Effect of Indian Classical Music on Academic Stress among Postgraduate Students

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Abstract

This study investigates the effect of Indian classical music on academic stress among postgraduate students. For this experimental study, a total of 80 postgraduate students were selected randomly from Himachal Pradesh University, Shimla (India). The study employed a two-group pre-test and post-test design using the Students' Academic Stress Scale (SASS), originally developed by Kim (1970). Students in the experimental group listened to classical music (*Raga maaru bihag*, instrumental) for thirty consecutive days (twenty minutes a day) following the pre-test, while the control group continued with their usual routine. It was found that the experimental group attained a score of in the post-test, whereas the control group had a higher post-test score of The resultant value of is highly significant at the level of confidence 0.01. The findings revealed that classical music had a significant impact on academic stress among postgraduate students. Therefore, it can be said that listening to Indian classical music reduces the level of academic stress among postgraduate students, which contributes to improving their overall academic success.

Keywords: Indian Classical Music, Postgraduate Students, Music Therapy, Academic Stress, *Raga Maaru Bihag*.

Introduction

The postgraduate period represents a significant phase in a student's life, during which they work diligently, encounter challenges, and strive to achieve their academic goals. At this stage, students reach a level of maturity that enables them to make independent decisions about their academic and personal lives. At this stage students are in their university lives, where freedom of thoughts plays a crucial role in forming their character traits and future contracts, but on the other hand, students often experience mental and academic pressure because of their familial (Reifman, 1990; Edwards, 2001), social (Baste, 2014), professional (Brand, 2009), and financial obligations (Cheng, 1993), as well as rigorous academic expectations (Mishra, 1993). When academic pressure intensifies, it develops into academic stress (Transformation, 2023), whose high level negatively impacts the mental state of the students and affects their academic progress (Devi, 2019; Pearlin, 1999). The term academic stress refers to a state in which ordinary students experience strain and pressure due to study-related tasks (Sohail, 2013; Schaefer, 2007; Adom, 2020; Shuaibi, 2014) such as homework (OECD, 2015), exams (Bedewy, 2015), tests (OECD, 2015; Jain, 2018; Neuderth, 2009), assignments (Radcliff, 2003; Chellamuthu, 2017), and classes. There are many reasons for this condition, including heavy workloads (Shah, 2010; Jain, 2017), high marks expectations (Zaleski, 1998), high grade expectations (Deb, 2015; Kolehmainen, 2014), long periods of study (Sohail, 2013), long-term study stress (Sohail, 2013; Baste, 2014), a poor relationship between teacher and student (Fairbrother, 2003), poor time management (Better you, 2025), and high parental expectations (Yankovskaya, 2023). In this state of academic stress, the mental state of the student is negatively affected, which hurts their academic routine (Jain, 2017; Devi, 2019). The initial stage of academic stress encourages students to work hard, but the extreme conditions of academic stress create a sense of fear (Acharya, 2003; Polychronopoulou, 2005), laziness (Kaur, 2014), disinterest (Sohail, 2013), disgusted (Bataineh, 2013), and anxious (Liu, 2011) about their academic work. As a result, students fall behind in their

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classes and suffer from a lack of motivation (Bataineh, 2013; Shinto, 1998), self-esteem (Walburg, 2014), difficulty in decision making (Jain, 2017), frustration (Glozah, 2013), anger (Nwokenna, 2022), poor physical health, etc. This stage also leads to become a cause of numerous mental illnesses among students, including anxiety (Choi, 2010), depression (Son, 2019), stress (Son, 2019; Leonard, 2015), irrational fear, etc. As a result, the students fall prey to several bad habits, including drugs (Leonard, 2015), and, in the lack of mental support and ability to make decisions in their lives, take such drastic actions as suicide (Leonard, 2015; Selman, 2010). According to the NCRB report 2021, 864 students committed suicide because of failing an exam (NCRB, 2021), which is a concerning number in and of itself. Under these extreme conditions of academic stress, music serves as a therapeutic intervention and has a significant positive influence on students' mental health (Gallego, 2020; Ozgundondu, 2019; Harmat, 2008). Listening to music has a positive effect on students' stress (Gallego, 2020; Ozgundondu, 2019; Harmat, 2008; Hakim, 2023; Li, 2022), and they feel mentally and emotionally more satisfied when they listen to music (Harmat, 2008). Students' mental states are impacted positively by music, which gives them more motivation and self-assurance (Zheng, 2022; Kiss, 2021). When students are under stress from their studies, music is a useful tool for enhancing their emotional well-being (Kumar, 2021). Music is a composition that consists of specific melodic sounds that create a pleasant experience by affecting all levels of a person's mental, intellectual, and physical well-being (Basner, 2014; Langguth, 2011). Melodic and peaceful notes of music have a calming influence on emotions, which can result in a variety of advantageous mental changes among students (Li, 2022; Taheri, 2022). No matter the type of music, its purpose is always to entertain the public, no matter what region, nation, or people it comes from. Numerous previous studies have conclusively shown that listening to music has a beneficial psychological impact on people of all ages, especially when they are experiencing stress, anxiety, sadness, depression, and other mental conditions (Said, 2020; Ince, 2017; Ozgundondu,2019; Walworth,2008; Kavurmaci, 2020).

