

Therapeutic effect of ragas todi and puriya dhanashree on levels of aggression and optimism in young adults: An experimental research.

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Abstract

The therapeutic effects of music have been acknowledged in various cultures. This study aimed to explore the impact of two specific Indian ragas, Todi and Puriya Dhanashree, on levels of aggression and optimism in young adults. The study employed an experimental design with 96 participants aged 18-29, who were randomly assigned to a music therapy group or a control group. The music therapy group listened to ragas Todi and Puriya Dhanashree for 30 minutes each day over a period of 15 days, while the control group did not receive any music intervention. Levels of aggression were evaluated using the Buss-Perry Aggression Questionnaire (BPAQ), and optimism was measured using the Revised Life Orientation Test (LOT-R) before and after the experiment. The results showed a significant decrease in aggression scores and a significant increase in optimism scores in the music therapy group compared to the control group. These findings suggest that regular exposure to ragas Todi and Puriya Dhanashree are beneficial for reducing aggression and promoting optimism in young grown-ups. The purpose of this study is to present a compelling case to help medical practitioners treat patients using music interventions.

Keywords: Aggression, Music intervention, Optimism, Puriya Dhanashree, Raag, Todi.

Introduction

As the number of different opportunities that bring convenience, pleasure and privilege to human civilization increases, aggression and pessimism also increase. The number of cases where impulsivity is the root cause of the problem is increasing day by day [1]. To date, there are no detailed studies that can elucidate the effects of arts-based interventions, particularly music, on the brain regions responsible for anger, pessimism, and impulsivity.

A study was used to investigate the efficacy of Raga Bhairavi for the promotion of spiritual wellness among aggressive adolescents. A flute version of Raga Bhairavi was played for eight sessions and results revealed an increased spiritual wellness after intervention as raga therapy enhanced connectedness, hope dimensions of spiritual wellness. Also a difference between pre and post intervention in levels of aggression was observed.

Music therapy is an expanding field that uses music interventions to enhance an individual's physical, emotional, and mental health [2]. Music has been proven impact on different psychological processes including mood, stress, and anxiety [3]. In India, music therapy incorporates the rich tradition of ragas, which are melodic frameworks evoking specific emotions and have been used for centuries for therapeutic purposes [4].

It's crucial to first comprehend which brain regions control which emotions and whether distinct brain regions control different emotions in order to comprehend how music affects both the brain and emotions. According to recent research, different basic emotions are associated with distinct brain systems, and there may be multiple brain systems involved in emotional responses [5]. The amygdala is the area of the brain most frequently linked to emotion. The amygdala, which is believed to be in charge of emotions, is connected to three distinct areas of the prefrontal cortex, which together form a system. Decision-making and negative emotions are believed to be regulated by the dorso-lateral, medial, and orbito-frontal cortex regions of the brain [6].

Music has a profound impact on the Central Nervous System and Circulatory System of both the listener and the performer. A Raga is a specific sequence of chosen notes (swaras) that evoke particular emotions or moods when combined [7]. It functions as a yoga system through the use of melodious sounds. Ragas evoke specific emotions through the use of particular tonic intervals, which are strong indicators of emotional response. The tonality of a raga determines the emotion felt, while rhythmic regularity and tempo modulate the level of arousal experienced.

This research explores the impact of two distinct ragas, Todi and Puriya Dhanashree, on the levels of aggression and

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optimism in young adults. Raga Todi is linked to emotions of melancholy and detachment, which may paradoxically result in the expression of repressed aggression. Conversely, Puriya Dhanashree is renowned for its uplifting and optimistic nature.

The music therapy involved the use of Raag Miya Ke Todi to address levels of aggression in participants. This particular Raag is known to have a calming effect and can help reduce stress and aggression. Additionally, Raag Puriya Dhanashree is utilized to foster optimism. Listening to this raag can contribute to a positive mood and may have a calming effect. It's important to note that the impact of music in building optimism is contingent upon the individual's personality traits. Furthermore, individuals who are open to the experience and have trust in the process are more likely to develop a positive mindset.

