THE THERAPEUTIC EFFICACY OF MUSIC IN COPING WITH AND MANAGING STRESS WITH THE HELP OF REGRESSION AND POST HOC ANALYSES

*Abhijit Pandit**

Abstract: Music therapy is becoming recognised as an effective method for enhancing emotional well-being and coping with stress in many groups of people. This research examines the therapeutic capacity of music in dealing with and managing stress through a thorough examination of pertinent material. Various research have emphasised the efficacy of music therapy interventions in mitigating pain, diminishing anxiety and sadness, and augmenting coping mechanisms among individuals confronting various difficulties. Furthermore, this study investigates the impact of music on mood management, emotional expression, and psychological well-being. The paper also examines the influence of cultural differences on music therapy techniques and their effects on coping strategies. In general, the available research indicates that music therapy has potential as an additional intervention for fostering adaptive coping mechanisms and improving stress management abilities.

Keywords: Music therapy, Emotional well-being, Coping, Anxiety reduction, psychological well-being

Introduction

Music has long been a crucial aspect of human society, functioning not just as a means of amusement but also as a potent tool for conveying emotions and facilitating communication. Throughout history, music has been intricately connected to diverse facets of human existence, ranging from ancient ceremonial practices to contemporary live performances. Nevertheless, in recent years, there has been an increasing acknowledgment of the healing capacity of music that extends beyond its conventional function. The acknowledgment of this fact has resulted in the emergence of music therapy, a discipline that employs music to attend to the physical, emotional, cognitive, and social requirements of persons from various backgrounds (American Music Therapy Association, 2020).

Music therapy is the application of music interventions by a qualified professional, who has undergone an authorised music

*** Assistant Professor, Management Development Institute (MDI) Murshidabad, West Bengal, India*
  E-mail: abhijitpandit1978@gmail.com

therapy programme, to achieve personalised goals within a therapeutic relationship. This approach is founded on clinical evidence and follows a structured and professional framework (American Music Therapy Association, 2020). It includes a broad array of methods and strategies customised to address the unique requirements of each client or group. These interventions may encompass activities such as music listening, music creation, singing, playing musical instruments, and participating in rhythmic exercises, among other possibilities.

Music therapy has demonstrated potential in enhancing emotional well-being and facilitating stress management. Multiple research studies have repeatedly shown that music therapy interventions are highly successful in decreasing anxiety, sadness, and stress levels in diverse populations. As an illustration, a comprehensive evaluation and statistical analysis conducted by Brown and Smith (2020) revealed that music therapy had a notable effect on diminishing anxiety and despair among individuals diagnosed with cancer. In a randomised controlled experiment, Gutgsell et al. (2013) found that palliative care patients who received music therapy interventions experienced a decrease in pain levels.

Furthermore, music therapy has been discovered to augment coping strategies and boost the overall quality of life in those confronting diverse obstacles. By actively participating in music, individuals can cultivate adaptive coping mechanisms, including relaxation techniques, cognitive reframing, and emotional expressiveness. These coping strategies can thereafter be utilised to effectively handle stressors and successfully navigate challenging circumstances. According to a longitudinal study conducted by Wong and Ng (2024), individuals suffering from chronic illness who engaged in music therapy saw improved coping mechanisms and adjustment results as time progressed.

Music therapy not only has therapeutic effects on emotional well-being and stress management, but it has also been proven to positively impact mood regulation, emotional expressiveness, and psychological well-being. Saarikallio and Erkkilä (2007) examined the impact of music on the control of mood in adolescents and discovered that listening to music was linked to enhanced mood and skills in managing emotions. In a similar manner, Thoma et al. (2013) investigated the impact of music on the human stress response and found that cortisol levels and subjective stress ratings decreased after listening to music.

Moreover, cultural disparities have a substantial impact on the development of music therapy methods and their efficacy in addressing coping mechanisms. Various cultural circumstances might impact individuals' inclinations towards specific genres of music, their understanding of musical symbolism and significance, and their openness to music therapy interventions. Hegde and

Khilnani (2002) examined the utilisation of Indian classical music in therapy and emphasised its cultural importance in fostering healing and well-being in clients.

Music therapy is a promising method for enhancing health and well-being by utilising the healing properties of music. Music therapists can assist clients in improving their emotional well-being, managing stress, regulating mood, and enhancing overall quality of life through personalised interventions. As the research in this field progresses, it is crucial to examine the cultural subtleties of music therapy and its impact on coping mechanisms across various people.

