

Research Paper

## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

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### ABSTRACT

With an increasing number of various ways that create convenience, pleasure and privilege for the human civilization, stress and anger are also on rise. The cases with impulsivity as the core cause of the problem are increasing day by day. There is no in-depth research till date that will throw some light on the art-based interventions, especially music and its subsequent effects on the regions of the brain that are responsible for anger, stress and impulsivity. Fundamentally, any music is a bundle of varying frequencies. These frequencies affect our amygdala, hypothalamus, the limbic cortex and so on and contribute in alleviating, pacifying, igniting or energising our emotional-motivational systems. Unfortunately, no research has been conducted that will uncover the fact that how these frequencies exactly affect the responsible brain regions. Also, there is a lack of experimentations on this topic which, if conducted in a zealous, scientific attitude might lead to ground-breaking discoveries. This research aims at exploring the effect of Hindustani classical music based on different ragas and their subsequent effect on the anger and stress levels in the subjects. Hindustani classical sangeet is the oldest style in music wherein certain musical structures called ragas are being sung in various permutations and combinations. These ragas are assigned according to the time of the day depending on their frequencies. When someone dives deeper into such kind of music, that person transcends the boundaries of space and time, which can be clearly experienced if one has certain level of willingness. Some ragas can give you emotional strength, some can imbibe a sense of calmness in you, some ragas can make a person introspect, some ragas can produce passion and love and so on. This study focuses on the use of two particular ragas which can, after listening, alleviate the mood and can soothe the listener. Looking at this through a scientific perspective it can be stated that, these ragas are certain frequencies that affect particular brain regions that in turn determine the release of different chemicals in the body like serotonin, which in turn affects the emotional-motivational systems of the listener. This research has taken college going subjects as sample because of the problems faced by them such as anger, stress and impulsivity. The findings of this study show clearly the effects of music interventions on the anger and stress levels of the subjects. Of course, these findings are on a surface level and could be subjected by extraneous and compounding variables. Nonetheless, this study establishes the fact that

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through auditory channels one can counter or mitigate or even to some extent eradicate, stress and anger levels.

**Keywords:** *Music Intervention, Stress, Anger, Subjects*

The primary goal of this study is to determine the link between music intervention and reduced levels of anger and stress in college going subjects. If we observe crimes from the past 10 years, we find that crimes committed in the heat-of-the-moment are on rise. People, especially college going subjects, are susceptible to this impulsivity.

Along with this aggression, these subjects are more vulnerable to stress. Due to the education system, constant pressure by parents, the ever-increasing societal pressure and the need to find a place in the world, these subjects are experiencing stress which was nonexistent a decade ago.

Our unconscious urges and needs are reflected in our conscious behavior. So, it will be justifiable to say that the unconscious determines our reactions to situations. Stress and anger are also reactions to specific stimulation. So, in order to counter these, there are two most effective channels: auditory and visual.

This study focuses on the auditory channel as music intervention is been used to reduce anger and stress levels.

This study can be used as a preventive measure as well as a corrective measure, mostly in schools, prison settings, public spaces and so on.

### ***Concepts and definitions:***

#### **Stress:**

Stress can be defined as any type of change that causes physical, emotional, or psychological strain. Stress is your body's response to anything that requires attention or action.

Stress arises when individuals perceive that they cannot adequately cope with the demands being made on them or with threats to their well-being. R.S. Lazarus (1966).

Stress, it is argued, can only be sensibly defined as a perceptual phenomenon arising from a comparison between the demand on the person and his or her ability to cope. An imbalance in this mechanism, when coping is important, gives rise to the experience of stress, and to the stress response. T. Cox (1978). Stress is the psychological, physiological and behavioural response by an individual when they perceive a lack of equilibrium between the demands placed upon them and their ability to meet those demands, which, over a period of time, leads to ill-health. S. Palmer (1989).

Everyone experiences stress to some degree. The way you respond to stress, However, it makes a big difference to your overall well-being. 1.2.2) Anger: Anger is an emotion characterized by antagonism toward someone or something you feel has deliberately done you wrong. Anger can be a positive emotion. It might help you vent negative emotions or drive you to solve challenges. Excessive rage, on the other hand, can be problematic. Anger causes your blood pressure to rise and other physiologic changes that make it difficult to think clearly and affect your physical and mental health. 1.3) Concept of Stress:

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Any change that creates physical, emotional, or psychological discomfort is referred to as stress. Your body's reaction to anything that requires attention or action is stress.