Concept of Aggression

Anger refers to a negative emotion that is characterized by animosity toward someone or something that you feel has intentionally wronged you. Aggression, on the contrary, refers to hostile, violent, and/or destructive behavior. Physical assault, object throwing, property damage, self-harming actions, verbal threats, and insults are some examples [8].

The term "aggression" refers to a group of behaviors that have the potential to injure someone physically or psychologically, as well as objects in the surrounding area. Although everyone experiences occasional acts of aggression, when these episodes become frequent or severe, they may indicate a mental health condition, substance abuse issue, or other medical issue [9].

Theories of Aggression

Instinct Theory of Aggression

The legendary psychoanalyst Sigmund Freud (1927) put forth the instinct theory of aggression [10]. According to Freud "EROS," the life instinct that promotes life reproduction, is the source of all human behavior, either directly or indirectly. It was believed that aggression was a response to the suppression of libidinal impulses in the background. It was therefore neither a normal nor an inevitable part of life.

According to the instinct theory of aggressiveness, which was initially put forth by Freud, Miller, Dollard, and other scholars, McDougall has also classified the aggressive phenomenon under the instinct of combat [11]. According to Freud, when we look closely at the desire for love, we also find a drive for hostility. According to Freud, the instincts for life and death are the basic ones from

which all other instincts originate. But Freud claimed that the aggressive instinct, also known as the death instinct, is the source of all human conflict. This theory has since been disproved.

The Frustration Aggression Theory

In Miller and Dollard's stimulating but equally insightful book "Frustration and Aggression," they define frustration as "that condition that exists when a goal-response is interfered with." Events that undermine a person's self-esteem, interfere with

their goal-oriented behavior, or prevent them from achieving their immediate goals and essential objectives are considered frustrating [12].

The most common and basic response to dissatisfaction is aggression, but there are other possible reactions as well, including regression, disengagement, reaction construction, and displacement. This theory contends that aggression is a taught behavior as opposed to an innate one. They contend that since violence is a universal response to dissatisfaction, frustration can be classified as a drive [13].

While it is impossible to completely rule out the possibility that aggression in humans is influenced by genetic or biological factors, Marke and Ervin contend that humans have cognitive control over these processes [14]. The frequency, form, and contexts in which aggressive behavior is exhibited in normal individuals are all influenced by learning and sociocultural factors.

The Frustration-Aggression Hypothesis

Frustration in one way or another always leads to aggression. Aggression will inevitably follow frustration because "these reactions are not eliminated," they continue, even if they are momentarily compressed, postponed, masked, shifted, or otherwise misdirected from their immediate and logical purposes [15]. This theory is considered to be the most influential paradigm for intergroup prejudice and aggression.

Another theory, which is based on Freudian theory, contends that harsh treatment and recurrent frustrations during childhood lead to the formation of an authoritarian mentality that is inflexible,

Unwelcoming, anti-democratic, and biased against outgroups, making them violent [16]. These unhappy people don't have healthy social connections and can't interact with people in a productive way. They become fixated on trivial issues and exhibit dejection and irritability. With the slightest provocation, they start an agitated debate, argument, and counter argumentation, as if animosity is ingrained in their psyche. Society despises people like these [17].

Theory of Social Learning

Proponents of the social learning theory, including Bandura, Berkowitz, and others, contend that frustration-induced arousal creates the conditions for coping with a frightening situation rather than always resulting in aggression [18]. Social learning theory encompasses the methods of reward, imitation, and modeling, as demonstrated by Bandura, which can be used to teach violent responses. Researchers studying kindergarteners found that when an adult acted hostilely towards a large doll in a variety of ways, the kids mimicked the behavior [19].

The next thing they saw was dolls posing as cartoon characters in a cinematic take on aggressive modeling. The results showed that the children who had seen real-life cartoon characters behaved more violently. Investigations conducted again after eight months revealed that children could still recall these violent reactions. This demonstrates that a child's

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environment plays a major role in teaching and modeling aggressive behavior.

A proponent of social learning theory, Julian Rotter asserts that an organism's learning and imitation in a social situation, expectations about the result of a behavior, and the reinforcement value they assign to such outcomes—that is, the degree to which they prefer one reinforce to another—all influence the likelihood of a given behavior occurring in a given situation [20].

