga intervention over 30 days. Post-test stress levels were assessed with the similar scale at the end of the intervention period to assess the changes which can be attributed to the yoga program.

2.11 Ethical Considerations

Ethical principles have been followed precisely during the study. The engagement was voluntary and informed consent was signed after the purpose and procedure of the study were explained. The anonymity and confidentiality of the participants were ensured, and the data were utilized to conduct a research. Participants were made aware of the ability to pull out of the study without any form of academic or personal implications.

2.12 Data Analysis

Data collected was analyzed citing the proper statistical approaches. Demographic variables and levels of stress were summarized using descriptive statistics, such as frequency, percentage, mean, and standard deviation. The paired t-test, which is an inferential statistics, was used to evaluate the efficacy of the yoga intervention compared to pre-test and post-test scores using stress ratings. It was tested with chi-square to find the relationship between the level of post-test stress and the chosen demographic factors. The statistical significance was determined to be a p-value of less than 0.05.

3. RESULTS

3.1 Description of the Sample Characteristics

The demographic profile was determined on the nursing students to gain insight on the background features of the study participants. The study incorporated 60 nursing students. The variables that were taken into consideration included age, gender, religion, marital status, diet, type of family, year and course of study, and place of residence. These features should be analyzed to place the results concerning the level of stress into perspective and to investigate the possibility of the demographic variables to affect the results of the yoga intervention. Table 1 shows the prevalence and the proportion of the nursing students by the demographic variables of choice.

Table 1: Distribution of Nursing Students According to Demographic Variables (n = 60)

Demographic Variable	Category	Frequency (f)	Percentage (%)
Age (years)	18–20	36	60
	21–23	24	40
	24–26	0	0
	≥27	0	0
Gender	Male	18	30
	Female	42	70
	Others	0	0
Religion	Hindu	45	75
	Christian	14	23
	Muslim	1	2
	Others	0	0
Marital Status	Married	0	0
	Unmarried	59	98
	Single	1	2
	Widow	0	0
Diet	Vegetarian	1	2
	Mixed	59	98
Type of Family	Nuclear	36	60
	Joint	24	40
	Extended	0	0
Year of Study	First year	20	33
	Second year	11	18
	Third year	15	25
	Fourth year	14	23
Place of Residence	Hosteler	58	97
	Day scholar	2	3

According to the findings made in Table 1, most of the students were aged 18-20 years, female, unma rried, Hindu, on a mixed diet, and stay in hostels. The majority of the students were in nuclear families and were balanced throughout the four years of the nursing program. This demographic sample represents a general population of an undergraduate nursing student and offers a decent background to stress-related results interpretation.

3.2 Graphical Representation of Demographic Variables

Bar diagrams were also used to represent the data graphically to allow easier visual interpretation of the demographic distribution. The frequency and percentage distribution of the nursing students based on different demographic variables are shown in figure 2 to 9.

