



Impact of Heartfulness Meditation on Reducing Stress in Nursing Students: A Prospective Observational Study

Raja Amarnath G¹, Raja Marimuthu S², Sugirtha Jenitha³, Chitra Rajan⁴,
Sujatha Karumari⁵ and Swati Patel⁵

¹ Professor, Department of Pulmonology and Critical Care, Sree Balaji Medical College & Hospital, Senior consultant, Apollo Hospitals, Chennai, India

² Department of Orthopaedics, Sree Balaji Medical College & Hospital, Chennai, India

³ Clinical Researcher, Department of Critical Care, Sree Balaji Medical College & Hospital, Chennai, India

⁴ Consultant, Department of Environmental Sustainability, IIT-Chennai, India

⁵ Stress Consultant, Chennai, India

*Corresponding e-mail: researchdrraja@gmail.com

ABSTRACT

Objective: To study and assess the effectiveness of Heartfulness Meditation in reducing stress levels of nursing students in a learning environment. **Methodology:** A cross-sectional research designed using a standard Perceived Stress Questionnaire pertaining to the subjective perception of things in the learning and clinical environment leading to emotional stress such as workload, worries, tension, and harassment as well as joyful conditions. Overall 120 students from I, II and IV years of a private nursing college in Chennai, in the state of Tamil Nadu, India participate in 3 hours (1 hour each day on 3 consecutive days) Heartfulness meditation workshop. **Results:** The predominant themes represented are perceptions of the learning environment and clinical practice, coping, personal issues, balancing college work, and personal life. Mean Baseline stress scores of workload is higher for first and second-year students compared with final year students; Worries and Harassment score is higher in second-year students; Joy score is higher for first-year students; Tension score is higher in final year students. After Heartfulness meditation workshop, the mean decrease in workload, worries, tension and harassment score and mean increase in Joy score is observed in the participants. **Conclusion:** The investigation on the effectiveness of Heartfulness Meditation as a mental and emotional support tool to deal with and to mitigate stress reveals positive results. Based on these results, it is evident that Heartfulness meditation can be employed as a coping mechanism to deal with stress in a clinical and learning environment. Given the adverse effects of stress on the physiological and psychological well-being of caregivers, Heartfulness Meditation may be considered for inclusion in the standard curriculum of nursing colleges.

Keywords: Stress, Heartfulness, Meditation, Nursing, Tension, Workload, Worries, Harassment, Joy

INTRODUCTION

Stress, a disease of the 21st century is usually ignored in daily life due to busy lifestyle. As long as one is alive, there is always some stress; this positive stress is necessary as it motivates and gives physical and emotional strength to perform well [1]. Selye termed it as 'eustress' [1,2].

However, an excess of stress leads to negative effects that manifest in the form of a headache, infections, anger, low self-esteem and anxiety, weight loss and addiction and so on. Thus, stress effects a change in one's interaction with the surrounding environment which could be at physical, emotional, cognitive, or physiological levels [3]. The World Health Organization (WHO) has estimated that stress-related disorders to be one of the leading causes of disability by the year 2020 [4].

In organizational settings, the most common stressors are high workload, time pressures, continuous changes, decision

making and mistakes having an economic impact. Though stress affects every profession, levels of stress are higher, and sources of stress are more among professionals in the health industry; especially among nurses [5].

Stress among Nursing Students

Job stress is very high in the nursing profession. Nursing students share similar stressors as their professional counterparts in a clinical setting; in addition, they also endure stress related to academics, personal and social factors.

Student stress in nursing schools is now a widely accepted problem that negatively impacts their performance in academics and clinical duties; adversely affecting their physiological and psychological well-being.

Increasing levels of stress among nursing students have been reported from studies and investigations done in India and the United Kingdom.

Evidence from investigations suggests that nursing students are subjected to highly stressful environments as compared to students from other disciplines in the health industry such as physical therapy, pharmacy, dentistry, and medicine [6,7]. Within nursing schools, stress levels vary according to the different education levels and different programs [8-11].

Hence the need to focus on the problem during their training period, i.e., before the incorporation of nurses into the workplace, becomes paramount.

Some studies indicate that initial period of clinical education is highly stressful for students; while others show that irrespective of their academic level stress remains high during undergraduate education and training.

Stress Levels at Different Education Levels

In some investigations perceived stress levels decrease according to the year of attendance. Senior student nurses exhibited lower levels of stress compared than junior student nurses. The cause cited was they have become more knowledgeable, more skilled and have adapted to the academic and clinical requirements of the program.

However other investigations reported that stress experienced by nursing students in clinical practice increased as they progressed through the program, second-year students presented higher levels of stress as compared to first-years. In another study conducted on European students, self-reported stress was at the highest during the final year of the program.

The cause of stress alluded to anxiety associated with work assessment throughout the course, long working hours and work shifts leading to lack of social life; need to act with accuracy in emergency situations as well as exposure to contagious disease. First-year students perceived academic stress more intensively than the other groups. For second and final years other factors such as clinics and external stressors were dominant [12-16].

Reasons for Stress among Nursing Students

Stress among nursing students is a combination of various factors. These include academically related workload to be managed with clinical duties, high-pressure clinical environment, managing relationships at the workplace and at a personal level, having to deal with financial and social obligations; lack of rest and personal time [17-20].

