



ISSN (O): 2320-5407  
ISSN (P): 3107-4928

Journal Homepage: -[www.journalijar.com](http://www.journalijar.com)

## INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/23048  
DOI URL: <http://dx.doi.org/10.21474/IJAR01/23048>



### CONFERENCE PAPER

## THE EFFECT OF INDIAN CLASSICAL MUSIC ON STATE LEVEL RUMINATION AND MINDFULNESS IN UNIVERSITY STUDENTS

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#### Manuscript Info

##### Manuscript History

Received: 04 January 2026  
Final Accepted: 08 February 2026  
Published: March 2026

##### Key words:-

Music intervention, Rumination,  
Mindfulness, Indian Classical Music,  
University Students

#### Abstract

The foundational role of taala (rhythm) and raga (melody) in Indian Classical Music can be harnessed to create a focus point and has shown to help reach flow state, and meditative states. The effects of raga based compositions on mood have been studied, but this study focuses on utilizing rhythm and using it as a point of distraction and for stabilizing and calming the mind. Which further can help reduce rumination and maintain that state and potentially make one more mindful of the present. This research studies the effect of a single session of listening to a piece of Indian Classical Instrumental Music on state level rumination and mindfulness, in university students. The data of 30 students was collected and analysed, using an experimental design. Their mindfulness and rumination scores were collected using standardized questionnaires, before and after a 10-minute piece of instrumental Indian classical music was played. Statistical analysis showed a significant reduction in rumination in the participants, and no significant change was observed in mindfulness, indicative of the nature of mindfulness being a trait that must be cultivated over a period of time. Longitudinal studies in this field are required to better understand the effects of long-term exposure, and to establish Indian Classical Music as a formalised form of therapy.

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#### Introduction:-

Pondering excessively over the past, worrying about other's perception of themselves, thinking over and over about something that cannot be controlled or changed by occupying your mind with it; This is overthinking or rumination, one of the most common issues faced by the youth of this generation.

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Rumination has been linked to many problematic consequences due to its nature to prolong negative mood and keep one stuck in that state for long; These consequences include making an individual vulnerable to anxiety, depression, psychosis, impacting sleep, interfering with the effects of therapy, and maintaining physiological stress states (Watkins & Roberts, 2020). Due to the loop like nature of rumination, it can be a difficult cycle to break. And it requires more than a temporary distraction to keep it away. Indian Classical Music has been linked very strongly to evoking emotions and affecting mental states, due to the very intentional and structured nature of it. There is a science to this, and integration of maths with this art form, at its roots. Using the foundational pillars of “ragas” (the melodic aspect) and the “taalas” (the rhythmic aspect), music can be composed to evoke specific “rasas” (emotions) (Mathur et al., 2015). Indian Classical Music has also been used in integration with yoga, traditionally and plays a very important role in the achievement and enhancement of meditative states. Yoga forms such as “Nada Yoga” or sound yoga which is the practice of using sound and vibrations to reach meditative states. Not just traditionally but modern therapeutic techniques such as Mindfulness Based Music Therapy have shown to improve mood and reduce distress and symptoms of anxiety, depression, and Obsessive Compulsion (Wang et al., 2025).

Thus, there exists a foundation for the connection between mindfulness and Indian classical music, since ancient times as well as in the modern context. Thus, Indian Classical music can be a great medium to reduce rumination and increase mindfulness in individuals due to its therapeutic properties. Though existing studies in this field show the stress and anxiety reducing effects of individuals at a physiological as well as psychological level, i.e. discussing the potential pathways through which they may be connected, none have studied the direct link between Indian classical music and rumination, and mindfulness. So, this study aims specifically to see if there are any immediate and state level changes of Indian classical music in just one exposure, as longitudinal therapeutic effects have been established by the effectiveness of therapeutic techniques such as Mindfulness Based Music Therapy. Rather this research is conducted with the intention to explore if Indian classical music can be used as a method for immediate breaking of the pattern of overthinking, and bringing an individual to the present moment, and increasing mindfulness.

