

# INVESTIGATE THE IMPACT OF MUSIC ON ANXIETY LEVELS AND WELLBEING AMONG UNDERGRADUATE STUDENTS

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## Abstract

Anxiety is a prevalent concern in healthcare personnel such as medicos and psychologists because it affects both noetic and physical state of an individual. The aim of this study was to investigate the impact of music on stress and wellbeing level among university students. The current experiment investigated the impact of listening to music on anxiety levels and overall well-being among undergraduate students. Sixteen students (8 females, 8 males) participated, providing data through the State-Trait Anxiety Scale and the Psychological Well-being Scale. Results from paired sample t-tests indicated that listening to music daily for 50 days did not significantly affect State Anxiety scores, but did lead to statistically significant changes in Trait Anxiety and Psychological Well-being scores ( $t=4.31$ ,  $P<0.01$ ;  $t=1.173$ ,  $P<0.002$ ). Specifically, while no significant difference was observed in the "autonomy" sub-dimension of Psychological Well-being, post-test scores showed significant improvements in "positive relations with others", "environmental mastery", "personal growth", "purpose in life", and "self-acceptance".

**Keywords:** Music, Anxiety and Wellbeing

## INTRODUCTION

**Sarason (1980)** proposed that anxiety arises as a learned or inherited reaction to a perceived threat. **Benjamin (1987)** indicated that anxiety may hinder learning, testing, and concentration, potentially impacting a student's ability to express newly acquired knowledge. Likewise, **May (1977)** described anxiety as a maladaptive behaviour that can impede learning, making it challenging for highly anxious students to fulfil academic obligations. Such students may struggle with distractions, difficulty focusing on relevant material, and maintaining concentration on essential aspects of their studies.

Anxiety affects every aspect of our being, influencing our emotions, behaviours, and manifesting in physical symptoms. It resembles fear in some ways, but often we cannot pinpoint the exact cause of our anxiety. Generalized anxiety is vague and unsettling, while severe anxiety can be highly debilitating. Stress in our lives commonly triggers anxiety, and while some individuals are more susceptible to it than others, even those prone to anxiety can learn to manage it effectively. Negative self-talk can exacerbate anxiety, as we may habitually anticipate the worst outcomes. Occasional anxiety is normal, but it becomes problematic when it significantly disrupts our lives without any real danger, or persists long after the perceived threat has passed. Temporary relief may be found by avoiding anxiety-inducing situations.

In student life, stress and anxiety are prevalent, particularly during academic tasks. Students experience varying levels of anxiety, with those facing learning disabilities often encountering higher levels compared to their peers without disabilities. Many students struggle with anxiety when tackling challenging academic assignments. Test anxiety, affecting approximately one-third of students, is a common phenomenon. **Lim (2007)** underscores the significance of attribution theory, highlighting that students who feel a sense of control over their academic tasks and outcomes are more motivated to successfully complete their assignments.

## OBJECTIVES

The study had the following objectives:

- To investigate how different types of music positively reduce stress and promote wellbeing.
- To understand the impact of music listening on students' mental health and wellbeing.
- To analyse individuals' perceptions regarding the role of music in reducing stress and depression among students.

## HYPOTHESES

The study tested the following hypotheses:

- There will be a significant increase in post-test trait and state anxiety scores compared to pre-test scores for the experimental group.
- There will be a significant increase in post-test well-being scores compared to pre-test scores for the experimental group.