Academic-related concerns are mainly high workload, lack of knowledge, assignments, and examinations and adapting to new teaching style; all of these compounding to fear of failure. Adjusting to the high-pressure clinical environment with high demands on attention, low tolerance to mistakes, care of sick and dying patients, constant supervision and assessments and fear of placements contribute to a fair amount of stress.

Struggling to manage relationships with various people in the workplace such as patients, fellow students, coworkers, teachers, and other health professionals; students often feel that stress levels, both positive and negative, have gone beyond their capacity.

Personal factors such as gender, age, new surroundings, and difficulty in integration into a new system of life, financial concerns are also a source of stress [21-25].

Potential Harmful Effects of Stress

The undergraduate years for student nurses is a very vulnerable period wherein stress, depression, and anxiety can

interfere with learning, affect academic performance, and degrade clinical practice performance. This could result in a temporary or permanent impediment to their pursuit of a nursing career.

In many cases, continued stress can lead to damaging symptoms such as absenteeism, mental disorders, substance abuse, eating disorder, sleep disorder, and some cases drive the student to suicide [26,27].

Methods to Circumvent Stress

Yoga and meditation techniques have been in use for centuries in learning environments and clinical settings as methods to reduce pain and to mitigate stress. Pioneers of meditation research such as Harvard's Dr. Herbert Benson ("The Relaxation Response") and Jon Kabat-Zinn, as well as new scientists like Richard Davidson and Sara Lazar utilizes the tools of modern brain research to explore the effects of meditation on mind and health [28-30].

Over 1000 research articles have been published on the positive effect of meditation on metabolism, blood pressure, brain activation, and other bodily processes. Studies have revealed that meditation effects in a slowdown of heart rate and breathing [31]; blood pressure normalizes, oxygen is used more efficiently. The adrenal glands produce less cortisol, aging of mind decelerates and there is a boost to the immune system [32].

During meditation, the mind is trained to ignore thoughts and become still. Regular practice clears away the information workload that builds up every day in the mind contributing to stress.

The practice of meditation produces a relaxation response even in subjects who had never practiced meditation before. It results in the physiological stress responses without taking away the beneficial effect of stress, the namely improved performance of cognitive tasks and memory; In fact, it can reverse our stress response, deterring the progress to a chronic stress condition.

Raja Yoga meditation eases physiological and psychological stress and restores mental harmony if practiced on a regular basis; it is a compliment for promoting and maintaining physical, mental, and spiritual health [33].

Heartfulness meditation used in this investigation is a simplified form of Raja Yoga where a practitioner meditates on the heart. This technique involves regulation of mind by ignoring unwanted thoughts during meditation. There is no concentration involved during meditation. When one tunes the mind to the heart, sensitivity improves, and one goes from just 'thinking to feeling' resulting in becoming more intuitive, more sensitive, and hence more compassionate. This is a very important aspect for caregivers such as nurses; facilitating the development of heart-based qualities such as compassion, love, tolerance, sense of timing and intuition. Heartfulness meditation brings a double benefit which is regulation of mind and enabling one to perceive and engage with the heart.

MATERIALS AND METHODS

Participants

The study was conducted in a nursing college in Chennai. Total 120 students from I, II and IV years participate voluntarily in a 3-hour (1 hour each day over 3 consecutive days) Heartfulness meditation workshop.

Ethical Considerations

Approval was sought from the institutional authorities before conducting the study. All the participants were assured of anonymity and confidentiality. Signed consent was taken from the participants before data collection.

Methodology

A standard proforma was used consisting of a demographic profile of the participants and perceived stress scale [34]. This scale consists of 30 questions covering feeling of joy and different sources of stress such as workload, worries, tension, and harassment. Each question to be responded in a 4-point Likert scale arranged from strongly disagree (1) to strongly agree (4).

Data Collection

Heartfulness meditation session led by a certified trainer was conducted for three consecutive days. The questionnaire was given before the first session and after the last session of Heartfulness meditation. In order to elicit a spontaneous response, the survey method was shared just before the questionnaire is handed over.

Data Analysis

Out of 120 responses submitted, the data from 91 students was analyzed leaving aside incomplete data and those without the signed consent of participation. Frequencies of variables such as age, sex and stress type were calculated. Chi-square analysis was performed to analyze the relationships among the variables and subscales such as workload, worries, tension, harassment, and joy. The assimilated details were entered in the statistical package of social sciences (SPSS), version 19. Data was conferred using inferential and descriptive statistics in the pattern of numbers, percentages, and frequencies and crosstabs. The t-test was used to find out the means and standard deviation.

RESULTS

Demographic Profile

Of the 91 participants, 74 (81.3%) were female and the rest 17 (18.7%) were male; 13 (14.3%) were freshers, 60 (65.9%) were second-year nursing students and the rest 18 (19.8%) were 4th year nursing students. Complete demographic profile of participants is represented in Table 1.

Level of Stress and Common Stressors

Mean values of baseline and after meditation stress scores of nursing students were assessed using one sample t-test for the subscales workload, worries, joy, tension, and harassment. As seen in Table 2 and Figure 2, there is a mean increase in joy and a mean decrease in all the other parameters in participants as a result of meditation.