Indian classical music is based on melody, which is an expression of the artist's imagination and emotions in his heart, followed by the classical rules of *swara, tala, laya,* and raga. In other words, Indian classical music is motion-dominant music, in which, after tireless practice, the artist creates beauty through the pure form of' *swara'* and '*raga'* using *khatka*, *murki, gamaka, aalap* and *taana* in vocal music and *jhala, gata, toda, rela, palta, tihayi*, etc. in instrumental and rhythm music. Indian classical music mainly aims to create rasa and bhava that can affect the mental and psychological state of anyone and can also be beneficial for various mental and physical disorders. The numerous ragas of Indian music have been endowed with the properties of music therapy, and classical music has an important place in Indian culture (Sarkar, 2015). Numerous studies have determined that certain ragas in Indian classical music could heal a wide range of diseases by positively affecting a person's neurological system. When someone suffers from mental disorders such as anxiety, stress, or depression, they can benefit from listening to Indian classical music, especially *Raag Darbar*i (Sarkar, 2015). In situations of tension, insomnia, and anxiety, listening to *Raga Darbari* can be beneficial (Sarkar, 2015; Balaji, 2015). Raga Malkauns and Yaman have a soothing effect on a person's nervous system, which decreases stress levels (Bandopadhyay, 2012). The background Indian classical music has been proven effective in lowering stress during a gastroscopic examination among patients (Karuna, 2013). Listening to Indian music improves mental health and lowers levels of both trait and state anxiety (Ubrangala, 2021; Kunikullaya, 2016). There is a significant decrease in state anxiety after listening to *Raag Puriya* (Ubrangala, 2022). The tempo of Indian classical music influences an individual's emotions, and slow music lowers stress levels by influencing an individual's psychological state (Sharma, 2021). It can be helpful to listen to Vedic chants and Indian classical instrumental music to reduce the levels of anxiety caused by apprehension of aggressive processes (Padam, 2017). Listening to *Balihari raga*, which is related to the Carnatic style of Indian classical music, can help patients with mental health issues such as depression, anxiety, stress, sleep difficulties, and mental abnormalities (Sunitha, 2018; Ramachandran, 2022). Academic performance among undergraduate students is improved with the enhancement of general intelligence through listening to instrumental Indian music based on *raga Malkauns* and *raga Yaman* (Jayamala, 2021). Based on previous studies, it can be said that the ragas of Indian classical music could heal illnesses, improving mental health by eradicating a variety of physical and mental ailments. Hence, this study becomes necessary for all human beings, and accordingly, the researchers choose to study the effect of Indian classical music on academic stress among postgraduate students. While the relaxing effects of various ragas have been known, a theoretical framework explaining the mechanisms underlying these effects remains essential. Indian classical music operates on the principle of raga therapy, where specific melodic patterns resonate with particular emotional and physiological states. Unlike Western music therapy, which often relies on rhythm and harmony, Indian classical music's raga system is specifically designed to

evoke targeted psychophysiological responses through its unique combination of notes, scales, and emotional expressions. The neurobiological basis suggests that ragas create optimal conditions for stress reduction. The objective of the paper is to investigate the impact of Indian classical music on academic stress among postgraduate students with several demographics, including boys, girls, the control group, and the experimental group.