To some extent, everyone is stressed. However, how you handle stress has a significant impact on your overall health. Sometimes, the best way to manage your stress involves changing your situation. At other times, the best strategy involves changing the way you respond to the situation.

### **Signs of stress:**

Short-term and long-term stress are both possible. Both can cause a wide range of symptoms, but chronic stress can have a significant impact on the body over time and have long-term health consequences.

Some common signs of stress include:

- Changes in mood
- Clammy or sweaty palms
- Decreased sex drive
- Diarrhea
- Difficulty sleeping
- Digestive problems
- Dizziness
- Feeling anxious
- Frequent sickness
- Grinding teeth
- Headaches
- Low energy
- Muscle tension, especially in the neck and shoulders
- Physical aches and pains
- Racing heartbeat
- Trembling

### **Stress Detection**

Stress isn't always easy to spot, but there are several telltale symptoms that you're under too much strain. Stress can originate from a variety of places, but even minor daily worries from job, school, family, and friends can have a negative impact on your mind and body.

There are a few things to look out for if you suspect stress is harming you: Difficulty concentrating, worrying, anxiety, and trouble remembering are all psychological symptoms. Anger, irritability, moodiness, and frustration are examples of emotional indications.

High blood pressure, weight fluctuations, frequent colds or infections, and changes in the menstrual cycle and libido are among physical indicators. Poor self-care, not having time for the activities you enjoy, or turning on drugs and alcohol to cope are all behavioural indicators to look out for. Causes.

There are many different things in life that can cause stress. Some of the main sources of stress include work, finances, relationships, parenting, and day-to-day inconveniences. The fight-or-flight response, which is triggered by stress, is the body's reaction to a perceived threat or danger. Certain hormones, such as adrenaline and cortisol, are released during this

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reaction. This increases heart rate, slows digestion, shunts blood flow to key muscle groups, and alters other autonomic nerve activities, providing a burst of energy and vigour to the body. The fight-or-flight response, which was called for its ability to enable us to physically fight or flee when faced with danger, is now engaged in situations where neither response is appropriate, such as in traffic or during a stressful day at work. The relaxation reaction is aimed to return systems to normal operation once the perceived threat has passed.

However, in the event of chronic stress, the relaxation response isn't activated frequently enough, and being in a near-constant state of fight-or-flight might harm the body.

### **Types of Stress**

Not all types of stress are harmful or even negative. Some of the different types of stress that you might experience include:

- Acute stress is a sort of stress that lasts for a short period of time and can be either good or negative; it is the most common type of stress we encounter in our daily lives.
- Chronic stress is defined as persistent and unavoidable stress, such as the stress of a broken marriage or a physically demanding job; chronic stress can also result from traumatic experiences and childhood trauma.
- Acute stress that appears to run rampant and become a way of life, resulting in a life of constant distress, is known as Episodic acute stress.
- Eustress is a pleasurable and thrilling experience. It's a form of good stress that can help you stay energised. It's linked to adrenaline rushes, such when you're skiing or racing to fulfil a deadline.

### ***Theories of Stress***

Stress has been described as a reaction, a stimulus, and a business transaction. The way a person thinks about stress influences his or her response, adaptation, and coping mechanisms.

### **Stress As a Response**

Hans Selye (1956) first proposed the stress as a response model, which defines stress as a physiological response pattern and was included in his general adaptation syndrome (GAS) model (Figure 12.6). This model incorporates three principles that explain stress as a dependent variable: Stress serves as a protective mechanism. Alarm, resistance, and exhaustion are the three stages of stress.

If the stress is persistent or severe, it may cause adaptive disorders or even death. Selye later presented the idea that the stress reaction could result in positive or bad results based on cognitive interpretations of physical symptoms or physiological experience in *The Stress Concept: Past, Present, and Future* (1983). In this way, stress could be experienced as eustress (positive) or distress (negative). However, Selye always considered stress to be a physiologically based construct or response. Gradually, other researchers expanded the thinking on stress to include and involve psychological concepts earlier in the stress model.