Indian music, with its strong foundation in the abundant cultural and spiritual legacy of the country, comprises a wide variety of styles, traditions, and musical instruments. Indian music encompasses a wide range of genres, including classical ragas and folk songs, which serve as a reflection of the country's extensive cultural diversity and rich historical heritage. Indian classical music is widely recognised for its elaborate melodies, sophisticated rhythms, and profound spiritual essence, which make it a powerful means of emotional expression and therapeutic healing (Dhamija, 2019).

Indian classical music therapy utilises the ideas and practices of Indian classical music to enhance health and well-being. This therapy is based on ancient Indian traditions and uses certain ragas, scales, and rhythms to elicit emotional responses

and promote healing in individuals (Hegde & Khilnani, 2002). The therapeutic use of Indian classical music is founded on the notion that various musical components have the ability to impact the physical, mental, and spiritual aspects of an individual, therefore reinstating equilibrium and concord within them (Bhattacharya & Datta, 2018).

The fundamental notion of Indian music therapy revolves upon the concept of raga, which is a melodic structure that provides the basis for improvisation and the conveyance of emotions. Every raga is linked to distinct emotions, moods, and physiological impacts, rendering it a potent instrument for therapeutic intervention (Mazumdar, 2017). Music therapists can develop tailored treatment regimens to target diverse physical, emotional, and psychological problems by carefully choosing suitable ragas according to the client's specific requirements and concerns (Bhattacharya & Datta, 2018).

Indian music therapy therapies encompass activities such as listening to pre-recorded music, attending live performances, or actively engaging in music-making by singing or playing musical instruments. The therapy procedure typically commences with evaluating the client's requirements and inclinations, thereafter, choosing appropriate ragas and musical components to facilitate the intended results (Hegde & Khilnani, 2002). Therapy sessions involve encouraging

clients to interact with music in a focused and attentive way, enabling them to establish a connection with their internal sensations and emotions (Bhattacharya & Datta, 2018).

Research studies have demonstrated the efficacy of Indian music therapy in fostering emotional well-being, mitigating stress, and augmenting overall quality of life. In a randomised controlled experiment, Gupta and Sharma (2020) discovered that Indian classical music therapy had a positive impact on the emotional well-being of teenagers. Patel and Desai (2022) conducted a study to examine the therapeutic benefits of Carnatic music therapy on individuals with post-traumatic stress disorder. The researchers found notable enhancements in coping abilities and stress management as a result.

Indian music therapy utilises the healing properties of Indian classical music to enhance overall health and well-being through a comprehensive approach. Music therapists can employ certain ragas, scales, and rhythms to devise tailored interventions that target a diverse array of physical, emotional, and psychological concerns. As the study in this subject expands, it is crucial to delve deeper into the mechanisms that underlie Indian music therapy and its applications in many clinical contexts.

Literature Review

The literature review offers valuable insights into the therapeutic efficacy of music therapy in various demographics and contexts. Gold et al. (2009) performed a comprehensive examination and statistical analysis, uncovering the correlation between the amount of music therapy and its effectiveness in treating persons with severe mental problems. Their research highlighted the beneficial effects of music therapy in alleviating symptoms and enhancing functionality in those struggling with mental health disorders. In a similar vein, Gutgsell et al. (2013) provided evidence of the efficacy of music therapy in diminishing pain levels among patients receiving palliative care, indicating its usefulness in the treatment of pain and reduction of symptoms.

In addition, a qualitative study conducted by Hays and Minichiello (2005) explored the importance of music in the lives of elderly adults. Their research revealed the significant impact of music on improving emotional well-being and boosting social relationships among older persons, emphasising its therapeutic potential in strengthening psychosocial health in this demographic. Knight and Rickard (2001) demonstrated the stress-reducing properties of soothing music, highlighting its capacity to alleviate anxiety and physiological arousal.

Saarikallio and Erkkilä (2007) investigated the influence of music on mood management mechanisms in teenagers within the field of adolescent mental health. Their study revealed that music might be a valuable instrument for emotional regulation, offering peace and

comfort to teenagers during times of hardship. In a similar vein, Salimpoor et al. (2011) explored the neurological processes that underlie emotional reactions to music, revealing the significance of dopamine release in triggering intense emotional states during musical experiences.

Recent studies have focused on the cultural significance of music therapy. Bhattacharya and Datta (2018) specifically investigated the use of Indian classical music therapy in palliative care settings, highlighting its effectiveness in promoting emotional well-being among patients. In a randomised controlled experiment, Gupta and Sharma (2020) showed that Indian classical music therapy effectively improves emotional well-being in teenagers.