Hypothesis

1. H_0 There is no significant impact of Indian classical music on the level of academic stress among postgraduate students.
2. H_0 There is no significant impact of Indian classical music on the level of academic stress among postgraduate boys.
3. H_0 There is no significant impact of Indian classical music on the level of academic stress among postgraduate girls.
4. H_0 There is no significant difference in the impact of Indian classical music on the level of academic stress among postgraduate boys and girls.

Materials and Methods

The current research is an experimental study in which Indian classical music is taken as an independent variable and academic stress is taken as a dependent variable. To evaluate the impact of Indian classical music on academic stress among postgraduate students a total of 80 participants (boys and girls) were selected at random from Himachal Pradesh University located in Shimla, India (Control group = 40, boys = 18, girls = 22), (Experimental group = 40, boys= 17, girls = 23) (Figure:1). Data was collected in a quantitative format using the Students' Academic Stress Scale (SASS) developed and standardized by Kim (1970) and adopted to Indian conditions by Rajendran & kaliappan (1990) and Rao (2012).

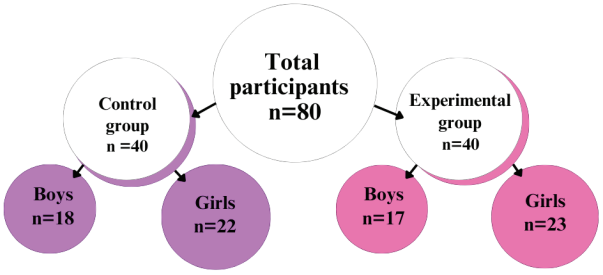

Figure 1

Music Intervention

An instrumental (flute) composition by Pandit Hariprasad Chaurasiya (Chaurasiya, 2017) based on the raga *'Maru Bihag'* was played as a music intervention among the participants. Even though Indian music is embellished with the sounds of numerous instruments, the flute is one such instrument that is utilised equally in all music genres, including folk, light, semi-classical and classical music. The flute's soft, serene sound is well-known for delivering inner joy, pleasure, contentment, and mental tranquillity to listeners. Numerous studies acknowledge that when people have mental instability (i.e. stress, anxiety, depression, mental pressure, exhaustion, etc.), the sounds based on the flute instrument can bring them mental calm (R.K., 2023; Mishra, 2023; Sunuwar, 2024; Goss, 2014). That is why compositions based on the flute have been taken in this research. Raga is a powerful medium to express the emotions of the mind and heart, to connect oneself with Sacchidananda and to refine the mental tendencies. Raga Maaru Bihag is known for its romantic and playful nature, which combines the characteristics of the *Bihag* and *Maaru ragas* in a delightful, popular and melodious manner, making it a well-known and popular raga associated with Indian music. Playful music generates a happy and calming ambience away from the serious surroundings, which helps people feel more at ease and free from tension and anxiety (Byrne, 2021; Osmer, 2006; Devi et. al, 2019; Verma, 2024). Thus, *Raga Maaru Bihag* has been chosen as the musical intervention in the current study.

Experimental Procedure

Initially, participants in both the control and experimental groups filled out the SASS questionnaire to ascertain their level of academic stress before the experiment. Following the pre-test, students in the experimental group listened to Raga maaru bihaag (instrumental) for thirty consecutive days (twenty minutes a day), while the control group continued with their usual routine. Electric speakers were used to play the recorded composition of Raga maaru bihag among the participants. Afterwards, a post-test was conducted, and SPSS was used to assess the data gathered from both the experimental and control groups using a pre-test and post-test method.

Results

To determine the effect of Indian classical music on the level of academic stress among postgraduate students, both a paired and an independent sample t-test were used. This approach found significant differences between the

students' pre-and post-tests, and their significance was assessed at a confidence level of 0.01.