The stress response model includes coping as part of the concept. At both the alarm and resistance stages of the GAS model, the concept of adaptation or coping is present. When the sympathetic nervous system is activated in reaction to a negative input, it fights or avoids the stressor (i.e., increased heart rate, temperature, adrenaline, and glucose levels). The resistance response then triggers physiological systems to respond to the stressor with a

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fight or flight response, restoring homeostasis, reducing harm, or more broadly accommodating the stressor, which can lead to adaptive diseases like sleep deprivation, mental illness, hypertension, or heart disease. As a result, early research on coping was born alongside the early conception of stress as a physiological response. In his book *The Wisdom of the Body*, published in 1932, Walter Cannon described the concept of self-regulation.

### **Stress As a Stimulus**

Stress as a stimulus theory was first proposed in the 1960s, and it defined stress as a major life event or change that necessitates a response, adjustment, or adaptation. The Social Readjustment Rating Scale (SRRS) was developed by Holmes and Rahe (1967) and consists of 42 life events that are assessed according to the estimated degree of adjustment they will require of the individual experiencing them (e.g., marriage, divorce, relocation, change or loss of job, loss of loved one). In the health-stress-coping equation, Holmes and Rahe hypothesised that stress was an independent variable — the cause of an experience rather than the event itself. While there were some relationships between SRRS scores and sickness (Rahe, Mahan, & Arthur, 1970; Johnson & Sarason, 1979), the stress as stimulus theory had flaws.

The stress as stimulus theory is based on the following assumptions:

- 1) Change is stressful by nature.
- 2) Life events necessitate the same levels of adjustment for everyone.
- 3) There is a common adjustment threshold beyond which sickness develops.

Initially, Rahe and Holmes saw the human subject as a passive recipient of stress, with no say over the degree, severity, or valence of the stressor. Later in his research, Rahe developed the notion of interpretation (Rahe & Arthur, 1978), implying that a change or life event could be viewed as a positive or bad experience depending on cognitive and emotional aspects. However, essential elements such as prior learning, environment, support networks, personality, and life experience remained overlooked by the stress as stimulus approach.

### **Stress As a Transaction**

Richard Lazarus developed the transactional theory of stress and coping (TTSC) (Lazarus, 1966; Lazarus & Folkman, 1984) in an attempt to explain stress as a more dynamic process. TTSC views stress as the result of a transaction between a person (including multiple systems: cognitive, physiological, affective, psychological, and neurological) and his or her complex environment. When Dr. Susan Kobasa first employed the concept of hardiness, she introduced stress as a transaction with the greatest impact (Kobasa, 1979). Hardiness is a set of personality traits that distinguishes persons who remain healthy in the face of adversity from those who suffer health problems. Salvatore Maddi, Kobasa, and their graduate students at the University of Chicago expanded on the concept of hardiness in the late 1970s (Kobasa, 1982; Kobasa & Maddi, 1981; Kobasa, Maddi, & Kahn, 1982; Kobasa, Maddi, Puccetti, & Zola, 1985; Maddi & Kobasa, 1984). Other personality categories in psychology, such as locus of control (Rotter, 1966), sense of coherence (Antonovsky, 1987), self-efficacy (Bandura, 1997), and dispositional optimism (Bandura, 1997), have some striking similarities with hardiness. Researchers expanded and categorise many components to account for the complex processes involved in feeling a stressor by adding multiple variables to the stress-as-transaction model (Werner, 1993). Acute, episodic or intermittent, and chronic stress were all used to define the nature of stress. Different sorts of stressors arose, including event, setting, cue, and condition, which were then classified according to

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locus of control, predictability, tone, impact, and length. Lazarus produced an exquisite integration of earlier research on stress, health, and coping in his book *Psychological Stress and the Coping Process* (1966), which placed a person's appraisal of a stressor at the centre of the stress experience. The way a person assesses a stressor impacts how he/she copes with or responds to it. A range of personal and contextual factors, including as capacities, skills and abilities, limits, resources, and norms, determine whether or not a stressor is seen as unpleasant. Lazarus and Folkman (1984) unpacked the concept of interpretation further in their model of stress appraisal, which includes primary, secondary, and reappraisal components.

- Primary appraisal: The primary appraisal entails determining if the stressor represents a threat.
- Secondary appraisal: Secondary appraisal entails an assessment of the resources or coping methods available to the individual for dealing with any perceived dangers.
- Reappraisal is a continuous process that entails reassessing both the nature of the stressor and the resources available for dealing with it.