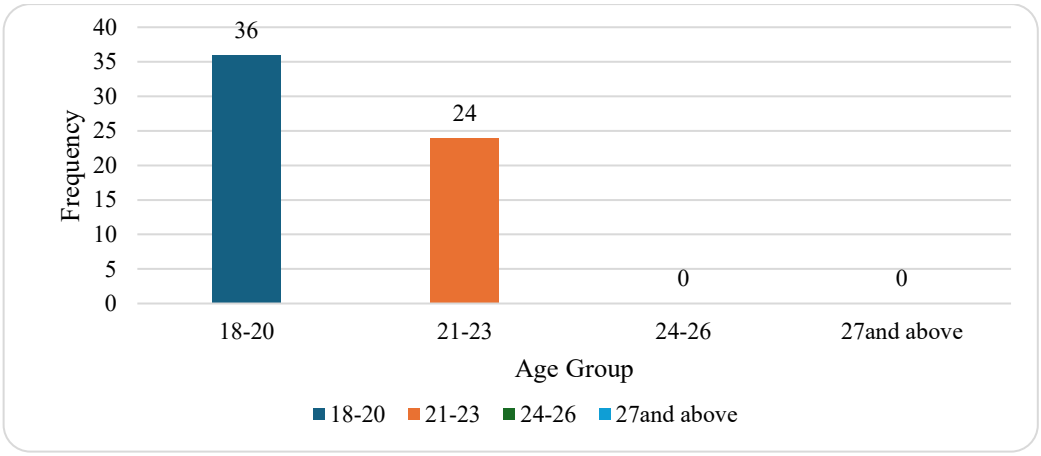
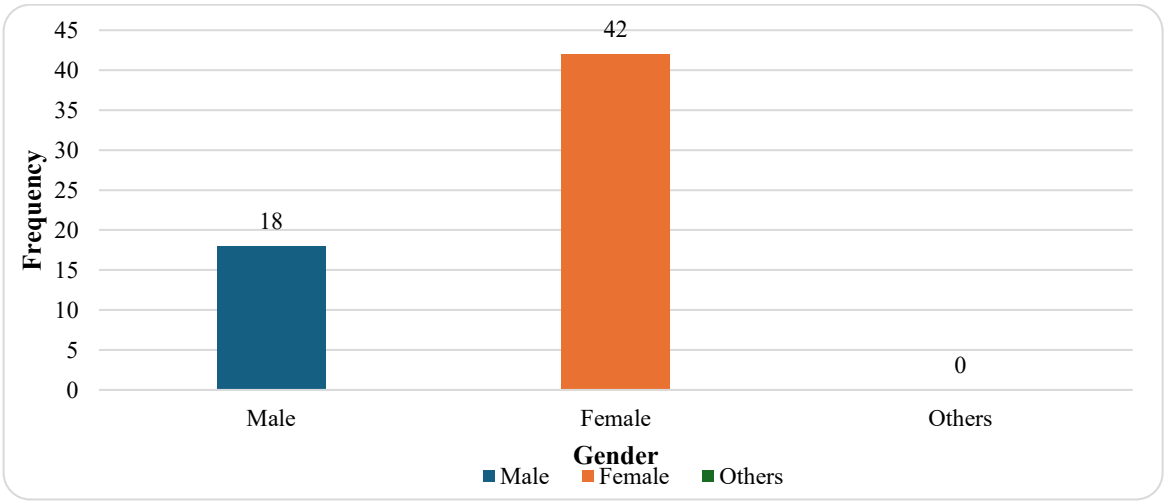


Figure 2: Frequency Distribution of Nursing Students According to Age

This is an indicator that 60 percent of students were aged between 18 and 20 years with 40 percent falling within the 21-23 years age bracket. There were no participants who were older than 23 years.



3:Figure Frequency Distribution of Nursing Students According to Gender

The graphical representation shows that most of the sample consisted of female students (70 percent) and male students (30 percent) were the minority.

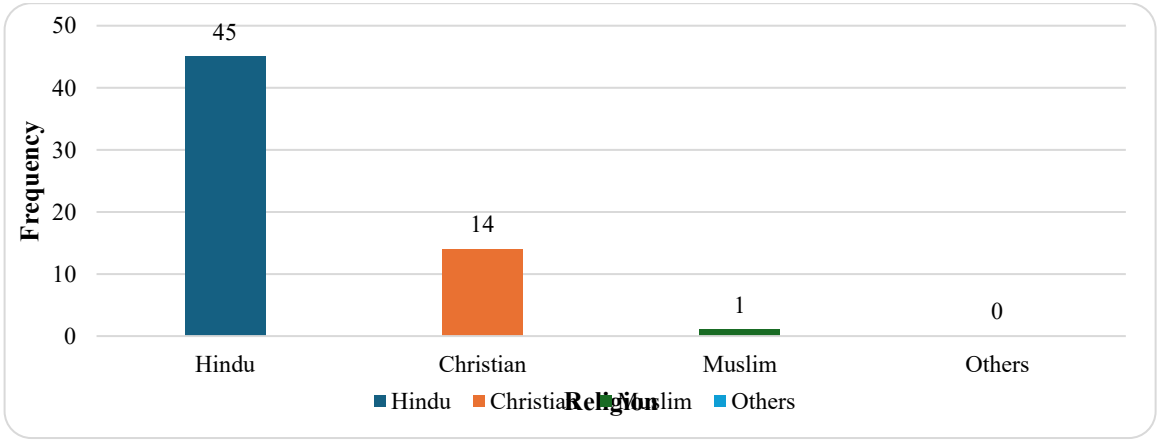


Figure 4: Frequency Distribution of Nursing Students According to Religion

Most of the participants were of Hindu faith (75%), then Christians (23%), with a very few (2%)- Muslim students.