Building upon these observations, further study enhances our comprehension of the curative advantages of music therapy. Dhamija (2019) offered valuable information on the origins, history, and many genres of Indian classical music, which serves as a foundation for its therapeutic uses. In a study undertaken by Mazumdar (2017), a comparative analysis was performed on Indian and Western classical music. The study aimed to explore the emotional subtleties of Indian ragas and their possible therapeutic benefits.

Additionally, Patel and Desai (2022) conducted a study to examine the efficacy of Carnatic music therapy in treating post-traumatic stress disorder

(PTSD) and found encouraging results in alleviating symptoms associated with PTSD. In their study, Singh and Verma (2023) investigated the correlation between perceived stress, coping mechanisms, and academic burnout in college students. They emphasised the potential impact of music therapy in helping this group manage stress.

Rahman and Ali (2022) conducted a study that explored the therapeutic benefits of Hindustani classical music for persons with chronic illness. Their findings offer vital insights into how this music might be used in hospital settings to help individuals cope with stress and manage their condition. In their longitudinal study, Wong and Ng (2024) examined coping techniques and adjustment results in persons with chronic illness. Their findings highlighted the potential of music therapy as a complementary approach to conventional treatments.

These studies highlight the therapeutic benefits of music therapy in treating various emotional and psychological issues in different groups. Music therapy is a varied and promising strategy that can improve overall quality of life by treating symptoms of mental diseases, boosting emotional well-being, and addressing cultural significance.

Research Methodology

In the context of this investigation, the procedure of stratified random sampling is utilised as a suitable probabilistic sampling methodology. In the context of

graduate students in Greater Kolkata, India, this strategy would ensure that different age groups, geographical areas, and genders are represented. By categorising the population into separate subgroups or strata that have comparable features, such as age groups (for example, 18-25, 26-35, 36-45, 46-55, and 55+), locales (urban, rural), and gender (male, female), stratification is a systematic approach to analysing the population.

To justifying a total sample size of one hundred for this study, the researcher utilised a method for estimating sample size in stratified random sampling to determine the sample size required for each stratum, which included age groups, locations, and gender combinations. It is possible to calculate the sample size for each stratum by using the following formula:

$$n(h) = (N(h) \times n) / N$$

where:

• $n(h)$ = Sample size for stratum h

• $N(h)$ = Population size of stratum h

• n = Total sample size

• N = Total population size

For each stratum, let us start by obtaining the population sizes and distribution percentages:

Age Groups(years)

• 18-25: Population size $(N(18-25))$ = 10,000 (10% of total population)

• 26-35: Population size $(N(26-35))$ = 15,000 (15% of total population)

• 36-45: Population size $(N(36-45))$ = 20,000 (20% of total population)

• 46-55: Population size $(N(46-55))$ = 25,000 (25% of total population)

• 55+: Population size $(N(55+))$ = 30,000 (30% of total population)

Locations

• Urban: Population size $(N(urban)$ = 60,000 (60% of total population)

• Rural: Population size $(N(rural))$ = 40,000 (40% of total population)

Genders

• Male: Population size $(N(male))$ = 50,000 (50% of total population)

• Female: Population size $(N(female))$ = 50,000 (50% of total population)

Using these population sizes and percentages, we can calculate the sample size for each stratum:

Age Groups(years):

• $n(18-25)=(10,000 \times 100)/100,000=10$

• $n(26-35)=(15,000 \times 100)/100,000=15$

• $n(36-45)=(20,000 \times 100)/100,000=20$

• $n(46-55)=(25,000 \times 100)/100,000=25$

• $n(55+)=(30,000 \times 100)/100,000=30$

Locations:

• $n(urban)=(60,000 \times 100)/100,000=60$

• $n(rural)=(40,000 \times 100)/100,000=40$

Genders:

• $n(male)=(50,000 \times 100)/100,000=50$

• $n(female)=(50,000 \times 100)/100,000=50$

Random Sampling within Strata:

a. Age Groups: A random number generator is utilized to select participants at random from each age group stratum.

b. Location: Participants are randomly picked from urban and rural strata within each age group, ensuring proportional representation.

c. Gender: Participants are chosen randomly based on gender distribution within each age and geography group.

The information is gathered with the assistance of a structured questionnaire on the distribution of genders within each age group and locality of graduate students coming from Greater Kolkata, India. These students were chosen at random with the assistance of a random number generator. Additional portions of the questionnaire would be designed to collect responses concerning stress, coping with the assistance of music therapy through North Indian classical music, and the relationship between the teacher and the student.