Reciprocal determinism is the theory put forth by Bandura that states behavior is determined by the interplay of cognitive and environmental factors. Whether on purpose or by accident, children and others can learn by imitating others—a process known as modeling or learning by imitation. However, a number of factors, including age, sex, status, likeness to the model, whether the model is liked or disliked, whether the model is respected or not, and so forth, play a role in the selection process [21].

Aggression is a multifaceted human behaviour that involves various emotions and actions, spanning from verbal aggression to physical violence. Elevated levels of aggression can have adverse effects on individual and social welfare [22]. Raag Malhar has been observed to mitigate anger, and excessive mental arousal, and promote mental stability. Additionally, Raag Jaijivanti has also shown effectiveness in calming the mind.

Optimism

Optimism refers to the expectation or belief that positive or good things will occur in the future. Nonetheless, there is ongoing discussion about whether optimism is a dispositional trait or a type of explanation style for particular circumstances [23].

People occasionally hold "too" optimistic beliefs about self-relevant events and material future outcomes, as though their beliefs were shaped by and in line with their preferences or desires. Strong evidence suggests that asymmetric updating, or the under-weighting of undesirable information relative to desirable information, is the cause of such positivity bias when it is observed [24]. Positive self-perception can inspire someone to take on challenging projects and get past potential roadblock. Furthermore, convincing others can also be aided by self-assurance.

Basic Theories of Optimism

Learned Optimism: Explanatory Style

Peterson and Seligman used attributional or explanatory style to distinguish between pessimism and optimism [25]. They contend that both pessimistic and optimistic people attribute different and clear meanings to the things that happened to them. More adaptive causal attributions are employed by the optimistic people to explain unfavorable life events. When an individual asks, "Why did this negative event happen to me?" the optimistic style assigns failures to external, changeable, and particular factors rather than internal, stable, and universal factors [26].

According to Peterson and Seligman, an optimistic or pessimistic way of living has developmental origins. As a result, similar to the idea of "learned helplessness," this learned style can also be unlearned throughout life.

General Optimism: Dispositional Style

Scheier and Carver defined Optimism as a personality trait that reflects the extent to which people hold generalized favorable expectancies for their future [27]. Optimism is the general belief that good things will happen in the future rather than bad ones.

Carver et al. claim that expectancy-value models of motivation, which incorporate valuable goal-, directed behavior and the expectation of achieving that valuable goal, are related to trait or dispositional optimism [28]. To achieve their desired objectives, people control or manage their behavior.

According to research on the stability of optimism, while optimism can fluctuate during life transitions, it is a trait-like quality that contributes to a comparatively stable state. Approximately 25% of it is inherited. People are more likely to develop optimism when they grow up in a warm, safe, educated, and prosperous family environment. Test retest correlations demonstrated strong stability over time periods ranging from a few weeks to three years, with scores ranging from 58 to 79.

The concept of optimism pertains to a positive outlook on the future and one's capacity to effectively deal with difficulties. Research suggests that we experience positive emotions such as happiness and joy with the help of left frontal area [29]. However, negative emotions such as anger, fear and sadness are experienced with the help of right frontal region. Studies indicate that optimism is linked to a range of advantages, such as improved mental and physical well-being, enhanced academic performance, and more robust social connections. Furthermore, research suggests that listening to Raag Puriya Dhanashree fosters heightened curiosity, optimism, and passion in individuals to a significant degree.

The Present Study Objective

The objective of this study is to analyze the impact of Ragas Todi and Puriya Dhanashree on aggression and optimism levels in young adults.

Hypotheses

H1= Exposure to Raga Todi will result in a reduction in levels of aggression in the musictherapy group as compared to the control group.

H2= Exposure to Raga Puriya Dhanashree will lead to an increase in level of optimism in the music therapy group compared to the control group.

Methodology Participants

A group of 100 individuals between the age range of 18 and 29 years were surveyed to determine how interested they were in engaging in music therapy. Ones who expressed their interest in the study were chosen to take part in this research. Selected participants went through screening to identify if any hearing

impairments or mental health issues exists which could impact the study outcomes. Furthermore, all the participants gave informed consent in accordance with the ethical standards by the American Psychological Association.