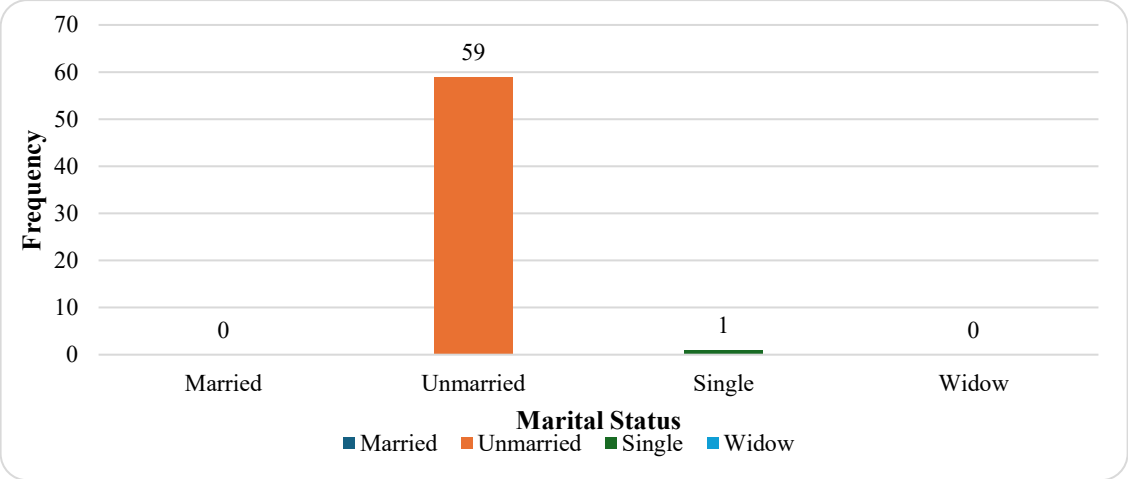


Figure 5: Frequency Distribution of Nursing Students According to Marital Status

Nearly all the respondents (98% of them) were not married, and 2% were single. None of the married or widowed respondents took part in the study.

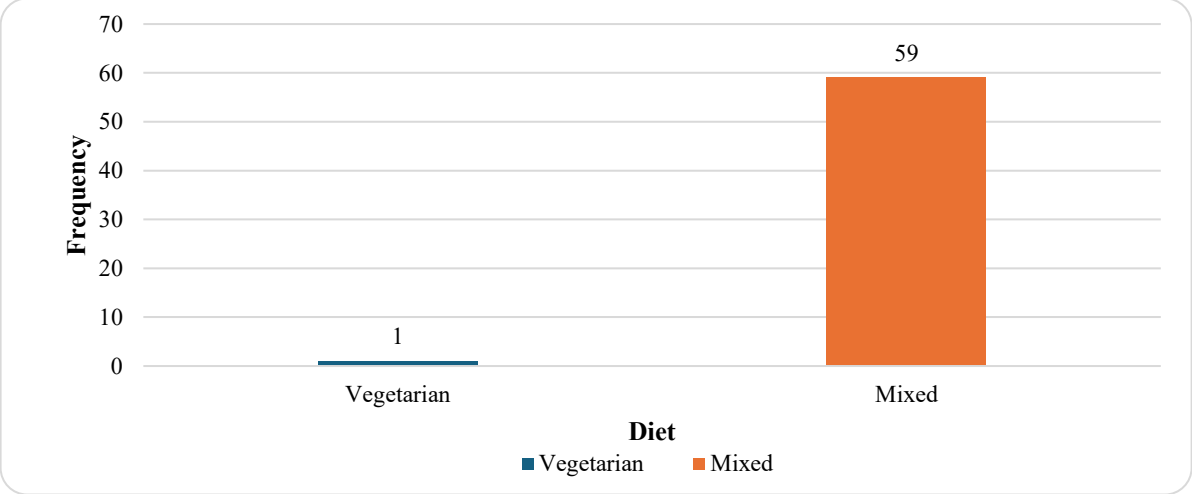


Figure 6: Frequency Distribution of Nursing Students According to Diet

The number indicates that most of the nursing students (98) had a mixed diet, with only 2 proportion taking the vegetarian diet.