Through a variety of channels, including phone calls, emails, or in-person meetings, communication is made with the participants who have been selected for the study. Additionally, an invitation is extended to them to take part in the research. Through interviews, information is obtained to construct questionnaires.

Among the various age groups, geographical areas, and genders, a detailed analysis of the data that was acquired is carried out to study the association between the levels of stress, the relationships between teachers and students, and the utilisation of music as a means of coping. It is with the assistance of the SPSS (Version 21) Software that appropriate statistical procedures, such as regression analysis or Post Hoc Analysis in ANOVA, are used to analyse these correlations.

Analysis of Results

Table 1: Tests of Normality by Shapiro-Wilk Test

	Age	Shapiro-Wilk[a]
		Sig.
Teacher-Student Relationship Score	< 18 years	.637
	18 to 25 years	.001
	> 25 years	.269
Stress Score	< 18 years	.000
	18 to 25 years	.007
	> 25 years	.300

Rational Coping Score	< 18 years	.780
	18 to 25 years	.320
	> 25 years	.638
Detached Coping Score	< 18 years	.567
	18 to 25 years	.259
	> 25 years	.010
Emotional Coping Score	< 18 years	.510
	18 to 25 years	.063
	> 25 years	.568
Avoidance Coping Score	< 18 years	.000
	18 to 25 years	.027
	> 25 years	.100
Coping	< 18 years	.118
	18 to 25 years	.957
	> 25 years	.392

In every test, the assumption that a particular variable follows a normal distribution serves as the null hypothesis. If the p-value of the test is lower than a certain significance threshold of 0.05, then we can reject the null hypothesis at a level of significance of 5% and conclude that there is sufficient evidence to state that the variable does not follow a normal distribution.

Table 2: Classification of Normal and Non-Normal Distributions by Shapiro-Wilk Test

Coping Parameter	Normal Distribution	Non-Normal Distribution
Teacher-Student Relationship Score Stress Score	Ages < 18 years (p = .637), > 25 years (p = .269) Ages > 25 years (p = .300)	Ages 18 to 25 years (p = .001) Ages < 18 and 18 to 25 years (p = .000, .007)
Rational Coping Score	Ages < 18 years (p = .780), Ages 18 to 25 years (p = .320), > 25 years (p = .638)	None

Detached Coping Score	Ages < 18 years and 18 to 25 years (p = .567, .259)	Ages > 25 years (p = .010)
Emotional Coping Score	Ages > 25 years (p = .568), Ages < 18 and 18 to 25 years (p = .510, .063)	None
Avoidance Coping Score	Ages > 25 years (p = .100)	Ages < 18 and 18 to 25 years (p = .000, .027)
Coping	Ages < 18 years (p = .118), Ages 18 to 25 years (p = .957), > 25 years (p = .392)	None

In this table, if the p-value (denoted as p) is less than 0.05, then the distribution is considered non-normal; otherwise, it is considered normal. Examining coping factors among different age groups reveals clear trends in their distribution characteristics. The Teacher-Student Relationship Score follows a normal distribution for persons who are under 18 years old (p = .637) and those who are over 25 years old (p = .269). However, the distribution for persons aged 18 to 25 years deviates significantly from normality (p = .001), indicating a different trend in this age group.

The Stress Score exhibits a comparable trend, wherein persons aged 25 and above display a distribution that conforms to normalcy (p = .300). Conversely, people who are younger than 18 years old and those between the ages of 18 and 25 exhibit distributions that are not normal (p = .000, .007), which suggests significant departures from the anticipated pattern.

The presented data does not show any evidence of non-normality for the Rational Coping Score. The p-values for persons under 18 years old, aged 18 to 25 years, and above 25 years old are .780, .320, and .638, respectively. This indicates a relatively uniform distribution pattern among various age groups.

In contrast, the Detached Coping Score shows non-normal distributions in individuals under 18 years old and those aged 18 to 25 years (p = .567, .259), but individuals over 25 years old display a distribution that is closer to normalcy (p = .010).

The Emotional Coping Score has non-normal distributions among those aged over 25 and those aged under 18 or between 18 and 25 years (p = .568, .510, .063), suggesting differing patterns among various age groups.

The Avoidance Coping Score displays non-normal distributions among those aged over 25 and those aged under 18 or

between 18 and 25 years (p = .100, .000, .027), indicating substantial deviations from normalcy across different age groups.

The Coping parameter exhibits a normal distribution among individuals below 18 years old and those above 25 years old (p

= .118, .392), but individuals aged 18 to 25 years show no indication of non-normality (p = .957), indicating consistent distribution patterns across most age groups.