Table 1 Profile of participating students

Demographic characteristics		Number	Percentage
Gender	Female	74	81.3%
	Male	17	18.7%
Year of Students	I Year	13	14.3%
	II Year	60	65.9%
	IV Year	18	19.8%

Table 2 Baseline and after meditation stress scores of nursing students

Stress scores		N	Mean	SD	SEM
Workload	Pre-meditation	91	23.82	4.767	0.50
	Post-meditation	91	22.77	5.455	0.572
Worries	Pre-meditation	91	17.14	4.552	0.477
	Post-meditation	91	16.62	4.95	0.519
Joy	Pre-meditation	91	14.51	4.285	0.449
	Post-meditation	91	14.95	3.993	0.419
Tension	Pre-meditation	91	20.22	4.821	0.505
	Post-meditation	91	19.08	4.583	0.48
Harassment	Pre-meditation	91	10.11	3.545	0.372
	Post-meditation	91	8.79	2.401	0.252

SD: Standard Deviation; SEM: Standard Error of the Mean

Mean values of baseline and after-meditation stress subscales of nursing students are compared. There is a mean decrease in workload, worries, tension and harassment scores and mean increase in joy score after meditation compared with that of Baseline. This difference reached statistical significance in the case of tension and harassment scores (Table 3).

Table 3 Comparison of stress scores between baseline and after-meditation of nursing students

Stress scores	Mean	SD	SEM	95% Confidence interval of the difference		t	df	Significance
				Lower	Upper			
Pre- and Post-meditation workload	1.055	6.555	0.687	0.31	2.42	1.535	90	0.128
Pre- and Post-meditation worries	0.527	5.695	0.597	0.659	1.713	0.884	90	0.379
Pre- and Post-meditation joy	0.44	5.11	0.536	1.504	0.625	0.821	90	4.414

Pre- and Post-meditation tension	1.143	5.409	0.567	0.016	2.269	2.016	90	0.047*
Pre- and Post-meditation harassment	1.319	4.002	0.420	0.485	2.152	3.143	90	0.002*

Paired sample t-test; * Significant; SD: Standard Deviation; SEM: Standard Error of the Mean

In 1st year nursing students, there is mean decrease in workload, worries, tension, and harassment score after meditation compared with that of baseline whereas, and joy score remains the same (Table 4).

Table 4 Mean stress scores between baseline and after-meditation of I year nursing students

Stress scores		N	Mean	SD	SEM
Workload	Pre-meditation	13	24.00	3.266	0.906
	Post-meditation	13	22.77	6.405	1.776
Worries	Pre-meditation	13	16.62	5.124	1.421
	Post-meditation	13	16.00	4.619	1.281
Joy	Pre-meditation	13	16.00	0.00	0.00
	Post-meditation	13	16.00	4.619	1.281
Tension	Pre-meditation	13	19.69	5.282	1.465
	Post-meditation	13	17.85	3.508	0.973
Harassment	Pre-meditation	13	9.23	3.004	0.833
	Post-meditation	13	8.62	2.219	0.615

SD: Standard Deviation; SEM: Standard Error of the Mean

In 2nd year nursing students, there is mean decrease in workload, worries, tension, and harassment score and increase in joy score after meditation compared with that of baseline (Table 5).

Table 5 Mean stress scores between baseline and after-meditation of II year nursing students

Stress scores of Year II students		N	Mean	SD	SEM
Workload	Pre-meditation	60	24.00	4.885	0.631
	Post-meditation	60	22.80	5.477	0.707
Worries	Pre-meditation	60	17.33	4.209	0.543
	Post-meditation	60	16.80	5.038	0.650
Joy	Pre-meditation	60	14.00	4.570	0.590
	Post-meditation	60	14.40	3.841	0.496
Tension	Pre-meditation	60	20.40	4.979	0.643
	Post-meditation	60	19.07	4.679	0.604
Harassment	Pre-meditation	60	10.53	3.753	0.484
	Post-meditation	60	8.80	2.420	0.312

SD: Standard Deviation; SEM: Standard Error of the Mean

In 4th year nursing students, there is mean decrease in workload, worries, and harassment score and increase in Joy score whereas tension score remains the same at baseline as well as after meditation (Table 6).

Table 6 Mean stress scores between baseline and after-meditation of IV year nursing students

Stress scores of Year IV students		N	Mean	SD	SEM
Workload	Pre-meditation	18	23.11	5.411	1.275
	Post-meditation	18	22.67	4.947	1.166
Worries	Pre-meditation	18	16.89	5.411	1.275
	Post-meditation	18	16.44	5.113	1.205
Joy	Pre-meditation	18	15.11	4.664	1.099
	Post-meditation	18	16.00	3.881	0.915
Tension	Pre-meditation	18	20.00	4.116	0.970
	Post-meditation	18	20.00	4.947	1.166
Harassment	Pre-meditation	18	9.33	3.068	0.723
	Post-meditation	18	8.89	2.587	0.610

SD: Standard Deviation; SEM: Standard Error of the Mean

DISCUSSION

In a demographic profile of over 70% female participants, there is no significant difference in the gender wise response. Both female and male participants report reduction in perceived stress post-meditation (Figure 1).