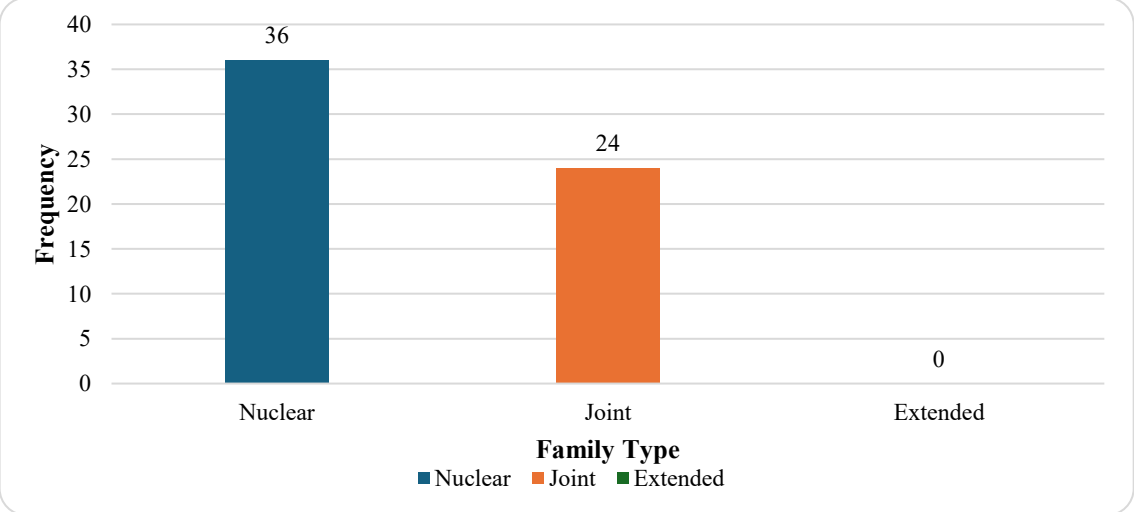


Figure 7: Frequency Distribution of Nursing Students According to Type of Family

The majority of the students (60 per cent) were the members of nuclear families, and the rest (40 per cent) were the members of joint families. None of the participants indicated that they live in extended families.

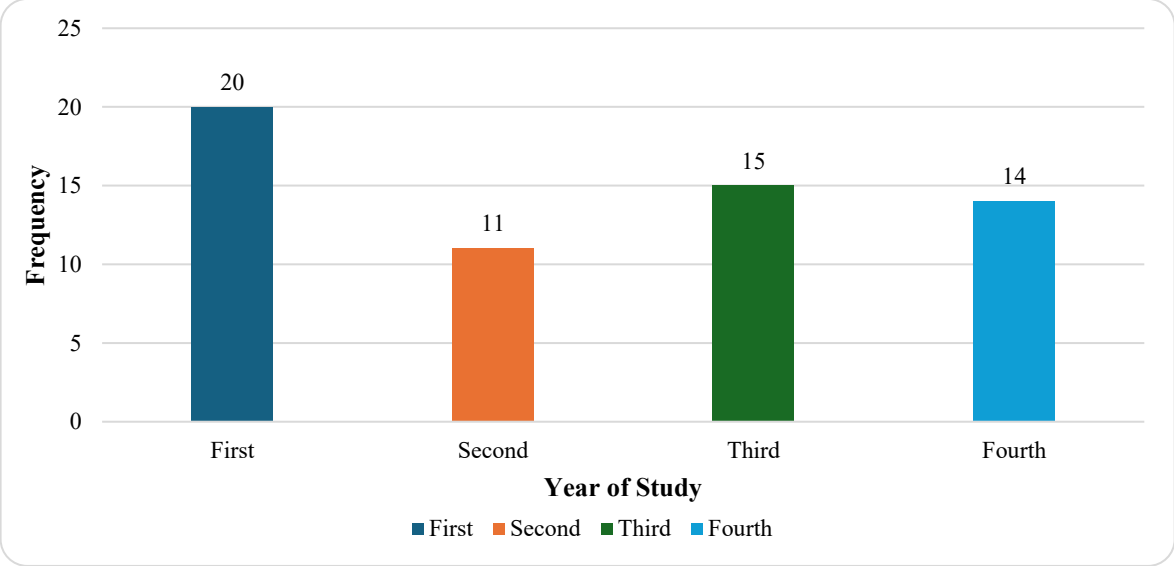


Figure 8: Frequency Distribution of Nursing Students According to Year and Course of Study

The sampling between years of study was more or less equal with the students of first, second, third, and fourth years.