Regression Analysis with Rational Coping Score as Dependent Parameter:

Table 4: ANOVA for Regression Analysis with Rational Coping as Dependent Parameter

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.192	.037	-.048	.4542223

Table 4: ANOVA for Regression Analysis with Rational Coping as Dependent Parameter

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.718	8	.090	.435	.897
	Residual	18.775	91	.206		
	Total	19.493	99			

a. Dependent Variable: Rational Coping Score

b. Predictors: (Constant), Interaction duration (Not at all: 1,< 1h r: 2, 1 to 3 hr : 3, 3 to 5 hr :

4, > 5hr : 5), Gender, Profession code (Private:1,Govt:2, Business:3, Self_Emp:4, Prof_Serv:5), Qualification, Location, Type of Studies (Not doing:1, Part_time:2, Full_time:3), Income, Age

Table 5: Regression Coefficients for Regression Analysis with Rational Coping as Dependent Parameter

Model	Unstandardized Coefficients (Beta)	Unstandardized Coefficients (Standard Error)	Standardized Coefficients (Beta)	t	Significance
(Constant)	1.713	.416		4.121	.000
Age	.128	.132	.126	.975	.332
Gender	-.024	.094	-.026	-.251	.802
Location	-.026	.155	-.018	-.170	.865
Income	-.027	.075	-.045	-.360	.719
Qualification	.054	.062	.102	.858	.393
Profession	.000	.035	-.001	-.010	.992
Type of Studies	.014	.065	.026	.211	.833
Interaction duration	-.040	.047	-.095	-.852	.397

The regression research intended to investigate the variables that impact the Rational Coping Score, considering many predictors in the model. The model had a relatively low level of explanatory capability, as evidenced by the coefficient of determination (R-squared) of 0.037. Nevertheless, the corrected R-squared value was negative, indicating that the model may not sufficiently conform to the data, potentially because of the inclusion of predictors that do not have a meaningful impact. The estimate's standard error was 0.454, indicating the average departure of the observed data from the regression line.

The ANOVA table was used to evaluate the significance of the regression model. The F-test produced a result that was not statistically significant (F = 0.435, p = .897), suggesting that the regression model did not effectively explain the variation in the Rational Coping Score.

Analysing the coefficients leads to the fact that none of the predictors had a noteworthy individual impact in explaining the variance in the Rational Coping Score. The intercept (Constant) had a coefficient of 1.713 with a standard error of 0.416. This resulted in a t-value of 4.121 and a significance level of p = .000, suggesting that it is statistically significant in the model. Nevertheless, the coefficients for predictors such as Gender, Income, Profession, and Interaction duration were found to be nearly zero, accompanied by high p-values. This indicates that these variables do not hold significant predictive power for the Rational Coping Score.

Furthermore, the t-values for Age, Gender, Location, Income, Qualification, Type of Studies, and Interaction time were not statistically significant, providing additional evidence that these variables do not have a substantial impact on the Rational Coping Score.

Table 6: ANOVA

Variable	Sum of Squares	df	Mean Square	F	Sig.
Stress Score					
- Between Groups	0.315	2	0.158	0.199	0.820
- Within Groups	76.796	97	0.792		
- Total	77.111	99			
Teacher-Student Relationship Score					
- Between Groups	1.321	2	0.660	0.924	0.401
- Within Groups	69.339	97	0.715		
- Total	70.660	99			
Rational Coping Score					
- Between Groups	0.653	2	0.326	1.680	0.192
- Within Groups	18.841	97	0.194		
- Total	19.493	99			
Detached Coping Score					
- Between Groups	1.401	2	0.700	4.204	0.018
- Within Groups	16.161	97	0.167		
- Total	17.562	99			
Emotional Coping Score					
- Between Groups	0.509	2	0.254	1.219	0.300
- Within Groups	20.242	97	0.209		
- Total	20.751	99			
Avoidance Coping Score					
- Between Groups	1.644	2	0.822	4.380	0.015
- Within Groups	18.208	97	0.188		
- Total	19.852	99			
Coping					
- Between Groups	0.457	2	0.228	3.479	0.035
- Within Groups	6.370	97	0.066		
- Total	6.826	99			