#### **Indian Classical Music, and Stress and Anxiety:-**

Indian classical music has shown to reduce physiological, as well as psychological state and trait anxiety. Arya (2020) shows the effects of month-long exposure to music therapy, using ragas, on male medical students with a reduction in physiological measures of stress. Physiological stress reduction due to variation in musical properties such as tempo, octave, and timbre is also observed with Indian classical music (Sharma et al., 2020). Though most studies focus on the effects of ragas only. Another older research work by Gupta and Gupta (2005) measures the reduction in state and trait anxiety levels when a group of postgraduate male students listened to raga todi, played on the flute for a period of 20 days, 30 minutes each day. An RCT study by Padam et al. (2017) measuring the effect of vedic chants and Indian classical music on anxiety levels, showed a reduction in anxiety as well, due to an Indian classical music piece of 10 minutes, in upper GI endoscopy patients.

#### **Music as a form of Therapy:-**

The therapeutic effects of music are experienced and accepted by many, because of which therapeutic interventions have been designed using music. Indian classical music has shown to improve symptoms of major depression and “tridosha” imbalance in pregnant women over 20 sessions of receptive music therapy (Sumathy et al., 2016). Indian classical music has shown to play a significant role in management of mental depression, in a study of 40 participants, given music therapy based on Indian classical music (Akkera et al., 2014). There exists a strong link between ruminating patterns and depression; whether this reduction in depressive symptoms is due to the effect of music on the ruminating pattern or not is yet to be studied though. The Mindfulness-Based Music Therapy (MBMT) harnesses the mindfulness capability of music and has shown to reduce stress, depression and anxiety by Wang et al. (2025). Though therapies involve longitudinal effects due to long term exposure to music in combination with other elements. Whether there is an immediate effect on mindfulness, still needs to be studied. Malhotra et al., discusses the scope of raaga-based music therapy and the current need for more rigor and use of controlled trials and longitudinal studies for its development.

#### **Indian Classical Music and Meditation:-**

Though not directly measuring mindfulness, Shrestha and Kumar (2024) showed that Indian classical music and significantly increase flow state dimensions, along with emotional competence, in a pre-post comparison study. This could indicate an effect on mindfulness as flow state has many qualities that overlap with mindfulness such as high engagement with the activity being conducted, feeling very present in the moment. Though one aspect that would

differ is that mindfulness requires conscious awareness of the present and one's body and surroundings, while flow state involves a sense of awareness, but it has an automaticity to it, that leads to loss of perception of time and surroundings. Ramdinmawii & Mittal (2017), studied, using brainwaves, how classical music can help the mind reach higher meditation levels quicker, thus indicating that it does play a significant role in promoting meditative states, which might be occurring through the route of mindfulness.

Very few experimental studies exist in this field, and many of these are older and none that directly look at effects on rumination or mindfulness.

### **Method:-**

#### **Objectives:-**

1. To see if an experience of an original composition of Indian Classical Instrumental Music has any state level change on rumination in university students during the pre-exam period.
2. To see if an experience of an original composition of Indian Classical Instrumental Music has any effect on the state level mindfulness in university students during the pre-exam period.

#### **Hypotheses:-**

1.  $H_0$ : There will be no significant difference observed in rumination, in university students, before and after a single exposure of instrumental Indian Classical music.
2.  $H_0$ : There will be no significant difference observed in mindfulness, in university students, before and after a single exposure of instrumental Indian Classical music.

#### **Research Design:-**

An experimental design was used to study the effect of a single exposure to a piece of instrumental Indian classical music. The music piece was composed using Raaga Ahir Bhairav and a teen taal (16 beats) very intentionally, keeping in mind the calming effects of raga Ahir Bhairav (Valla et al., 2017). This focus of the composition was on the teen taal, as the aim is to use the rhythmic aspect of the music to observe any changes as many studies exist on the effects of ragas but a focus on the taala is missing. Also, raagas have been associated with mood level changes while here the psychological and cognitive changes are being studied. And the repetitive, and pattern like nature of the taala can be harnessed and hypothesized to maintain attention and concentration on the pattern while the stability of it helps the mind feel calm. This study measures state level psychological changes. The music piece used was a 10-minute original composition using the tabla as the core instrument. A pre and post comparison study was conducted to measure the immediate effects of the music piece. The rumination and mindfulness of the participants was measured using standardized questionnaires.