Table 1: The pre-test means, SDs of both groups' control and experimental

	Mean	Std. Deviation	N	t	p	eta. squire
Control	37.90	2.372	40	1.342	.184	.02
Experimental	38.80	3.516	40			

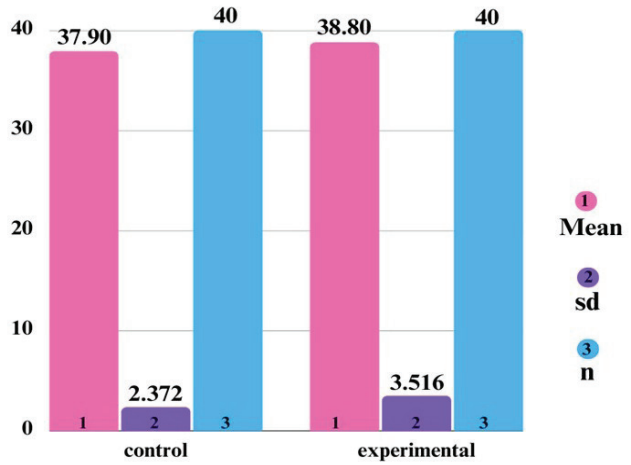

Fig. 2: The pre-test means, SDs of both Control and Experimental Groups

As shown in Table 1 (Figure 2), the experimental group scored on the pre-test, whereas the control group scored . During the pre-test, the experimental group achieved a higher score of compared to the control group). This indicates that there is a minimal difference between the control and experimental groups in the pre-test. The is not significant, and the resultant value of is less than the critical value This suggests that the is not statistically significant at the level of confidence 0.01. The eta squire statistic indicate null effect size (). Therefore, it can be said that the difference between the control and experimental groups is not statistically significant in pre-tests. Thus, it can be said that the level of academic stress in both groups (Control and Experimental) was essentially the same at the time of the pre-test.

Table 2: The post-test means, SDs of both groups' control and experimental

	Mean	Std. Deviation	N	t	p	eta. squire
Control	37.25	2.295	40	13.544	.000	.69
Experimental	29.92	2.535	40			

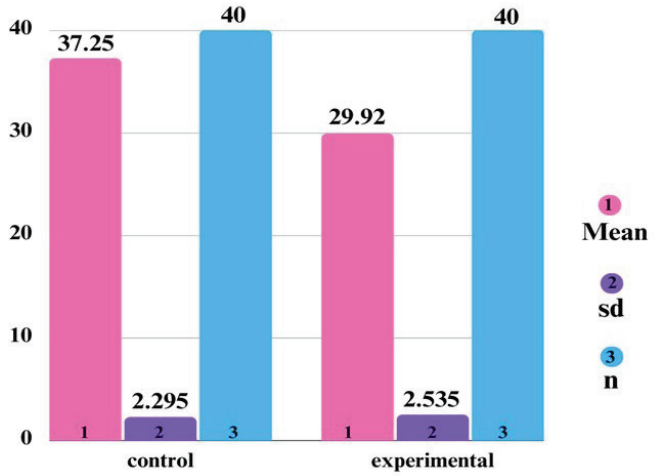

Figure:3 The post-test means, SDs of both Control and Experimental groups

Fig. 3: The post-test means, SDs of both Control and Experimental Groups

According to Table 2 *(Figure 3)*, the experimental group scored M=29.92 on the post-test, whereas the control group scored M=37.25. During the post-test, the experimental group achieved a lower score of (M=29.92, SD=2.535) compared to the control group's (M=37.25, SD=2.295). This indicates that there is a substantial difference between the control and experimental groups in the post-test. The is highly significant, and the resultant value of is greater than the critical value This suggests that the is statistically significant at the level of confidence 0.01. The mean difference in test scores is , with a 95% confidence interval ranging from to . The eta squire statistic indicate a higher effect size (). Therefore, it can be said that the difference between the control and experimental groups is statistically significant in post-tests, and it can be said that listening to classical music had a significant impact on academic stress among university-level students, which helps to reduce their level of academic stress and improves the probability of scoring better through academic achievements.

Table 3: The differences between pre-test and post-test of the control group

	Mean	Std. Deviation	N	t	p	eta. squire
Pre-test	37.900	2.372	40	1.248	.219	.03
Post-test	37.250	2.295	40			

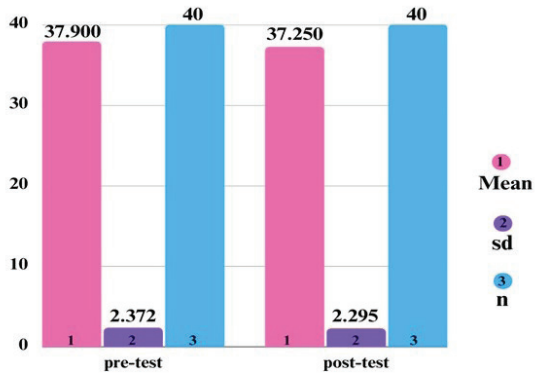

Figure: 4 Paired differences between the pre-test and post-test of the control group