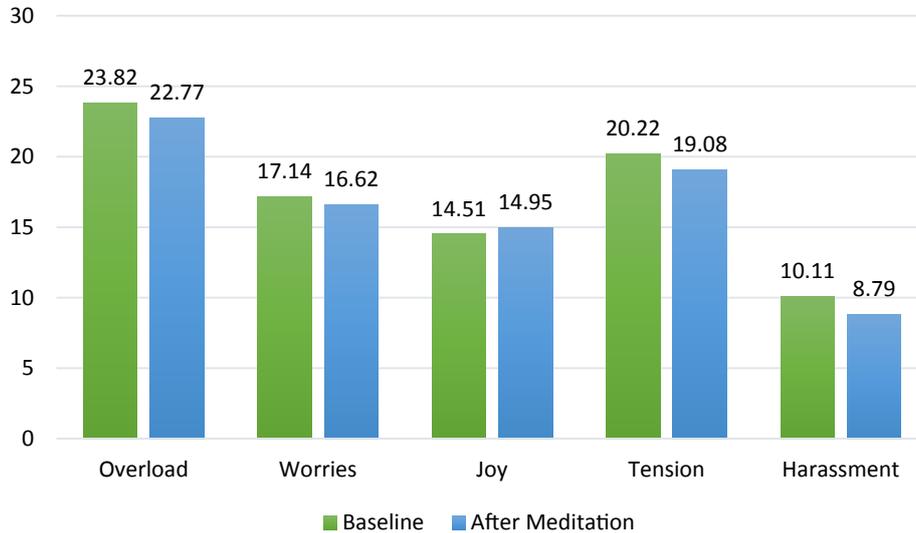


Figure 1 Comparison of mean stress scores between baseline and after-meditation of nursing students

In a participant base consisting of over 60% of second years, from the baseline studies, workload appears to be the highest stressor followed by tension and then worries. Harassment score is relatively less as compared to other subscales.

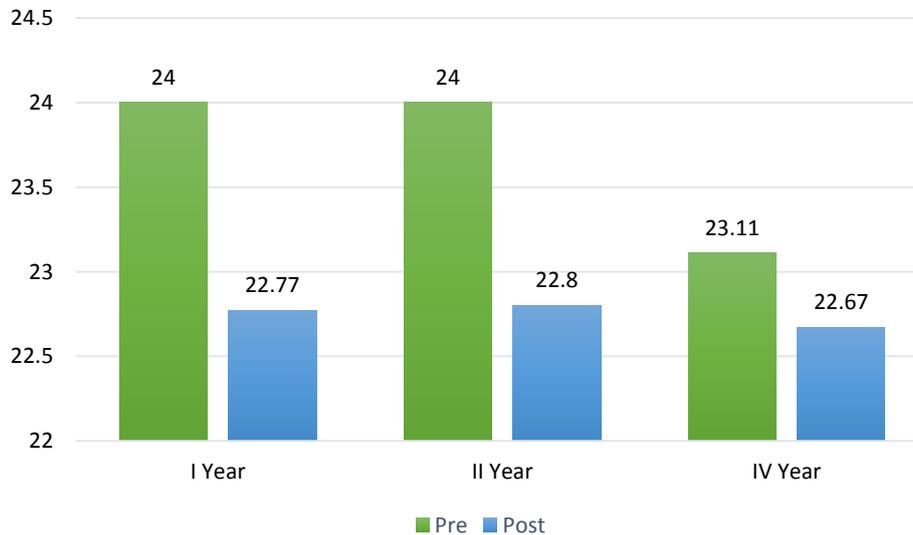


Figure 2 Effect of meditation on workload scores

This could be because the students are weighed down by either academic or clinical work or both, particularly in the first and second years. The reason attributed is the process of acquiring skills and knowledge in a new learning environment [35]. The higher the stressor the more benefit observed as a result of meditation as seen in the baseline and post-meditation scores in the Figure 2.

Response to Various Subscales on Participants of Different Levels

As seen in the Figure 2 above, workload is perceived to be high among first and second-year students as compared to final year students. In the case of fresher’s who are mostly coming straight from schools, exposure to a new subject,

new learning environment and new method of teaching is a challenge. Hence academic workload is a big stressor among first-year students. As students come from different walks of life; some of them come from townships where the medium of instruction is not English; trying to understand and assimilate course content in a tight schedule and the language barrier becomes an additional challenge.

Stress due to workload is higher for first and second-year students compared with final-year students. This is due to the fact that they are not used to managing clinical alongside academic load and multitasking between them. Also, the knowledge level is lower, and time taken to understand and comprehend is much higher compared to other classes.

In the second year, though students get accustomed to the academic load, they still feel challenged due to lack of knowledge and skills as they take up specialization subjects. Additionally, they get involved in clinical duties and practical work. Since most of the time consuming low-end clinical duties are performed by second-year students; the volume of work gets higher.