#### **Sample:-**

The study was conducted on a sample size of 34 students. Participants were exposed to the music piece in groups of 5 to 10. These students were in the age group of 18 to 25. This group was selected due to the pre-exam period where distress and rumination levels would be significant, allowing to observe the effect of the music more clearly and in the relevant context. Music Engagement level was also used as a selection criterion as their relationship with music can influence the effect of the music. The average score of music engagement was taken and those with above average score on music engagement were selected and analysed. Due to this exclusion of those with music engagement scores less than 33, 4 participants were excluded from the study, and the analysis was conducted on 30 participants.

#### **Procedure:-**

The participants were recruited on campus, in person. They were informed about the study, its experimental nature and the field in the beginning and that an experience would be provided to them at a later stage, they were asked to fill the consent form, and the standardized questionnaires were provided for the collection of the pre-exposure data. The questions were asked to be filled based on how they were feeling or thinking in that moment. After they filled the data, the musical nature of the experience was revealed, and they were instructed to listen to the piece and engage with it. This was done so that the initial data was not biased, and requested intentional engagement would lead to similar engagement levels and more accurate results. Post the music piece being played, they were instructed to answer the same questions keeping in mind their then current state and what they were thinking or feeling at that moment. This was done to measure the state level differences. Post the study the intention for later disclosure of the music, the relevant variables, and the pre-post nature of the study was explained to debrief them and keep them ethically informed.

**Tools:-****Brief State Rumination Inventory:-**

This scale with 8 items was used to measure their state level rumination. The 8 items are to be answered on a Visual Analog Scale of 100mm, on which the answers are marked from Completely agree(100) to Completely disagree(0), by the participants. The score is obtained by taking the sum of scores for each item. The test shows good construct, convergent, divergent, and criterion validity. And has good reliability based on the internal consistency, indicated by a Cronbach alpha value of 0.89 to 0.91(Marchetti et al., 2021).

**State Mindfulness Scale:-**

This scale is used to measure the state level mindfulness of an individual. It is a self-report scale. It consists of 21 items which are to be answered on a 5 point Likert scale, from not at all, to very well. It consists of two subscales- State mindfulness of the mind (15 items), and state mindfulness of the body (6 items). This scale has shown good construct validity and good internal consistency as indicated by Cronbach's alpha value of 0.90 to 0.95(Tanay et al., 2013).

**Music Engagement Questionnaire:-**

The self-report 11 item version of this scale was used to measure overall relationship of the participants with music. This scale is to be answered on a 5 point Likert scale, ranging from not at all to very much. This scale shows great internal consistency and convergent validity(Vanstone et al., 2015).

**Ethical Considerations:-**

The written informed consent of all participants was taken before conducting the study. They were informed about the necessary details of the study before the experiment and debriefed about the details that could not be revealed in the beginning of the experiment, during and post the experiment. The participants were assured of the confidentiality of the data collected and its use for purely academic and research purposes. They were informed of their right to leave the study at any point and their right to ask for their data and results as well.

**Analysis and Results:-****Demographics:-**

After excluding 4 of the 34 participants data, due to low music engagement scores, the final sample of 30 university students consists of 25 Females, and 5 males. 26.67 % of the participants live with their family while 73.33% of them lived in hostels. 53.33 % of the participants belong to a nuclear family; 30 % came from a joint family; and 16.67 % did not mention their family type. Their ages ranged from 18 to 21 years. They were all undergraduate students.

	N	Minimum	Maximum	Mean	Std. Deviation
Mindfulness (pre-exposure)	34	47	99	71.65	12.098
Mindfulness (post-exposure)	34	42	99	73.03	14.246
Rumination (pre-exposure)	34	50	640	415.88	153.480
Rumination (post-exposure)	34	0	760	319.06	170.103

Normality was tested on SPSS software using Shapiro Wilk test, which showed that the data for all the variables- Rumination (before and after exposure to music) and Mindfulness (before and after exposure to music), was normally distributed. Thus, for further analysis, a matched paired t-test was conducted on the data using Microsoft Excel.

**Table 2**

Rumination: t-Test		
	Rumination (pre-exposure)	Rumination (post-exposure)
Mean	418.1	320.3
Variance	23854.23	28171.87
Observations	30	30
Pearson Correlation	0.534178	
Difference	0	
df	29	
t Stat	3.434167	
P(T<=t) one-tail	0.000906	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.001812	
t Critical two-tail	2.04523	

The results thus show that there is a significant difference observed in the rumination levels, at a p value of 0.002 before and after listening to the piece of Classical Indian music (Table 2). Rejecting the null hypothesis. And since the mean value decreases from 418.1 to 320.3, it indicates that the rumination scores have significantly decreased. This decrease is significant at a level of 0.001.