Design

In a two-group, pre-test, post-test experimental design, participants were randomly assigned to either a music therapy group (MTG) or a control group (CG) using a random number generator. So the study was carried on with 96 participants who were consistent during the research intervention.

Measures

1. Buss-Perry Aggression Questionnaire (BPAQ):

This self-report questionnaire assesses various components of aggression, categorized into four subscales:

- Physical Aggression: evaluates the propensity for using force.
- Verbal Aggression: gauges a person's propensity to use insults or verbal attacks.
- Anger: assesses the frequency and severity of episodes of anger.
- Hostility: evaluates sentiments of distrust, irritability, and annoyance toward other people.

On a 5-point Likert scale, participants rate how well each of the 29 statements in the questionnaire describes them. "Very uncharacteristic of me" to "extremely characteristic of me" are the usual ranges on the scale. Usually, scores are normalized on a 0–1 scale, where higher scores correspond to higher levels of aggression.

2. Revised Life Orientation Test (LOT-R): This self-report questionnaire evaluates dispositional optimism, or the conviction that good things will probably happen in the future. 10 statements make up the LOT-R, which you score on a 5-point scale according to how much you agree with each one. Your total optimism level is reflected in your scores, where higher scores indicate greater optimism.

Procedure

All participants completed the BPAQ and LOT-R before the experiment (pre-test). The Music Therapy Group then listened to Ragas Todi and Puriya Dhanashree for 30 minutes each, daily for 15 days and after listening to the therapy music they were asked to mark the pole in the therapy group and provide their feedback every day before sleeping. The ragas were played through high-fidelity. The instruments used in Raga Todi by Buddh Dev Chatterjee were Tanpura, Flute and Tabla. And in Raga Puriya Dhanashree, Sanskrati and Prakrati Wahane used Sitar, Santoor, Tabla, Tanpura. The participants were also asked which instruments were being used during music therapy intervention, to make them more vigilant and focused while listening to the therapy music as attentiveness in the therapy also played a great role.

Data Analysis and Results Independent and Dependent Variables

Independent Variable: Group assignment, that is, Music Therapy Group vs. Control Group

Dependent Variables:

Aggression scores (pre-test and post-test) measured by Buss-Perry Aggression Questionnaire (BPAQ)

Optimism scores (pre-test and post-test) measured by Revised Life Orientation Test (LOT-R)

Data Analysis

Paired t-test was used for significant difference between the groups and Pearson's correlation was used for the significant difference between the variables.

Results

Music Therapy Group

(Table 1) The results from this paired samples t-test indicate that there is a statistically significant decrease in aggression levels of Music Therapy Group from before to after the intervention, with a mean decrease of about 6.48 on the BPAQ used. The confidence interval and the p-value ($<.01$) suggest that this is a reliable finding in this sample, as the sample is representative, it might be generalized to the larger population from which the sample was drawn. The results imply that the intervention was effective in reducing aggression levels among participants of Music Therapy Group.

(Table 2) The results from this paired samples t-test suggest a statistically significant increase in optimism levels from before to after the Music Therapy Intervention. The mean difference of about 1.19 along with a p-value of 0.026 supports the conclusion that the intervention was effective at increasing optimism levels among the participants. The confidence interval further supports this by not including zero and indicating a positive change in optimism.

(Table 3) This correlation analysis highlights a significant and positive association between initial and later levels of optimism of Music Therapy Group, suggesting that personal tendencies towards optimism are relatively stable over the intervention period.

(Table 4) The correlation result suggests a significant and positive association between initial and later aggression levels of Music Therapy Group, indicating that individual differences in aggression are consistent over time within this group.

(Table 5) The results from this paired samples t-test indicate that there is no statistically significant change in aggression levels of control group from before to after. The very small mean difference, along with a high standard deviation and a p-value of 0.973, suggests that any observed changes in aggression levels are likely due to random variation in any external factor than intervention. The wide confidence interval, which includes zero, further supports the conclusion that the intervention does not have a discernible impact on aggression levels.

(Table 6) The results from this paired samples t-test suggest that there was a decrease in optimism levels before to after, with a

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Table 1: Paired Samples Test.