## LITELATURE RIVIEW

**Robert L. Newton (2013)** conducted a study on effect of music on human stress replications and found that music heedfully auricularly discerning impacted the psychobiological stress system. Heedfully auricularly discerning music prior to a standardized stressor predominantly affected the autonomic nervous system (in terms of a more resilient recuperation), and to a lesser degree the endocrine and psychological stress replication. **Amy Novotney (2013)** conducted a study on music as medicine on premature babies of 32 weeks of gestation and she concluded that music slowed baby's heart rate, incremented the duration babies stayed alert and music therapy withal reduced parent's stress **John S, Verma, SK and Khanna, GL(2012)** conducted a study on music therapy on salivary cortisol in reducing pre-competition stress and its effect in shooting performance and the result concluded that four weeks of music therapy has an effect on hypothalamic pituitary adrenal- axis by decreasing the level of salivary cortisol as a reliable physiological marker of pre-competition stress. **Sharma, M and Jagdev, T (2012)** conducted a study on use of music therapy in enhancing self-esteem among academically stressed adolescents. Results revealed that music therapy enhanced the self-esteem of adolescents. **J. Rapp and M. Lanovaz (2011)** found in their study on effects of music on vocal stereotypy in children with autism that non contingent access to music immediate engagement in vocal stereotypy for children with autism. **M. Thaut (Ph.D.) and G. McIntosh (M.D.) (2010)** conducted a study in which they concluded that music therapy can retrain auditory perception, attention, recollection, and executive control (including reasoning, quandary-solving, and decision-making. **Dr. S. Tameem Sharief and M. Kotteswari (2010)** conducted research on job stress and its impact on employee's performance and the result of the study reveals that both the male and female employees are experiencing stress in their work place. irrespective of most of the employees concur that the job stress is affecting their job performance. **Dr. Cheng Kai Wen (2004)** conducted a study on stress source among the college student in Taiwan and he found that male students feel more vigorous stress from family factors than females' ones. **Suzzane B. Hanser (1985)** conducted a study on music therapy and stress reduction and she concluded music acts a sedative in reducing the effects of ANS during stressful situations and withal relaxation of body and encephalon

## RESEARCH METHODOLOGY

**Sample:** The study comprised a total sample of 16 students, evenly split between genders (8 males and 8 females), aged 19 to 23 years. The participants were selected from faculty of Education in Teerthanker Mahaveer University Moradabad UP. Using convenient sampling. These students were then divided into an experimental group and a control group, with 16 participants (8 males and 8 females) in each group.

## RESEARCH TOOLS

**State-Trait Anxiety Inventory:** The State-Trait Anxiety Inventory (STAI), developed by **Spielberger et al. (1970)**, assesses anxiety using a four-point Likert scale.

**Psychological Well-being Scale:** The Psychological Well-being Scale by **Ryff (1989)**, adapted to Turkish by **Cenkseven (2004)**, assesses well-being across six dimensions: self-determination, environmental mastery, personal growth, positive relations, purpose in life, and self-acceptance. **Experimental Process:** In this study, the experimental group students first completed the State-Trait Anxiety Inventory and the Psychological Well-being Scale. Then, they were advised to listen music daily on their mobile phones for 50 days, with their consent. To ensure regular listening, students completed a Music Listening Schedule daily. After 50 days, the students completed the State-Trait Anxiety Inventory and the Psychological Well-being Scale again. Raw scores were then entered, and the results were analysed using SPSS.