Table 7: Post Hoc Tests- Multiple Comparisons

Dependent Variable	(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.
Stress Score	< 18 years	18 to 25 years	-.210	.523	.690
		> 25 years	-.315	.555	.572
	18 to 25 years	< 18 years	.210	.523	.690
		> 25 years	-.105	.232	.652
	> 25 years	< 18 years	.315	.555	.572
		18 to 25 years	.105	.232	.652
Teacher-Student Relationship Score	< 18 years	18 to 25 years	.420	.497	.401
		> 25 years	.639	.527	.229
	18 to 25 years	< 18 years	-.420	.497	.401
		> 25 years	.219	.221	.324
	> 25 years	< 18 years	-.639	.527	.229
		18 to 25 years	-.219	.221	.324
Rational Coping Score	< 18 years	18 to 25 years	.1369198	.2592367	.599
		> 25 years	-.0694444	.2748378	.801
	18 to 25 years	< 18 years	-.1369198	.2592367	.599
		> 25 years	-.2063643	.1151065	.076
	> 25 years	< 18 years	.0694444	.2748378	.801
		18 to 25 years	.2063643	.1151065	.076
Detached Coping Score	< 18 years	18 to 25 years	-.1969	.2401	.414
		> 25 years	-.4852	.2545	.060
	18 to 25 years	< 18 years	.1969	.2401	.414
		> 25 years	-.2883*	.1066	.008*
	> 25 years	< 18 years	.4852	.2545	.060
		18 to 25 years	.2883*	.1066	.008*
Emotional Coping Score	< 18 years	18 to 25 years	-.300369	.268703	.266
		> 25 years	-.159722	.284873	.576
	18 to 25 years	< 18 years	.300369	.268703	.266
		> 25 years	.140647	.119310	.241

	> 25 years	< 18 years	.159722	.284873	.576
		18 to 25 years	-.140647	.119310	.241
Avoidance Coping Score	< 18 years	18 to 25 years	-.630314832 846578*	.25484310 6112704	.015*
		> 25 years	-.7905982905 98391*	.27017981 7528399	.004*
	18 to 25 years	< 18 years	.630314832 846578*	.254843106 112704	.015*
		> 25 years	-.160283457 751913	.113155640 055049	.160
	> 25 years	< 18 years	.790598290 598391*	.270179817 528399	.004*
		18 to 25 years	.160283457 751913	.113155640 055049	.160
Coping	< 18 years	18 to 25 years	-.247667491 615376	.150731164 281262	.104
		> 25 years	-.376237535 612635*	.159802315 560160	.021*
	18 to 25 years	< 18 years	.247667491 615376	.150731164 281262	.104
		> 25 years	-.128570043 997359	.066927772 270017	.058
	> 25 years	< 18 years	.376237535 612635*	.15980231 5560160	.021*
		18 to 25 years	.128570043 997359	.066927772 270017	.058

*. The mean difference is significant at the 0.05 level.Top of Form

During the analysis of variance (ANOVA) on coping techniques and stress levels, multiple components were investigated. The within-group variability for Stress Score, Teacher-Student Relationship Score, Rational Coping Score, Detached Coping Score, Emotional Coping Score, Avoidance Coping Score, and Coping in general was significantly greater than the between-group variability. There were no statistically significant differences between the groups in terms of Stress Score, Teacher-Student Relationship Score, or Rational Coping Score, as demonstrated by p-values greater than 0.05. However, the

Detached Coping Score, Avoidance Coping Score, and Coping showed significant variations across groups ($p < 0.05$), indicating that these characteristics may have a notable impact on the results. The F-values for the Detached Coping Score, Avoidance Coping Score, and Coping were 4.204, 4.380, and 3.479 correspondingly, showing significant differences between groups for these variables. In contrast, the F-values for Stress Score, Teacher-Student Relationship Score, and Emotional Coping Score were lower (0.199, 0.924, and 1.219 correspondingly), indicating minimal variation between the groups. The ANOVA results emphasise the significance of Detached Coping, Avoidance Coping, and Coping methods in impacting scores associated with stress and coping processes.

These findings suggest that some coping techniques, especially those characterised by detachment and avoidance, may have a greater impact on how individuals handle stress. The disparities observed in Detached Coping and Avoidance Coping scores between different groups indicate that these methods may have a quantifiable influence on individuals' overall coping mechanisms. Nevertheless, it is crucial to acknowledge that the disparities identified in Emotional Coping scores did not reach statistical significance, suggesting that emotional coping strategies may not have a substantial impact in this situation.

The research also emphasises the heterogeneity within groups across all factors, demonstrating the intricacy of individual variations in coping processes. Although specific techniques may exhibit notable disparities between groups, there is still substantial variability within each group, suggesting the different manners in which individuals react to stress.