Fig. 4: Paired differences between the pre-test and post-test of the control group

As shown in Table 3 (Figure 4), the control group's pre-test mean value is , while the post-test mean value is . The pre-test score is minimally higher than the post-test score. This suggests that the pre-test and post-test outcomes of the control group are minimally different from each other. The is not significant, and the resultant value of is less than the critical value This suggests that the is not statistically significant at the level of confidence 0.01. The eta squire statistic indicate null effect size (). Thus, it can be said that the difference between pre-test and post-test scores is not significant in the control group.

Table 4: The differences between pre-test and post-test of the experimental group

	Mean	Std. Deviation	N	t	p	eta. squire
Pre-test	38.80	3.516	40	12.883	.000	.80
Post-test	29.92	2.535	40			

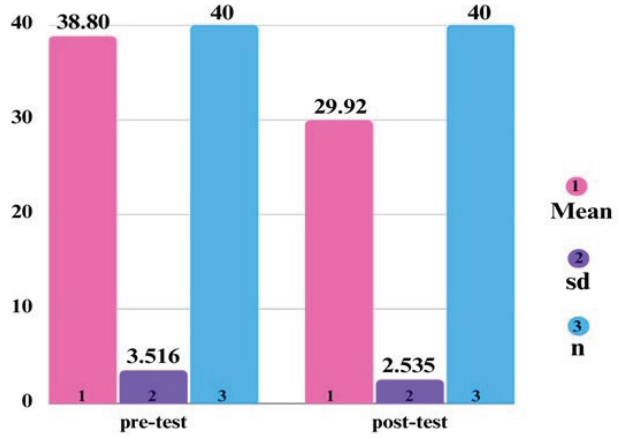

Fig. 5: Paired differences between the pre-test and post-test of the experimental group

According to Table 4 (*Figure 5*), the pre-test mean value is , while the post-test mean value is . The pre-test score) is higher than the pre-test score. This suggests that there is a statistical difference between pre- and post-test scores of the experimental group. The is highly significant, and the resultant value of is greater than the critical value This suggests that the is statistically significant at the level of confidence 0.01. The mean and Sd difference in test scores are with a 95% confidence interval ranging from 7. The eta squire statistic indicate a higher effect size (). Thus, it can be said that the difference between pre-test and post-test scores of experimental groups is statistically significant. Therefore, it can be determined that listening to Indian classical music will have a significant impact on the level of academic stress among undergraduate students, which helps to reduce their level of academic stress.

Table 5: The mean, SDs of both groups, control & experimental, among boys

	Mean	Std. Deviation	N	t	p	eta. squire
Control	36.00	2.029	18	7.794	.000	.64
Experimental	29.88	2.595	17			

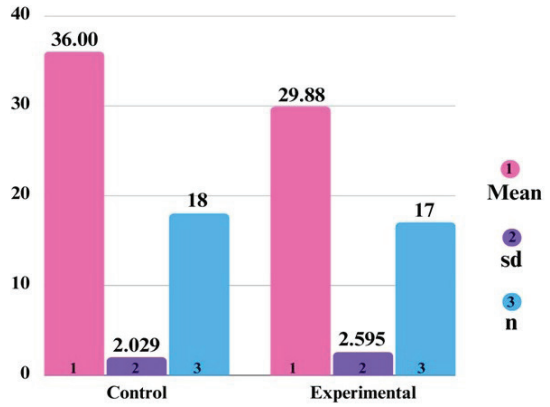

Fig. 6: Independent test differences post-test scores of the both control groups and experimental among boys

As indicated in Table 5 (Figure *6*), the experimental group's mean value among boys is , while the control group's mean value is . The boys in the experimental group scored () less than the boys in the control group () in the post-test. This indicates that there is a statistically significant difference between the boys in the experimental

group and the boys in the control group. The P (.000) < 0.01 is highly significant, and the resultant value of is greater than the critical value (). This suggests that the is statistically significant at the level of confidence 0.01. The mean difference in test scores is with a 95% confidence interval ranging from . The eta squire statistic indicate medium effect size (). Thus, it can be said that there is a significant difference between both groups (experimental and control) of boys on the post-test, and it may be stated that listening to Indian classical music had a significant impact on academic stress among postgraduate boys.