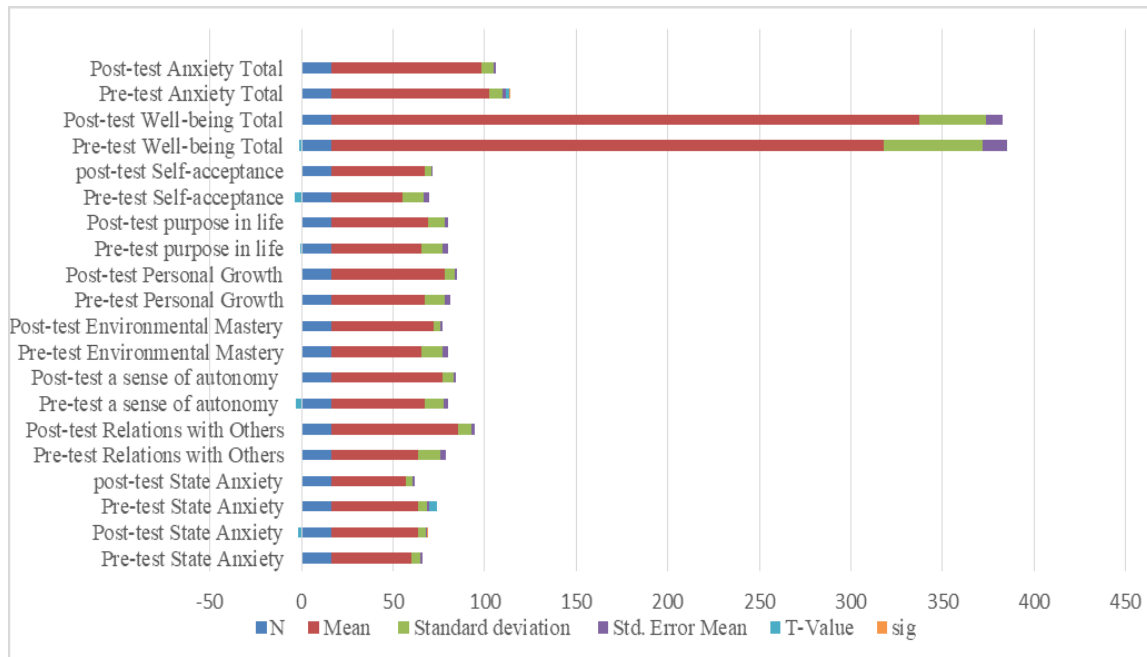
## STATISTICAL ANALYSIS

The current study employed descriptive statistics and paired samples t-tests to analyse its findings.

## RESULT AND DISCUSSION

### Pre-test and Post-test scores for state anxiety, trait anxiety, and subjective well-being among students in the experimental group

Dimensions	N	Mean	Standard deviation	Std. Error Mean	T-Value	sig
Pre-test State Anxiety	16	43.7133	5.09443	1.2736	-2.230	.211
Post-test State Anxiety	16	47.4000	4.20714	1.0518		
Pre-test State Anxiety	16	47.7000	4.83543	1.2089	4.31	.004
post-test State Anxiety	16	41.1675	3.66395	0.9160		
Pre-test Relations with Others	16	47.8363	11.8814	2.9704	-6.2727	.011
Post-test Relations with Others	16	69.7000	7.31208	1.8280		
Pre-test a sense of autonomy	16	51.4127	10.2837	2.5709	-3.346	.076
Post-test a sense of autonomy	16	61.2123	5.62436	1.4061		
Pre-test Environmental Mastery	16	49.2367	11.7023	2.9256	-2.303	.001
Post-test Environmental Mastery	16	56.3000	3.67793	0.9195		
Pre-test Personal Growth	16	51.2566	11.1304	2.7826	-3.633	.013
Post-test Personal Growth	16	62.45670	5.31350	1.3284		
Pre-test purpose in life	16	49.6200	11.43260	2.85815	-1.0313	.007
Post-test purpose in life	16	53.3264	8.704283	2.17607		
Pre-test Self-acceptance	16	39.3557	11.34526	2.8363	-3.987	.000
post-test Self-acceptance	16	51.2432	3.635242	0.9088		
Pre-test Well-being Total	16	302.2356	53.82236	13.4556	-1.173	.002
Post-test Well-being Total	16	321.3260	36.43720	9.1093		
Pre-test Anxiety Total	16	86.42353	7.45362	1.8634	1.825	.328
Post-test Anxiety Total	16	82.34566	6.36478	1.5912		



The results depicted in Table 1 reveal that there is no noteworthy contrast between the pre-test and post test scores derived from the State Anxiety Scale ( $p = .211 > 0.05$ ), indicating that any variation observed is likely due to random chance. Conversely, a significant disparity is evident between the pre-test and post-test scores stemming from the Trait Anxiety Scale ( $p = .004 < 0.01$ ), underscoring the efficacy of music in diminishing trait anxiety levels. Furthermore, discernible variances are apparent between the pre-test mean scores and post-test mean scores computed for the Psychological Well-being Scale’s sub-dimensions, including “positive relations with others” ( $p > .05$ ); “environmental mastery” ( $p > .01$ ); “personal growth” ( $p > .05$ ); “purpose in life” ( $p > .01$ ); and “self-acceptance” ( $p > .001$ ), all favouring the post-test mean scores. Examination of the total Psychological Well-being Scale scores indicates an augmentation in the post-test mean scores. Although an enhancement is noted in the post-test within the Psychological Well-being Scale’s sub-dimension of “autonomy,” this increment lacks statistical significance, with a “p” value exceeding .05.