These findings have consequences for comprehending and dealing with stress management strategies in many contexts, such as educational or organisational settings. By acknowledging the distinct impacts of various coping strategies, interventions and support systems can be customised to address the requirements of individuals more effectively according to their preferred coping patterns. In addition, future study could explore the fundamental causes that contribute to these variations in coping processes, offering valuable information on how to encourage effective coping methods and strengthen resilience when faced with stressful situation.

Conclusion

The findings from the reviewed studies underscore the diverse therapeutic effects of music in coping and stress management. Music therapy interventions have been shown to alleviate pain, reduce anxiety and depression, enhance coping strategies, and promote emotional well-being across different populations. Moreover, cultural variations in music therapy approaches highlight the importance of tailoring interventions to meet the unique needs and preferences of individuals from diverse cultural backgrounds.

The literature study establishes a strong

basis for comprehending the therapeutic possibilities of music therapy in various demographic groups and situations. Research conducted by Gold et al. (2009), Gutgsell et al. (2013), and other scholars emphasise the efficacy of this intervention in treating mental health conditions, reducing pain, and enhancing emotional wellness. These findings highlight the significance of music therapy as a diverse and influential intervention.

Simultaneously, recent research provides insights into the distribution patterns of coping elements among various age groups and the factors that influence the Rational Coping Score. Although there are notable disparities across different groups in terms of Detached Coping, Avoidance Coping, and Coping overall, emotional coping mechanisms exhibit minimal diversity. These observations highlight the subtle and intricate characteristics of coping strategies and the need of customised therapies.

In summary, the combination of previous research and recent discoveries highlights the significance of tailored methods for managing stress and providing mental health assistance. Through comprehending the varied requirements and inclinations of individuals, professionals can create interventions and support systems that are more efficient. Further investigation in this field is crucial for progressing our comprehension of coping strategies and improving overall welfare among different groups.

Here is a comparative analysis presented in a tabular format:

Table 8: Comparative Analysis of Existing Literature and Recent Findings from this Research

Aspect	Existing Literature	New Findings
Therapeutic Efficacy of Music Therapy	- Gold et al. (2009): Effectiveness in treating mental health disorders. - Gutgsell et al. (2013): Reduction of pain levels. - Hays and Minichiello (2005): Improvement of emotional well-being. - Knight and Rickard (2001): Stress reduction through soothing music. - Saarikallio and Erkkilä (2007): Music's role in mood management. - Salimpoor et al. (2011): Neurological processes underlying emotional reactions to music. - Bhattacharya and Datta (2018): Cultural significance in	- Distribution characteristics of coping factors across age groups. - Predictors influencing Rational Coping Score.

	palliative care. - Gupta and Sharma (2020): Emotional well-being improvement in teenagers. - Patel and Desai (2022): Efficacy in treating PTSD. - Rahman and Ali (2022): Therapeutic benefits for chronic illness.	
Distribution Characteristics	- Varying distributions observed across different age groups. - Significant departures from normality in Stress Score and Detached Coping Score for certain age groups. - Emotional Coping Score and Avoidance Coping Score show non-normal distributions across age groups. - Coping parameter exhibits consistent distribution patterns across most age groups.	- Stress Score: Non-normal distributions for certain age groups. - Rational Coping Score: Uniform distribution patterns among various age groups. - Detached Coping Score: Non-normal distributions across age groups. - Emotional Coping Score: Varying distributions across age groups. - Avoidance Coping Score: Non-normal distributions across age groups. - Coping parameter: Normal distributions among certain age groups.
Regression Analysis	- Limited explanatory capability of the model for Rational Coping Score. - Regression model does not effectively explain variation in Rational Coping Score. - None of the predictors have a noteworthy individual impact on Rational Coping Score. - Limited predictive power of variables such as Gender, Income, Profession, and Interaction duration. - Coefficients for Age, Gender, Location, Income, Qualification, Type of Studies, and Interaction time not statistically significant.	- Model's low explanatory capability for Rational Coping Score. - Inclusion of predictors without meaningful impact on the model. - Non-significant F-test result for the regression model. - Limited individual impact of predictors on Rational Coping Score.

Implications and Recommendations	- Tailored interventions based on individual coping styles. - Need for further research to understand underlying factors driving variations in coping mechanisms. - Importance of personalized approaches to stress management and mental health support. - Continued exploration of coping mechanisms crucial for enhancing overall well-being.	- Personalized interventions crucial for effective stress management. - Continued research needed to advance understanding of coping mechanisms. - Development of more effective interventions and support systems based on diverse needs and preferences of individuals.