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Agression_pre Agression_post	6.48148	12.98437	1.76695	2.93743	10.02553	3.668	53	0.001

Table 2: Paired Samples Test.

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Optimism_pre Optimism_post	3.35129	0.51711	0.14614	2.93743	2.23481	2.302	41	0.026

Table 3: Correlations.

		Optimism_pre	Optimism_post
Optimism_pre	Pearson Correlation	1	.625**
	Sig. (2tailed)		0
	N	54	54
Optimism_post	Pearson Correlation	.625**	1
	Sig. (2tailed)	0	
	N	54	54

Table4: Correlations.

		Agression_pre	agression_post
Agression_pre	Pearson Correlation	1	.663**
	Sig. (2-tailed)		0
	N	54	54
agression_post	Pearson Correlation	.663**	1
	Sig. (2-tailed)	0	
	N	54	54

Table 5: Paired Samples Test.

		Paired Differences	t	df	Sig. (2-tailed)	95% Confidence Interval of the Difference	t	df	Sig. (2-tailed)					
										Mean	Std. Deviation	Std. Error Mean	Lower	Upper
Pair 2	Agression_pre - agression_post	0.07143	13.64246	2.10508	-4.17986	4.32272	0.034	41	0.973					

Table 6: Paired Samples Test.

		Paired Differences				t	df	Sig. (2-tailed)	
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower				Upper
Pair 2	Optimism_pre - Optimism_post	-0.72222	3.10457	0.42248	-1.56961	0.12516	-1.709	53	0.093

mean decrease of about 0.722 points on measuring optimism. However, the difference is not statistically significant (p = 0.093), implying that any observed changes might simply be due to random variation in any external variable. Furthermore, the inclusion of zero in the confidence interval supports this interpretation, indicating that the true mean difference might be zero; suggesting no effect.

(Table 7) The strong positive correlation indicated by a Pearson

coefficient of 0.792 with a highly significant p-value suggests that aggression levels among control group participants are consistent over time. The results imply that individual differences in aggression are relatively stable across time.

(Table 8) This correlation analysis supports the idea that there is a strong relationship between pre- and post-levels of optimism of control group, with a significant and positive correlation observed.

Table 7: Correlations.

		Agression_pre	agression_post
Agression_pre	Pearson Correlation	1	.792**
	Sig. (2-tailed)		0
	N	42	42
agression_post	Pearson Correlation	.792**	1
	Sig. (2-tailed)	0	
	N	42	42

Table 8: Correlations.

		Optimism_pre	Optimism_post
Optimism_pre	Pearson Correlation	1	.665**
	Sig. (2-tailed)		0
	N	42	42
Optimism_post	Pearson Correlation	.665**	1
	Sig. (2-tailed)	0	
	N	42	42

Summary

This study demonstrates that music intervention reduces levels of aggression in young adults. This was accomplished by comparing the means of the pretest and posttest responses, where the posttest mean had a lower value. The paired t test was used for statistical analyses as well, and it was discovered that the score difference was significant at the .01 level. Also for optimism levels, it was observed that music therapy intervention increased the level of optimism. Thus the intervention was effective in increasing optimism level in music therapy group participants. For the control group, those who were not the part of any intervention, no statistically significant Difference was found. Thus, level of aggression and optimism for control group was relatively stable across time.

Conclusion

This study offers evidence supporting the potential of Ragas Todi and Puriya Dhanashree to mitigate aggression and foster optimism in young adults. The notable decline in aggression scores and increase in optimism scores within the music therapy group, as compared to the control group, indicate that regular exposure to these ragas may have therapeutic advantages. The positive correlation between attention and outcomes for participants paying 70-100 percent attention having better results suggests that actively concentrating on the music could amplify its effects.

Limitations and Future Research Directions

The study's findings are subject to certain limitations. The reliance on self-reported attention levels introduces subjective elements and potential biases. Moreover, the study's focus on young adults suggests a need for future research to examine the impact of these ragas on different age groups and to employ objective measures of attention during music listening. In summary, this study contributes to the expanding field of research on music therapy and the therapeutic potential of Indian ragas.

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