In summary, a substantial decline is evident in the anxiety levels of participating students, coupled with a noteworthy upswing in their subjective well-being levels. Music emerges as a pivotal component in fostering self-expression, alleviating anxiety, addressing physiological ailments, enhancing time management, acquiring coping mechanisms, and ameliorating quality of life.

## CONCLUSION

The study underscores the multifaceted benefits of music intervention, including its role in facilitating emotional expression, reducing anxiety, addressing physiological ailments, enhancing time management skills, fostering coping strategies, and ultimately enhancing overall quality of life. This emphasizes the holistic impact of incorporating music-based interventions in various therapeutic and educational settings.

In brief, study suggest a clear discrepancy in anxiety levels between genders, where females tend to report greater anxiety than males. Interestingly, this contrast is not evident in stress levels. Furthermore, recent research highlights the efficacy of music therapy in diminishing stress and anxiety among college students. This implies that music therapy could serve as a beneficial tool for addressing mental health concerns, extending its potential beyond psychiatric patients to encompass broader populations, especially students.

## SUGGESTIONS AND RECOMMENDATIONS:

- The study's small sample size of 16 students poses a limitation.
- Future research could benefit from conducting studies with larger sample sizes to enhance generalizability.
- Replicating the study could assess the effectiveness of music therapy among school students or those with neurodevelopmental disorders.
- Researchers might consider incorporating additional variables such as depression and post-traumatic stress disorder in future studies.

## REFERENCES

- Anderson, S.A. & Fuller, G.B. (2010). Effect of music on reading comprehension of junior high school students. *School Psychology Quarterly*, 25(3) 178-187. <https://doi.org/10.1037/a0021213>.
- Augustin, P., & Hains, A. A. (1996). Effect of music on ambulatory surgery patients' preoperative anxiety. *AORN journal*, 63(4), 750-758.
- Batemanazan, V., Jaafar, A. & Salehuddin, K. (2014). A Comparative study on the eye movement patterns in Malay-English bilingual readers. *Procedia - Social and Behavioral Sciences*, 118, 229-234. <https://doi.org/10.1016/j.sbspro.2014.02.031>.
- Boudjella, A., Sharma, M., Sharma, D. (2017). Non-native English speaker readability metric: reading speed and comprehension. *Journal of Applied Mathematics and Physics*, 5(6). 1257-1268. <https://doi.org/10.4236/jamp.2017.56107>.
- Bugter, D. & Carden, R.J. (2012). The effect of music genre on a memory task. *Modern Psychological Studies*, 17(2), 87-90. Cauchard, F., Cane, J. & Weger, U. (2012). Influence of background speech and music in interrupted reading: an eye-tracking study. *Applied Cognitive Psychology*, 26(3), 381-390. <https://doi.org/10.1002/acp.1837>.
- Byers, J. F., & Smyth, K. A. (1997). Effect of a music intervention on noise annoyance, heart rate, and blood pressure in cardiac surgery patients. *American Journal of Critical Care*, 6(3), 183-191.
- Clifton, C., Ferreira, F., Henderson, J.M., Inhoff, A.W., Liversedge, S.P., Reichle, E.D. & Schotter, E.R. (2016). Eye movements in reading and information processing: Keith Rayner's 40-year legacy. *Journal of Memory and Language*, 86, 1-19. <https://doi.org/10.1016/j.jml.2015.07.004>.
- Dickmann, F., Edler, D., Bestgen, A.K. & Kuchinke, L. (2015). Heatmap analysis in eye-tracking research-the example of investigating object-location memory. *Kartographische Nachrichten*, 65(5,) 272-280.
- Ellis, D. S., & Brighouse, G. (1952). Effects of music on respiration-and heart-rate. *The American journal of psychology*, 65(1), 39- 47.
- Hessels, R.S., Kemner, C., van den Boomen, C. & Hooge, I.T.C. (2016). The area-of-interest problem in eye-tracking research: a noise-robust solution for face and sparse stimuli. *Behaviour Research Methods*, 48(4), 1694-1712. <https://doi.org/10.3758/s13428-015-0676>
- Josephson, S. (2008). Keeping your readers' eyes on the screen: an eye-tracking study comparing sans serif and serif typefaces. *Visual Communication Quarterly*, 15(1-2), 67-79. <https://doi.org/10.1080/15551390801914595>.
- Knight, W. E., & Rickard, N. S. (2001). Relaxing music prevents stress-induced increases in subjective anxiety, systolic blood pressure, and heart rate in healthy males and females. *Journal of music therapy*, 38(4), 254-272.
- Kok, E.M. & Jarodzka, H. (2017). Before your eyes: the value and limitations of eye tracking in medical education. *Medical Education*, 51(1), 114-122. <https://doi.org/10.1111/medu.13066>.
- Kumar, N., Wajidi, M.A., Chian, Y.T., Vishroothi, S., Ravindra, S. & Aithal, A. (2016). The effect of listening to music on concentration and academic performance of the student: a cross-sectional study on medical undergraduate students. *Research Journal of Pharmaceutical, Biological and Chemical Sciences*, 7, 1190-1195. <https://www.rjpbcs.com/>.
- Loomba, R. S., Arora, R., Shah, P. H., Chandrasekar, S., & Molnar, J. (2012). Effects of music on systolic blood pressure, diastolic blood pressure, and heart rate: a meta-analysis. *Indian heart journal*, 64(3), 309-313.