Table 6: The mean, SDs of both groups, control & experimental, among girls

	Mean	Std. Deviation	N	t	p	eta. squire
Control	38.27	2.004	22	12.129	.000	.77
Experimental	29.95	2.549	23			

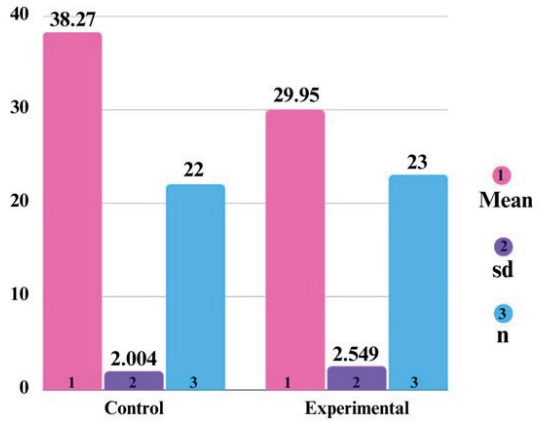

Fig. 7: Independent test differences between post-test scores of the both control groups and experimental among girls

According to Table 6 (Figure 7), the experimental group's mean value among girls is , while the control group's mean value is . The girls in the experimental group scored () less than the girls in the control group () in the post-test. This indicates that there is a statistically significant difference between the girls in the experimental group and the girls in the control group. The is highly significant, and the resultant value of is greater than the critical value This suggests that the is statistically significant at the level of confidence 0.01. The mean and Sd difference in test scores are with a 95% confidence interval ranging from . The eta squire statistic indicate a higher effect size (). Thus, it can be said that there is a significant difference between both groups (experimental and control) of girls on the post-test and listening to classical music had a significant impact on academic stress among undergraduate girls.

Table 7: The difference between post-test scores of the experimental group's boys & girls

	Mean	Std. Deviation	N	t	p	eta. squire
Boys	29.88	2.595	17	.090	.929	.00
Girls	29.95	2.549	23			

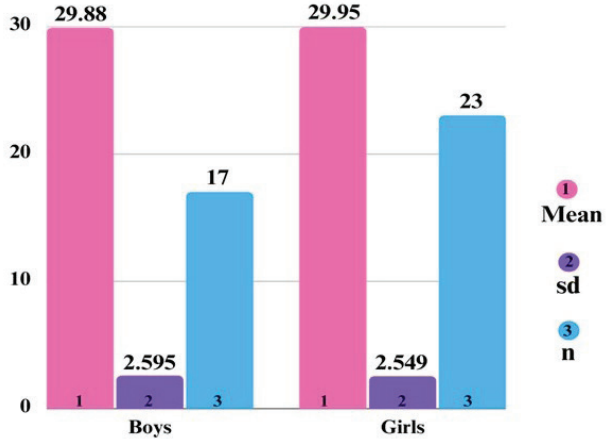

Fig. 8: Post-test differences between boys and girls in experimental groups

As shown in Table 7 (Figure *8*), the post-test mean score for boys was .88, and the mean score for the girls was . The boys' and girls' scores are almost similar in the post-test. This indicates the statistically slight disparity between boys and girls in the experimental group. The is not significant, and the resultant value of 't' is less than the critical value This suggests that the is not statistically significant at the level of confidence 0.01. The eta squire statistic indicate null effect size (). Thus, it can be said that the difference between boys' and girls' scores is not statistically significant, and it can be said that listening to classical music had the same impact on the boys and girls, which reduces their level of academic stress equally.

Discussion

The objective of this study was to assess the impact of Indian classical music on the level of academic stress among postgraduate students. An instrumental (flute) composition of raga 'Maru Bihag' by Hariprasad Chaurasiya was played as a music intervention among an experimental group of students. The results revealed that the students in the control group scored almost the same in the pre-test and post-test and there was not a significant difference between the academic stress of