Post-meditation, participants would have experienced a clearer mind and a sense of calmness. Even a short session of meditation stabilizes the emotional state and the individual feels more grounded. For nursing students, there is a need to balance various kinds of work without getting overwhelmed. Heartfulness meditation induces a sense of inner confidence and strength as one becomes calm and emotionally grounded. Therefore, students from all levels of education have uniformly felt less challenged post-meditation (Figure 3).

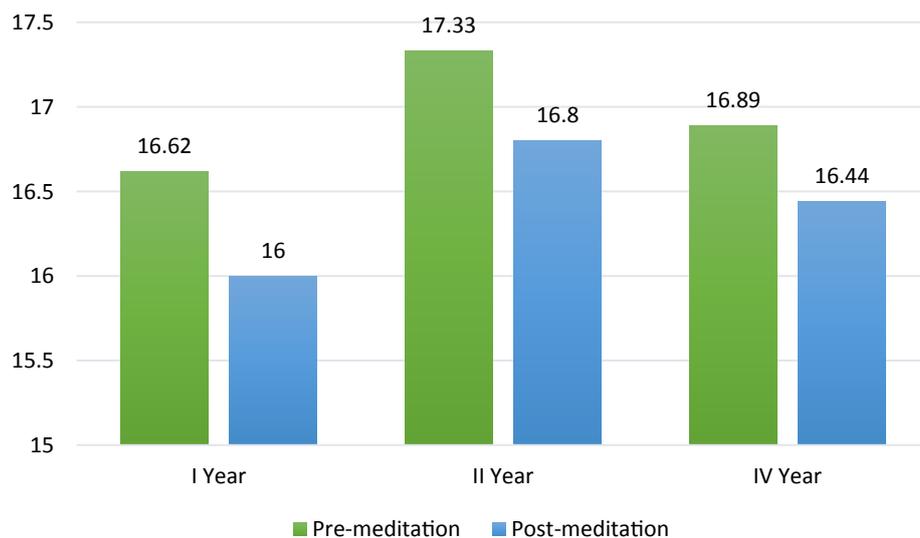


Figure 3 Effect of meditation on worries scores

Worries are higher in second-year students as they are actually exposed to the clinical environment and due to initial lack of knowledge and skills, they are most likely not able to get things right. Being unfamiliar with the clinical environment they are probably uncertain as to where to seek help. The worry also due to the trails of having to manage relationships with new people such as staff, coworkers and for some there could be personal and financial problems that persist. Cause of anxiety could also be due to a perception of their being unsuitable for the job in hand and the apprehension that the situation would become tougher in the future [36].

A short session of meditation clears the mind of disturbing thoughts and relaxes the mind as it gets tuned to the present moment. Thus, the effect of anxiety and nervous tension is minimized as seen from the graph. Long-term practice would have improved their cognitive ability and problem solving which will dispense the worrying thoughts of low self-worth and fear of failure [37].

Tension builds up in the second year and manifests itself in communication, mental and physical fatigue, and inability to relax. This could be a result of longer working hours and shifts and also lack of social life due to tight work schedule. It may be that the volume of tasks and activities taken on exceeds their capacity to comfortably handle associated stress (even the positive stress).

Sometimes mental exhaustion can be a result of health issues. Depression, heart disease, chronic illness and autoimmune disease can all lead to insomnia or trouble sleeping leading to mental fatigue [38].

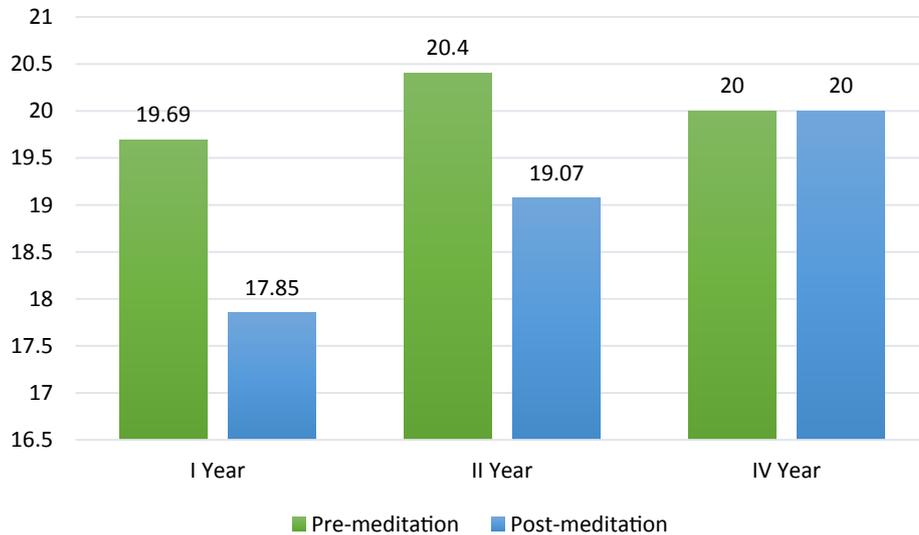


Figure 4 Effect of meditation on tension scores

Tension makes one difficult to concentrate and also succumb to moods. Final year students have higher clinical responsibilities and there is also the concern about preparing for clinical placements as well as need to manage relationships across various persons they interact with, having to take more responsibilities such as mentoring a junior as well as being accountable for complex cases adds to the tension (Figure 4).