**Table 3**

Mindfulness: t-Test		
	Mindfulness (pre-exposure)	Mindfulness (post-exposure)
Mean	72.36667	73.8
Variance	143.7575	200.5793
Observations	30	30
Pearson Correlation	0.468521	
Difference	0	
df	29	
t Stat	-0.57685	
P(T<=t) one-tail	0.284245	
t Critical one-tail	1.699127	
P(T<=t) two-tail	0.568491	
t Critical two-tail	2.04523	

The results show that there is no significant difference in the mindfulness levels before and after listening to the piece of music (Table 3). Thus, the null hypothesis is retained. There is a significant difference observed in rumination, in university students, before and after a single experience of a piece of the instrumental Indian Classical music, such that rumination decreases post listening to the piece of instrumental Indian Classical music. There is no significant difference observed in mindfulness, in university students, before and after a single experience of the piece of instrumental Indian Classical music.

### Discussion:-

The obtained results of the study show that rumination levels decrease significantly after exposure to a piece of Indian classical instrumental music in just one session. Such immediate changes in rumination patterns show the effectiveness of Indian classical instrumental music on breaking the often-destructive loop of ruminative thinking. Rumination on negative thoughts has been strongly linked to depression and anxiety (Michl et al., 2013), and the ability of Indian classical music to break this pattern in a single exposure shows that it can be used as a

method for immediate relief from this pattern of thinking, which is often very difficult to break because of the almost addictive nature of overthinking, by acting as a great distracting medium which combines its calming effects which were very specifically integrated in the music during composition. This study measured mindfulness and rumination as state-level variables, that is, it observed immediate changes because of exposure to instrumental Indian classical music during a single session. The lack of any difference observed in mindfulness, before and after listening to music, indicates that mindfulness cannot be acquired immediately by just one session of music listening, it requires cultivation over a period of time. Mindfulness levels must be cultivated over a period and would require consistent listening and experiences with Indian classical instrumental music. The nature and ability of music in itself to generate a flow-like state and its ability to transport people to a different time and connect with memories could also be a reason for the lack of difference observed in mindfulness levels. Indian classical music can be used to reach higher meditative states quicker (Ramdinmawii, E. & Mittal V. K., 2017) but could require intention and the additional practices (such as closing your eyes, sitting in aasanas, and intentionally focusing) to reach those meditative states.

The limitation of this study is that it is conducted on a small group of university students due to the experimental nature of it, and it only observes the immediate effects of it, not longitudinally effects due to long-term exposure. This implies the need for longitudinal studies in this field to observe if mindfulness can be cultivated by multiple experiences with a piece of music, which would be in line with the available work that shows mindfulness-based pathways being used to reduce depressive symptoms in a therapy format where the music is exposed to the subjects multiple times over a period of time.