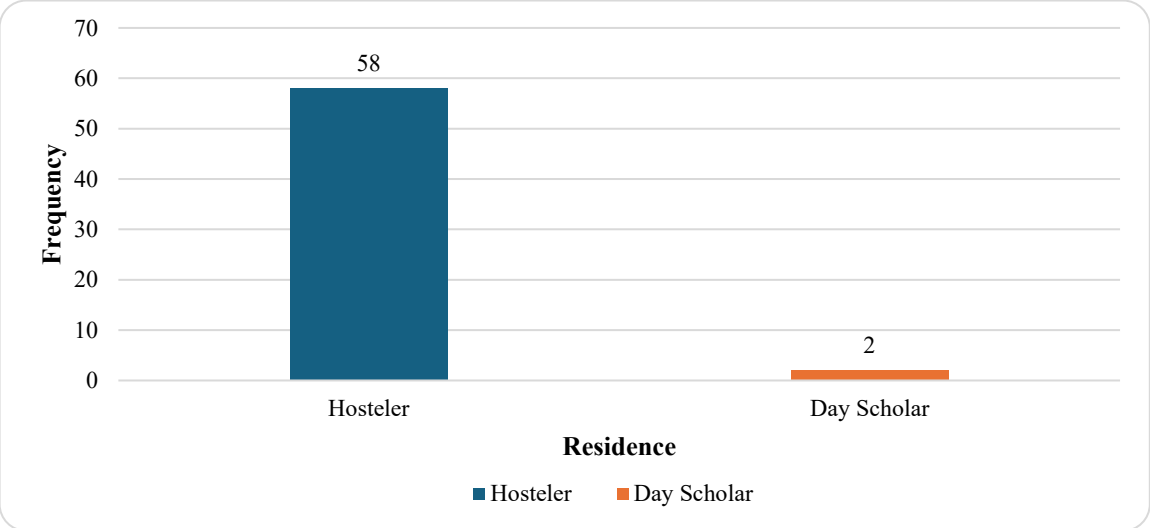


Figure 9: Frequency Distribution of Nursing Students According to Place of Residence

Most of the students (97) were in the hostels with only the day scholars being 3%.

3.3 Pre-test and Post-test Level of Stress among Nursing Students

Perceived Stress Scale was used to measure the level of stress amongst nursing students at the start of the yoga intervention and at the end. The pre-test evaluation proved that all the participants showed moderate stress levels before the intervention. A significant decrease in the level of stress occurred after the yoga intervention. Table 2 shows the frequency and percentage distribution of stress levels before and after the test.

Table 2: Distribution of Nursing Students According to Pre-test and Post-test Level of Stress (n = 60)

S. No	Effectiveness of Yoga among Nursing Students	Low Stress (0–13)		Moderate Stress (14–26)		High Perceived Stress (27–40)	
		f	%	f	%	f	%
1	Pre-test	0	0	60	100	0	0
2	Post-test	41	68	19	32	0	0

The results show that there is a distinct change in the level of stress after yoga intervention. Even though everyone demonstrated the moderate stress level in the pre-test, the post-test performance demonstrated that most of the students have shifted to the low-stress group, which is indicative of a positive influence of yoga.

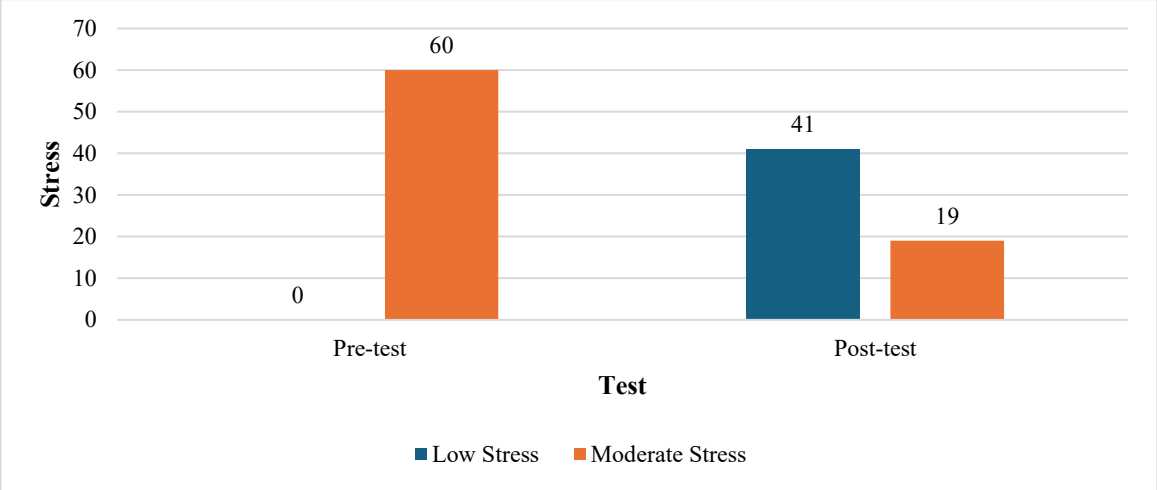


Figure 10: Frequency Distribution of Nursing Students According to Pre-test and Post-test Level of Stress