In final year students, effect of meditation is not observed in tension scores. Possibly they need more time to relax as compared to first and second year students. Regular meditation should help.

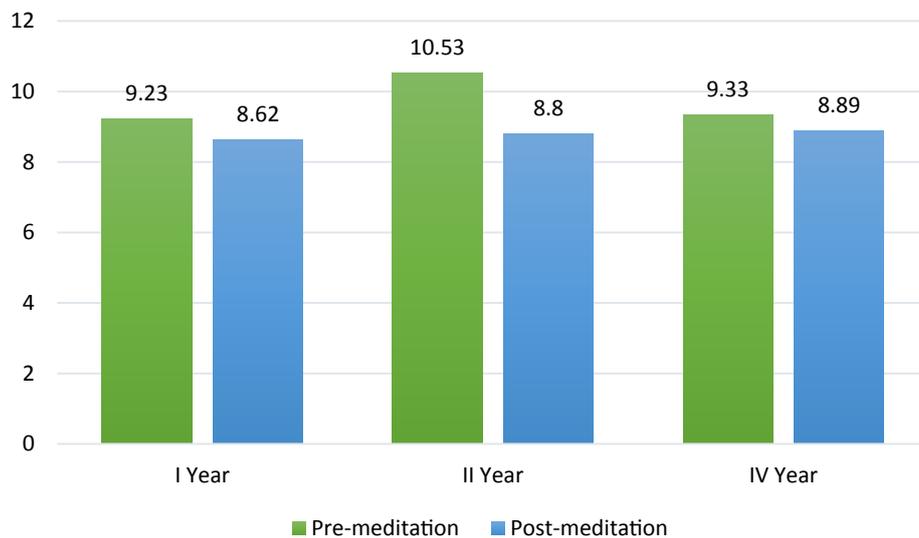


Figure 5 Effect of meditation on harassment scores

Though some tolerance is given to first year students, however for second year students are expected to perform better, therefore there is less tolerance for mistakes (Figure 5).

Criticism in front of others when mistakes are made, fault finding, verbal abuse etc. can contribute to deep impressions of low self-worth sometimes leading to emotional trauma, lack of sleep and inability to focus. To be treated with dignity and respect matters to all individuals [39].

One of the components of Heartfulness meditation is cleaning and removal of negative impressions, and false perceptions in trainer-led sessions. This would have resulted in a temporary relief due to the purging of negative thoughts that arise out of these impressions and perceptions stored in the subconscious mind (Figure 6).

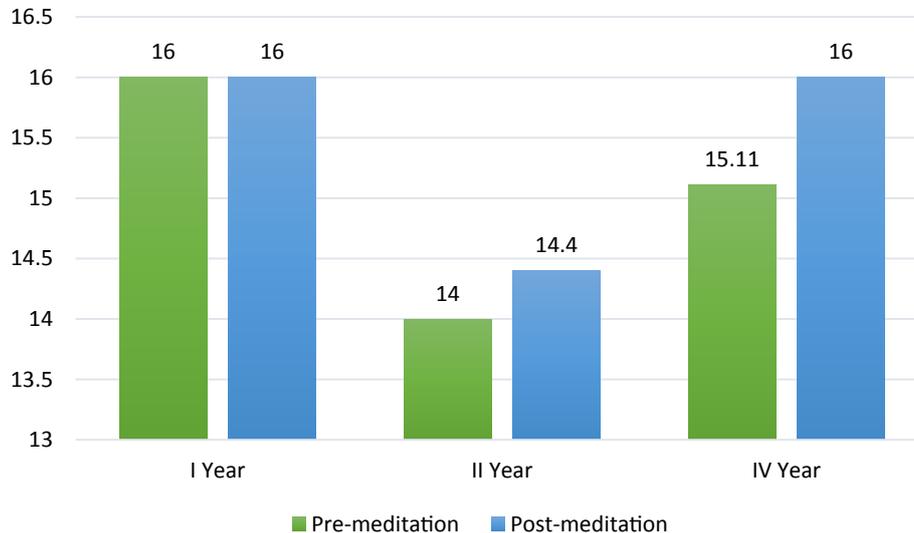


Figure 6 Effect of meditation on Joy scores

Joy is an emotion that usually results from circumstances like success, good fortune, and love. A mind that is in a state of joy is predisposed to notice and preferentially attend to that which is beautiful, wholesome, pleasant, and satisfying, while at the same time tending to disregard that which is otherwise. The perceptions that arise in a joyful mind will tend to emphasize the positive aspects of whatever is attended to (Figure 6).

Meditation awakens the feeling of unconditional inner joy which cannot be averted by guilt, shame, doubt, uncertainty, insecurity, and fear of losing. Meditation produces the inner sense of gratitude in being alive and gladdens the heart. This makes the person become more compassionate, kind, Forgiving and generous which are the ways of expressing inner joy.

It is a known fact that healthcare providers will provide better patient care if they are happy at their jobs. In our study, joy scores have increased post-meditation in second year as well as final year students. This should certainly improve their performance in their academics as well as in their personal lives. In first year students, joy scores are already higher at the baseline compared to the rest probably because they have not yet entered their training in full swing. And hence, it did not change much after meditation.