## References:-

1. Watkins, E. R., & Roberts, H. (2020). Reflecting on rumination: Consequences, causes, mechanisms and treatment of rumination. *Behaviour Research and Therapy*, 127, 103573. <https://doi.org/10.1016/j.brat.2020.103573>
2. Mathur, A., Vijayakumar, S. H., Chakrabarti, B., & Singh, N. C. (2015). Emotional responses to Hindustani raga music: the role of musical structure. *Frontiers in Psychology*, 6, 513. <https://doi.org/10.3389/fpsyg.2015.00513>
3. Wang, L., Zhang, X., Pan, L., & Guo, R. (2025). Mindfulness-based music therapy for mental health in senior college students: a randomized controlled trial. *Frontiers in Psychology*, 16, 1649395. <https://doi.org/10.3389/fpsyg.2025.1649395>
4. Valla, J. M., Alappatt, J. A., Mathur, A., & Singh, N. C. (2017). Music and Emotion—A case for North Indian classical music. *Frontiers in Psychology*, 8, 2115. <https://doi.org/10.3389/fpsyg.2017.02115>
5. Marchetti, I., Mor, N., Chiorri, C., Koster, E. H. W., Ghent University, Hebrew University of Jerusalem, University of Genoa, Research Foundation Flanders, Israel Science Foundation, Noa Avirbach, Tal Ganor, Baruch Perlman, & Igor Marchetti. (2021). The Brief State Rumination Inventory (BSRI): validation and psychometric evaluation. In *Cognitive Therapy and Research [Journal-article]*. <https://core.ac.uk/download/pdf/153397117.pdf>
6. Tanay, G., Bernstein, A., & University of Haifa. (2013). State Mindfulness Scale (SMS): development and initial validation. *Psychological Assessment*, 1286–1299. [https://psycnet.apa.org/fulltext/2013-33699-001.pdf?auth\\_token=f2deeab25a2198c5dd036392a63d39e96219ccc0](https://psycnet.apa.org/fulltext/2013-33699-001.pdf?auth_token=f2deeab25a2198c5dd036392a63d39e96219ccc0)
7. Vanstone, A. D., Wolf, M., Poon, T., & Cuddy, L. L. (2015). Measuring engagement with music: development of an informant-report questionnaire. *Aging & Mental Health*, 20(5), 474–484. <https://doi.org/10.1080/13607863.2015.1021750>
8. Arya, P. B. . M. L. (2020). Effect of Indian classical instrumental music on stress and anxiety in male medical students. *International Journal of Physiology*. <https://doi.org/10.37506/ijop.v8i3.1331>
9. Sharma, S., Sasidharan, A., Marigowda, V., Vijay, M., Sharma, S., Mukundan, C. S., Pandit, L., & Masthi, N. (2020). Indian classical music with incremental variation in tempo and octave promotes better anxiety reduction and controlled mind wandering—A randomised controlled EEG study. *EXPLORE*, 17(2), 115–121. <https://doi.org/10.1016/j.explore.2020.02.013>
10. Shreshta, H., & Kumar, R. (2024). Effect of Indian classical music on flow state and emotional competence of young adults. *International Journal for Multidisciplinary Research*, 6(3). <https://doi.org/10.36948/ijfmr.2024.v06i03.20848>
11. Ramdinmawii, E. & Mittal, V. K. (2017). Effect of different music genre: Attention vs. meditation. Seventh International Conference on Affective Computing and Intelligent Interaction Workshops and Demos (ACIIW), 135-140. doi: 10.1109/ACIIW.2017.8272603

12. Gupta, U., & Gupta, B. S. (2005). Psychophysiological responsivity to Indian instrumental music. *Psychology of Music*, 33(4), 363–372. <https://doi.org/10.1177/0305735605056144>
13. Malhotra, V., Vedabala, S., Khadanga, S., Jallapally, A., Das, S., & Agrawal, A. (n.d.). Indian Classical Music, Raaga as music therapy: scope and opportunities. *Impressions@MAHE*. <https://impressions.manipal.edu/mjms/vol7/iss1/9/>
14. Sumathy, S., Pavitra, D., & ParmarParin, N. (2016). INDIAN CLASSICAL MUSIC AS RECEPTIVE MUSIC THERAPY IMPROVES TRIDOSHIC BALANCE AND MAJOR DEPRESSION IN a PREGNANT WOMAN. <https://www.semanticscholar.org/paper/INDIAN-CLASSICAL-MUSIC-AS-RECEPTIVE-MUSIC-THERAPY-A-Sumathy-Pavitra/c4de5097883f481d85512732d1b589a10b649cfd>
15. Akkera, M., Bashetti, S., Kundoor, N., Desai, K. V., Kishan, N. R., & Bhongir, A. V. (2014). Indian music therapy: could it be helpful in the management of mental depression? <https://indianjournals.com/article/ijmrhs-3-2-025>
16. Michl, L. C., McLaughlin, K. A., Shepherd, K., & Nolen-Hoeksema, S. (2013). Rumination as a mechanism linking stressful life events to symptoms of depression and anxiety: Longitudinal evidence in early adolescents and adults. *Journal of Abnormal Psychology*, 122(2), 339–352. <https://doi.org/10.1037/a0031994>
17. Padam, A., Sharma, N., Sastri, O. S. K. S., Mahajan, S., Sharma, R., & Sharma, D. (2017). Effect of listening to Vedic chants and Indian classical instrumental music on patients undergoing upper gastrointestinal endoscopy. *Indian Journal of Psychiatry*, 59(2), 214–218. [https://doi.org/10.4103/psychiatry.indianjpsychiatry\\_314\\_16](https://doi.org/10.4103/psychiatry.indianjpsychiatry_314_16)