- Lorch, C. A., Lorch, V., Diefendorf, A. O., & Earl, P. W. (1994). Effect of stimulative and sedative music on systolic blood pressure, heart rate, and respiratory rate in premature infants. *Journal of music therapy*, 31(2), 105-118.
- Pivec, M., Trummer, C. & Propel, J. (2006). Eye-tracking adaptable e-learning and content authoring support. *Informatica*, 30(1), 83-86.
- Rahmat, N., Min, L.S., Sungif, N.A.M., Yusup, F.N.M. (2015). English language proficiency tests and academic achievement: a study on the Malaysian university English test as a predictor of technical program undergraduate's academic achievement. *Advances in Language and Literary Studies*, 6(1), 114-119. <https://doi.org/10.7575/aiac.all.v.6n.1p.114>.
- Raschke, M., Blascheck, T. & Burch, M. (2014). Visual analysis of eye tracking data. *Handbook of Human Centric Visualization*, 391-409. [https://doi.org/10.1007/978-1-4614-7485-2\\_15](https://doi.org/10.1007/978-1-4614-7485-2_15).
- Rayner, K., Schotter, E.R., Masson, M.E.J., Potter, M.C. & Treiman, R. (2016). So much to read, so little time: how do we read, and can speed reading help? *Psychological Science in the Public Interest*, 17(1), 4-34. <https://doi.org/10.1177/1529100615623267>.
- Schäfer, T. & Fachner, J. (2015). Listening to music reduces eye movements. *Attention Perception & Psychophysics*, 77(2), 551-559. <https://doi.org/10.3758/s13414-014-0777-1>.
- Steelman, V. M. (1990). Intraoperative music therapy: Effects on anxiety, blood pressure. *AORN journal*, 52(5), 10261030- 10281034.
- Szmedra, L., & Bacharach, D. W. (1998). Effect of music on perceived exertion, plasma lactate, norepinephrine and cardiovascular hemodynamic during treadmill running. *International journal of sports medicine*, 19(01), 32-37.
- Tse, M. M., Chan, M. F., & Benzie, I. F. (2005). The effect of music therapy on postoperative pain, heart rate, systolic blood pressure and analgesic use following nasal surgery. *Journal of Pain & Palliative Care Pharmacotherapy*, 19(3), 21-29.