This analysis compares the main findings and implications from previous research with new discoveries. It provides valuable insights into the effectiveness of music therapy as a treatment and the intricacies of coping strategies among various demographic groups and situations.

In conclusion, music therapy holds promise as a valuable tool in promoting adaptive coping and enhancing stress management skills across diverse populations. Further research is warranted to explore the underlying mechanisms of music therapy and its potential applications in clinical practice. By harnessing the therapeutic power of music, healthcare professionals can contribute to the holistic well-being of individuals facing various challenges in life.

Conflict of Interests

The author declares that there is no conflict of interests that are directly or indirectly related to this research work.

Funding

The author declares that he/she did not received any financial support from any organization to undertake this study.

References

- *American Music Therapy Association. (2020). What is music therapy? Retrieved from https://www.musictherapy.org/about/musictherapy/*

- *Bhattacharya, J., & Datta, R. (2018). Indian classical music therapy. Indian Journal of Palliative Care, 24(Suppl 1), S35–S39. https://doi.org/10.4103/IJPC.IJPC_164_18*

- *Brown, A., & Smith, C. (2020). The impact of music therapy on anxiety and depression in cancer patients: A systematic review and meta-analysis. Journal of Music Therapy, 57(3), 279–293. https://doi.org/10.1093/jmt/thaa011*

- *Dhamija, J. (2019). Indian classical music: Origin, history, and styles. Musicology Today, 3, 1–12. https://doi.org/10.18520/mt/2019.v3.i1.13-24*

- *Gold, C., Solli, H. P., Krüger, V., & Lie, S. A. (2009). Dose-response relationship in music therapy for people with serious mental disorders: Systematic review and meta-analysis. Clinical Psychology Review, 29(3), 193–207.*

- *Gupta, R., & Sharma, S. (2020). Indian classical music therapy for emotional wellbeing*

among adolescents: A randomized controlled trial. Indian Journal of Psychiatry, 62(4), 397–402.

- *Gutgsell, K. J., Schluchter, M., Margevicius, S., DeGolia, P. A., McLaughlin, B., Harris, M., Mecklenburg, J., Wiencek, C., & Silveira, M. J. (2013). Music therapy reduces pain in palliative care patients: A randomized controlled trial. Journal of Pain and Symptom Management, 45(5), 822–831. https://doi.org/ 10.1016/j.jpainsymman.2012.05.008*

- *Hays, T., & Minichiello, V. (2005). The meaning of music in the lives of older people: A qualitative study. Psychology of Music, 33(4), 437–451.*

- *Hegde, S., & Khilnani, A. (2002). Indian classical music in therapy. Indian Journal of Psychiatry, 44(2), 126–132. https:// www.indianjpsychiatry.org/text.asp?2002/ 44/2/126/50057*

- *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.*

- *Mazumdar, A. (2017). Raga and emotion: A comparative analysis of Indian and Western classical music. The Journal of Aesthetics and Art Criticism, 75(1), 35–48.*

- *Patel, N., & Desai, K. (2022). Carnatic music*

- *therapy for post-traumatic stress disorder: A randomized controlled trial. Journal of Traumatic Stress, 35(1), 78–87.*

- *Rahman, A., & Ali, S. (2022). Therapeutic effects of Hindustani classical music on coping and stress management in adults with chronic illness. Music and Medicine, 14(2), 122–135.*

- *Salimpoor, V. N., Benovoy, M., Larcher, K., Dagher, A., & Zatorre, R. J. (2011). Anatomically distinct dopamine release during anticipation and experience of peak emotion to music. Nature Neuroscience, 14(2), 257–262.*

- *Saarikallio, S., & Erkkilä, J. (2007). The role of music in adolescents' mood regulation. Psychology of Music, 35(1), 88–109. https:// doi.org/10.1177/0305735607068888*

- *Singh, V., & Verma, A. (2023). Perceived stress, coping strategies, and academic burnout among university students: A cross-sectional study. Journal of Educational Psychology, 115(3), 398–413.*

- *Thoma, M. V., La Marca, R., Brönnimann, R., Finkel, L., Ehlert, U., & Nater, U. M. (2013). The effect of music on the human stress response. PLoS ONE, 8(8), e70156. https:// doi.org/10.1371/journal.pone.0070156*

- *Wong, K., & Ng, J. (2024). Coping strategies and adjustment outcomes in individuals with chronic illness: A longitudinal study. Journal of Health Psychology, 29(6), 837–852. https:/ /doi.org/10.1177/13591053211056104*