This value graphically demonstrates the decrease in levels of stress among nursing students after the intervention of yoga and the fact that moderate levels of stress shifted to low levels of stress, which is dominant in the post-test group.

3.4 Effectiveness of Yoga: Comparison of Mean Stress Scores

In order to identify the efficiency of yoga in stress reduction, a paired t-test was used to compare the mean pre-test and post-test scores of the stress about the participants. There was a considerable decrease in the stress scores following the intervention as analyzed. Table 3 shows the comparison of the mean scores, the standard deviations and t-test values.

Table 3: Comparison of Pre-test and Post-test Mean Stress Scores among Nursing Students (n = 60)

Category	Mean	Mean Difference	Standard Deviation	t-value	p-value	Significance
Pre-test stress	20.283	8.867	46.547	15.843	0.05	Significant
Post-test stress	11.416		3.070			

The t-value (15.843) that was calculated was larger than the tabulated value at the 0.05 level of significance which shows that there was statistically significant reduction in the level of stress after the yoga intervention. In this way, the research hypothesis according to which yoga would help decrease stress levels in nursing students was accepted.

3.5 Association between Post-test Stress Level and Selected Demographic Variables

The chi-square test was also used to compare the post-test stress levels and the selected demographic variables in order to determine whether the demographic factors had any effect on the outcome of stress following the intervention. Table 4 gives the association analysis.

Table 4: Association between Post-test Stress Level and Selected Demographic Variables among Nursing Students (n = 60)

Demographic Variable	χ^2 (Calculated)	χ^2 (Table)	df	Inference
Age	1.92	3.84	1	Not Significant
Gender	0.693	3.84	1	Not Significant
Religion	0.577	5.99	2	Not Significant
Marital status	0.997	5.99	2	Not Significant
Diet	0.478	3.84	1	Not Significant
Type of family	0.82	5.99	2	Not Significant
Year and course	3.225	7.82	3	Not Significant
Place of residence	0.955	3.84	1	Not Significant

The chi-square test showed that post-test stress levels had no statistically significant relationship with the demographic variables that were selected. This means yoga was effective in reducing stress among the various demographic groups. The study findings indicate that the level of stress among nursing students before the yoga session was moderate. After a 30-day well-organized yoga
In the current study, it was established that yoga intervention with a particular structure proved to be effective in decreasing the level of stress among nursing students significantly. The significant change was noticed as moderate stress during the pre-test period before the test to almost low stress after the test, which is the beneficial effect of yoga on the psychological state of students. These results help to strengthen the accumulating literature on yoga and other mind-body interventions as an effective stress management approach in nursing education. Kinchen et al. (2020) also reported similar results and stated that yoga exercise led to a significant reduction in perceived stress and quality of life in undergraduate nursing students. The stress relief experienced in this study is consistent with other studies which discuss the psychological advantages of yoga among the nursing students. According to Mathad et al. (2017), psychological functioning, including stress and emotional balance, had a significant improvement after yoga in nursing students. The results of the current research also confirm the role of yoga as a comprehensive intervention that includes physical and psychological aspects of stress in the course of nursing education.
Yoga is conceptually similar to mindfulness-based interventions especially in enhancing self-awareness and emotional regulation. Lin et al. (2019) proved that mindfulness-based stress reduction interventions have a significant positive effect on reducing the stress level among nurses, which indicates that mind–body interventions are effective in various occupational periods. In a similar study, Liu et al. (2024) also concluded that mindfulness-based interventions enhanced perceived stress, mindfulness among nursing students in universities, hence the importance of mindfulness-based interventions within the academic environment. These studies are complemented by the current findings as they prove that yoga may produce similar effects of stress-reduction. The results of this research are encouraging and the application of yoga in nursing educational programs as a mental health prophylactic tool. Martin et al. (2025) stressed that yoga programs help not just to eliminate stress but also improve physical health and resilience in nursing students. An example of how yoga could be integrated into the academic timetable is to include supervised yoga activities in the student timetable and have them learn to use adaptive coping strategies
program, the level of stress was reduced statistically. The positive difference was observed in the whole sample, regardless of the demographic features, which proved the efficiency of yoga as a strategic tool to manage stress among the students of the nursing school.