CONCLUSION

Meditation is an established therapy to reduce stress. In addition to reducing stress, Heartfulness meditation also helps nursing students to become more intuitive and sensitive to their surroundings. As the mind becomes calm and tuned with the heart, one develops inner confidence, becomes more grounded and learns to balance work.

The short-term benefit is apparent in this study. But, making a person settled in the regular practice of meditation is the challenge given the tight schedule and timeline. Hence, a serious consideration of inclusion of meditation and meditative techniques as part of the nursing curriculum should be made. Heartfulness meditation is particularly tuned to the needs of modern life and offers a bundle of benefits in addition to relaxation including cleaning the subconscious mind of unwanted impressions that create mind clutter and channeling the mind to the goal through a prayerful attitude of introspection.

People who are free of work stress are the ones who have achieved a balance in their life where they understand their limitations, their strengths, and their interests in a manner which helps them in regulating their workflow. In order to achieve the balance, one needs to have the physical energy, clarity of thought, positive outlook and good quality sleep. Physical relaxation and mind regulation technique in Heartfulness meditation addresses the burden of excessive

thinking leading mental and physical fatigue and lack of sleep. Since heartfulness meditation involves tuning the mind to the heart, both working in harmony and joy at work are brought about leading better empathy, and compassion which is very critical for caregivers. Tuning with the heart also develops one's sense of intuition and creativity. With the development of these abilities a person makes fewer mistakes and develops an acute sense of awareness to the surroundings. The benefits of heartfulness meditation put together can help a nursing student develop the strength and endurance to transition through a difficult period in the nursing college and be a source of inspiration to oneself and others.

DECLARATIONS

Conflicts of Interest

The authors and planners have disclosed no potential conflicts of interest, financial or otherwise.

Acknowledgement

We are acknowledging the respective institutional authorities and participants, researchers who perceived standard scales, and the web resources.

REFERENCES

- [1] Behere, Shashank P., Richa Yadav, and Prakash B. Behere. "A comparative study of stress among students of medicine, engineering, and nursing." *Indian Journal of Psychological Medicine*, Vol. 33, No. 2, 2011, p. 145.
- [2] Selye, Hans. *The Stress of My Life: A Scientist's Memoirs*. New York; Toronto; Van Nostrand Reinhold, 1979.
- [3] Arnold, Elizabeth C., and Kathleen Underman Boggs. *Interpersonal Relationships-E-Book: Professional Communication Skills for Nurses*. Elsevier Health Sciences, 2015.
- [4] Al-Lamki, Lamk. "Stress in the medical profession and its roots in medical school." *Sultan Qaboos University Medical Journal*, Vol. 10, No. 2, 2010, p. 156.
- [5] Deary, Ian J., Roger Watson, and Richard Hogston. "A longitudinal cohort study of burnout and attrition in nursing students." *Journal of Advanced Nursing*, Vol. 43, No. 1, 2003, pp. 71-81.
- [6] Jones, Martyn C., and Derek W. Johnston. "Distress, stress and coping in first-year student nurses." *Journal of Advanced Nursing*, Vol. 26, No. 3, 1997, pp. 475-82.
- [7] Beck, Deborah L., et al. "Perceived level and sources of stress in university professional schools." *Journal of Nursing Education*, Vol. 36, No. 4, 1997, pp. 180-86.
- [8] Lindop, Edward. "A comparative study of stress between pre-and post-Project 2000 students." *Journal of Advanced Nursing*, Vol. 29, No. 4, 1999, pp. 967-73.
- [9] Burnard, Philip, et al. "A comparative, longitudinal study of stress in student nurses in five countries: Albania, Brunei, the Czech Republic, Malta and Wales." *Nurse Education Today*, Vol. 28, No. 2, 2008, pp. 134-45.
- [10] Timmins, Fiona, and M. Kaliszer. "Aspects of nurse education programmes that frequently cause stress to nursing students-fact-finding sample survey." *Nurse Education Today*, Vol. 22, No. 3, 2002, pp. 203-11.
- [11] Brown, Hilary, and Robert Edelmann. "Project 2000: A study of expected and experienced stressors and support reported by students and qualified nurses." *Journal of Advanced Nursing*, Vol. 31, No. 4, 2000, pp. 857-64.
- [12] Kleehammer, Kelly, A. Louise Hart, and Juanita Fogel Keck. "Nursing students' perceptions of anxiety-producing situations in the clinical setting." *Journal of Nursing Education*, Vol. 29, No. 4, 1990, pp. 183-87.
- [13] Oermann, Marilyn H., and Angela P. Lukomski. "Experiences of students in pediatric nursing clinical courses." *Journal for Specialists in Pediatric Nursing*, Vol. 6, No. 2, 2001, pp. 65-72.
- [14] Lo, Ruth. "A longitudinal study of perceived level of stress, coping and self-esteem of undergraduate nursing students: an Australian case study." *Journal of Advanced Nursing*, Vol. 39, No. 2, 2002, pp. 119-26.
- [15] Tully, A. "Stress, sources of stress and ways of coping among psychiatric nursing students." *Journal of Psychiatric and Mental Health Nursing*, Vol. 11, No. 1, 2004, pp. 43-47.