the control group students before and after test, while the post-test scores of the students in the experimental group were found to be lower than the pre-test and the difference between pre-test and post-test scores of experimental groups is found statistically significant. This demonstrates that students in the experimental group reported a substantial reduction in academic stress due to listening to *Raga Maaru Bihag*. In contrast, the level of academic stress for students in the control group stayed relatively constant. Therefore, the null hypothesis, "There is no significant impact of Indian classical music on the level of academic stress among postgraduate students", has been rejected and, it can be said that listening to classical music had a significant impact on academic stress among university level students, which helps to reduce their level of academic stress and improve the probability to score better through academic achievements. The findings of the current study are supported by the findings of numerous studies (Sarkar, 2015; Mukherjee, 2019; Balaji, 2015; Bandopadhyay, 2012; Karuna, 2013; Ubrangala, 2021; Kunikullaya, 2016; Ubrangala, 2022; Sharma, 2021; Padam, 2017; Sunitha, 2018) that demonstrate listening to classical music based on pure forum of ragas or specific Indian ragas has a significant effect on the level of academic stress among students.

Numerous studies have revealed that music has a beneficial effect on students' levels of academic stress (Gallego, 2020; Ozgundondu, 2019; Harmat, 2008; Hakim, 2023; Li, 2022; Zheng, 2022; Kumar, 2021), mental pressure, and anxiety (Said, 2020; Ince, 2017; Ozgundondu, 2019; Walworth, 2008; Kavurmaci, 2020). Similarly, a significant difference between the post-test scores of the students in the experimental and control groups was discovered in the current study. These findings suggest that *Raga Maaru Bihag* significantly reduces the level of academic stress and pressure among postgraduate students. The results of the current study revealed that the boys in the experimental group showed a significant decrease in their level of academic stress during the post-test session after they listened to Indian classical music. The finding reveals a substantial difference between the experimental and control groups of boys. Therefore, the null hypothesis, "There is no significant impact of Indian classical music on the level of academic stress among postgraduate boys", is rejected, and it may be stated that listening to Indian classical music had a substantially significant impact on academic stress among postgraduate boys. Not just among boys, but also among postgraduate girls, classical music (*raga Maru bihag*) has been found to have a positive and significant impact on their level of academic stress. Therefore, the null hypothesis, "There is no significant impact of Indian classical music on the level of academic stress among postgraduate girls", is rejected, and it may be stated that listening to raga Maru Bihag significantly reduced postgraduate girls' academic stress.

Kiss, 2021; Li, 2022; Hakim, 2023; Jayamala et al.,2021; Ramchandran et al., 2022; Sunitha, 2018; Padam et al., 2017 and many others explained that music has a favourable effect on both boys' and girls' mental states. Similar to that, there was no significant difference in the post-test results between boys and girls in the current study. The result of the current study suggests that both categories (male and female) were similarly impacted by listening to raga Maru Bihag, and their levels of academic stress were substantially lowered. Therefore, the null hypothesis, "There is no significant difference in the impact of Indian classical music on the level of academic stress among postgraduate boys and girls", is accepted, and it can be said that listening to Indian classical music had a similar significant impact on the boys and girls, which reduced their level of academic stress equally.

Conclusion

This study provides strong evidence that Indian classical music, mainly Raga Maru Bihag, considerably reduces academic stress among postgraduate students. The universal efficiency across gender lines supports the broad application of this intervention in diverse educational settings. Unlike conservative stress management approaches, raga therapy offers a culturally grounded, cost-effective, and scalable intervention that aligns with India's rich musical heritage while addressing modern mental health challenges. The study concludes that exposure to Indian classical music may reduce negative cognitive patterns and enhance positive emotional states among students. Thus, students feel a sense of peace and happiness in their hearts, which gives them a feeling of mental satisfaction and motivation. Consequently, listening to Indian classical music can reduce the mental pressure of undergraduate students, lower academic stress and help them perform better in class. In situations of academic stress and pressure, listening to Indian classical music can be very helpful for students. It not only reduces their stress but also gives them a sense of peace and satisfaction, which makes their moods more pleasant. As academic stress is increasing worldwide, with concerning rates of student mental health issues, this research provides a promising pathway for institutional intervention. The application of regular raga listening sessions could serve as both a preventive and therapeutic measure, possibly lessening the need for more intensive mental health services while encouraging overall student success. Future research must focus on establishing ideal execution protocols, examining long-term effects, and

increasing the evidence base across diverse populations. The combination of traditional Indian wisdom with modern research methodologies demonstrated in this study represents a model for developing culturally sensitive, evidence-based interventions for mental health promotion in educational settings.

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