4. DISCUSSION

to enable them to cope with both academic and clinical stressors effectively.
The success of yoga witnessed in this research could be partly explained by the use of breathing and relaxation exercises which are controlled. Pranayama practices are familiar with the control of the work of the autonomic nervous system and the decrease in physiological stress reactions. Mütze et al. (2025) emphasized the usefulness of pranayama in reducing the symptoms of mental disorders, which substantiates the physiological explanation of the observed stress reduction during yoga treatment. Such processes might have been the cause of the immense decrease in levels of stress among the participants. In spite of the fact that the current research centered on conventional yoga exercises, there is also evidence provided by the research of laughter yoga, which supports the argument of utilizing mind-body interventions. According to Ozturk and Tekkas-Kerman (2022), online laughter therapy was a significant stress, anxiety, and loneliness reliever among nursing students during the COVID-19 pandemic. On the same note, Ozturk and Tezel (2021) established that laughter yoga decreased mental symptoms and cortisol levels among first-year students of nursing. Such results imply that different yoga methods may be adjusted to satisfy the psychological needs of students under different settings.
The effectiveness of yoga that was identified in this research matches the results of larger groups of students. Pal et al. (2023) established psycho-biological effects of yoga practice on stressed college students such as better stress-related biomarkers. Patel et al. (2018) also noted improved emotional regulation and mindfulness of the college students who engaged in yoga-based meditation. These researches show that the contribution of yoga is not limited to nursing students, but can be used in other areas of study. Certain types of yoga like the Hatha yoga have been demonstrated to have effects on stress and emotion suppression. In their study, Szaszko et al. (2023) reported that Hatha yoga considerably decreased the levels of stress and anxiety besides enhancing emotional processing. These results further reinforce the current study and indicate that the systematic physical and breathing aspects of yoga are important in the management of stress responses.

The fact that the levels of stress after the test were not significantly correlated with demographic features of the study may also indicate that yoga is widely applicable among students of different features. According to Van der Riet et al. (2018), nurses and nursing students should be enabled by mindfulness and yoga interventions irrespective of the differences in backgrounds. Further, Weurlander et al. (2018) noted that nursing students experience emotional difficulties when they go on clinical placements, and the stress-reduction interventions like yoga should be available to them. The use of evidence context-specific is critical to the implementation of effective interventions. Vikas (2024) proved that pranayama can be helpful in stress management in staff nurses in an Indian The current research is able to find evidence that structured yoga intervention can be effective in the reduction of stress levels among nursing students. The results have proved that perceived stress has reduced significantly after the yoga program and there is also a significant shift in the pre-test moderate stress to low-stress levels in the post-test. This supplies the possible advantage of yoga as a practical and non-pharmacological approach to managing stress in nursing education. Academic and clinical stress factors associated with nursing students can adversely affect their mental health, academic achievement and career. The findings of this research indicate that yoga sessions may be used to improve psychological well-being by improving relaxation, emotional stability, and adaptive coping behaviors. The lack of noteworthy correlations between post-test stress and demographic variables shows that yoga has a positive effect on dissimilar groups of students. The introduction of yoga into nursing programs or wellness programs offered by students can be used as a preventive strategy to deal with stress-related issues and promote the development in whole. Yoga can be used as a sustainable mental health promotion strategy in schools due to its affordability, safety, and its simple nature of implementation. It is suggested that such research should take place in the future and follow up effects in the long term, control group, and the effects yoga has on academic performance and clinical competence. On the whole, yoga can be viewed as a worthy complement intervention to enhance resiliency and well-being in nursing students

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environment and proved the validity of yoga-related practice due to its cultural acceptability and practicability. Despite the fact that Van Vliet et al. (2014) developed their research in a different setting, their results on mind–body skills interventions only confirm the universalizability of such programs in the medical and nursing education. In general, the results of the current research can be attributed to the literature and prove that yoga is a practical, non-pharmacological program that can be used by nursing students to reduce stress levels. The introduction of yoga into nursing education can also help achieve better mental health, academic performance, and professional preparedness.

5. CONCLUSION

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