- [16] Papazisis, G., et al. "Psychological distress, anxiety and depression among nursing students in Greece." *International Journal of Caring Sciences*, Vol. 1, No. 1, 2008, p. 42.
- [17] Spielberger, Charles D., and Eric C. Reheiser. "Occupational stress and health." *Research Companion to Organizational Health Psychology*, 2005, p. 441.
- [18] Lim, Joanne, Fiona Bogossian, and Kathryn Ahern. "Stress and coping in Australian nurses: a systematic review." *International Nursing Review*, Vol. 57, No. 1, 2010, pp. 22-31.
- [19] Demerouti, Evangelia, et al. "A model of burnout and life satisfaction amongst nurses." *Journal of Advanced Nursing*, Vol. 32, No. 2, 2000, pp. 454-64.
- [20] Humpel, N., and P. Caputi. "Exploring the relationship between work stress, years of experience and emotional competency using a sample of Australian mental health nurses." *Journal of Psychiatric and Mental Health Nursing*, Vol. 8, No. 5, 2001, pp. 399-403.
- [21] Sawatzky, Jo-Ann V. "Understanding nursing students' stress: a proposed framework." *Nurse Education Today*, Vol. 18, No. 2, 1998, pp. 108-15.
- [22] Pryjmachuk, Steven, and David A. Richards. "Predicting stress in pre-registration nursing students." *British Journal of Health Psychology*, Vol. 12, No. 1, 2007, pp. 125-44.
- [23] Seyedfatemi, Naiemeh, Maryam Tafreshi, and Hamid Hagani. "Experienced stressors and coping strategies among Iranian nursing students." *BMC Nursing*, Vol. 6, No. 1, 2007, p. 11.
- [24] Thyer, Shirley, and Pat Bazeley. "Stressors to student nurses beginning tertiary education: an Australian study." *Nurse Education Today*, Vol. 13, No. 5, 1993, pp. 336-42.
- [25] Basson, C.J., and T. VanderMerwe. "Occupational stress and coping in a sample of student nurses." *Curationis*, Vol. 17, No. 4, 1994, pp. 35-43.
- [26] McEwen, Bruce S. "Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators." *European Journal of Pharmacology*, Vol. 583, No. 2, 2008, pp. 174-85.
- [27] DeLongis, Anita, Susan Folkman, and Richard S. Lazarus. "The impact of daily stress on health and mood: psychological and social resources as mediators." *Journal of Personality and Social Psychology*, Vol. 54, No. 3, 1988, p. 486.
- [28] Herbert Benson, M.D., and Miriam Z. Klipper. *The Relaxation Response*. Harper Collins, New York, 1992.
- [29] Davidson, Richard J., et al. "Alterations in brain and immune function produced by mindfulness meditation." *Psychosomatic Medicine*, Vol. 65, No. 4, 2003, pp. 564-70.
- [30] Lazar, Sara W., et al. "Meditation experience is associated with increased cortical thickness." *Neuroreport*, Vol. 16, No. 17, 2005, p. 1893.
- [31] Amarnath Raja G, et al. Efficacy of heartfulness meditation in moderating vital parameters - A comparison study of experienced and new meditators. *International Journal of Medical Research & Health Sciences*, Vol. 6, No. 7, 2017, pp. 70-78.
- [32] Amarnath, Raja, et al. "Improving sleep quality through heartfulness meditation-technical aspects and benefits." *International Journal of Health Sciences and Research*, Vol. 7, No. 5, 2017, pp. 368-81.
- [33] Anand, B.K. "Yoga and medical sciences." *Indian Journal of Physiology and Pharmacology*, Vol. 35, No. 2, 1991, pp. 84-87.
- [34] Levenstein, Susan, et al. "Development of the perceived stress questionnaire: A new tool for psychosomatic research." *Journal of Psychosomatic Research*, Vol. 37, No. 1, 1993, pp. 19-32.
- [35] Jimenez, Cristobal, Pilar Martínez Navia-Osorio, and Carmen Vacas Diaz. "Stress and health in novice and experienced nursing students." *Journal of Advanced Nursing*, Vol. 66, No. 2, 2010, pp. 442-55.
- [36] Sheu, Sheila, Huey-Shyan Lin, and Shioh-Li Hwang. "Perceived stress and physio-psycho-social status of nursing students during their initial period of clinical practice: the effect of coping behaviors." *International Journal of Nursing Studies*, Vol. 39, No. 2, 2002, pp. 165-75.

- [37] Zeidan, Fadel, et al. "Mindfulness meditation improves cognition: Evidence of brief mental training." *Consciousness and Cognition*, Vol. 19, No. 2, 2010, pp. 597-605.
- [38] Chrousos, George P. "Stress and disorders of the stress system." *Nature Reviews Endocrinology*, Vol. 5, No. 7, 2009, pp. 374-81.
- [39] Goldblatt, Hadass. "Caring for abused women: Impact on nurses' professional and personal life experiences." *Journal of Advanced Nursing*, Vol. 65, No. 8, 2009, pp. 1645-54.