### **Coping with stress:**

According to scholars like Lazarus and Folkman, stress coping entails a more precise process of cognitive evaluation to establish whether an individual believes he or she has the capacity to properly adapt to the demands of a stressor or change (Folkman & Lazarus, 1988; Lazarus & Folkman, 1987). The appraisal literature distinguishes between problem-focused coping and emotion-focused coping when describing the reaction or coping process. Approach and Avoidance are coping styles that involve assertiveness or withdrawal (Anshel, 1996; Anshel & Weinberg, 1999; Roth & Cohen, 1986). When confronted with a problem, an individual evaluates it first as threatening or nonthreatening, and then as to whether he or she has the resources to properly respond to or cope with the difficulty. If the person does not believe he or she has the capacity to respond to the challenge or feels powerless, he or she is more likely to use an emotion-focused coping strategy like wishful thinking (e.g., I wish I could change what's happening or how I feel), distancing (e.g., I'll try to forget about it), or emphasising the positive (e.g., I'll just look for the silver lining) (Lazarus & Folkman, 1987). If the person has the tools to deal with the challenge, he or she will most likely develop a problem-focused coping response like analysis (e.g., I'm trying to study the situation to better understand it; I'm formulating and following a plan of action). Theoretically and empirically, a person's secondary evaluation impacts their coping mechanisms (Lazarus & Folkman, 1987). Coping methods range from optimistic thinking to denial, and are assessed and measured using a number of instruments and scales, including the COPE inventory (Carver, Scheier, & Weintraub, 1989). Locus of control (Rotter, 1966), sense of coherence (Antonovsky, 1987), self-efficacy (Bandura, 1997), and stress-related growth are all linked notions to stress coping (Scheier & Carver, 1985). According to Rotter, a person with an internal locus of control believes that their actions and efforts affect their achievements and outcomes. If they don't succeed, they attribute it to a lack of effort on their own. A person with an external locus of control, on the other hand, feels that their accomplishments and outcomes are decided by fate, luck, or other factors. If the person fails, he or she believes it is because of external circumstances beyond his or her control.

Self-efficacy is frequently confused with self-confidence, but confidence is just one of many variables that contribute to a high level of self-efficacy. Self-efficacy is defined by Albert Bandura (1997) as the extent or strength of one's belief in one's own ability to complete activities and achieve goals. Self-efficacy is a state measure, whereas self-confidence is a

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trait measure (a quality that develops with time) (a capacity experienced at a specific point in time and concerning a specific task). Stress-related growth, also known as flourishing, is a psychological response to stress that allows people to recognise chances for progress rather than threats or debilitation.

### **Concept of Anger (Aggression)**

Anger is a negative emotion defined by hostility toward someone or something you believe has wronged you on purpose.

Anger has the potential to be a constructive emotion. It may assist you in releasing bad feelings or motivating you to overcome obstacles. On the other hand, excessive wrath might be harmful. Anger raises your blood pressure and produces other physiologic changes, making it harder to think properly and negatively impacting your physical and mental health. Anger expression can take on many more styles than passive or aggressive. Ephrem Fernandez has identified six dimensions of anger expression. They relate to the direction of anger, its locus, reaction, modality, impulsivity, and objective. 1.4.1) Theories of anger (aggression): While anger is a feeling/emotion, aggression is the behaviour or action taken that is hostile, destructive and/or violent. It can be physical assault, throwing objects, property damage, self-harming behaviours or verbal threats or insults. Aggression is a phrase used in psychology to describe a set of behaviours that can cause bodily and psychological harm to yourself, others, or items in the environment. Aggression is defined as causing bodily or mental harm to another person. While we all experience aggression from time to time, when it becomes pervasive or intense, it could be an indication of an underlying mental health illness, a substance use disorder, or another medical problem. 1. Instinct

### ***Theory of Aggression:***

Sigmund Freud (1927), the great psychoanalyst of the past, proposed the instinct theory of aggression. All human behavior, according to Freud's early works, stems either directly or indirectly from 'EROS,' the life instinct that aids in the reproduction of life.

Aggression was viewed as a reaction to the blockage of libidinal impulses in the background. As a result, it was neither a natural nor an unavoidable aspect of existence.

Aggressiveness, according to the instinct theory of aggression, is a global instinctual, steam boiler-like force that is urgently necessary and generally inescapable for self-preservation and reproduction, according to Freud and his collaborators. On the basis of the instinct theory of aggressiveness first proposed by Freud, Miller, Dollard, and others, McDougall has also labelled the phenomena of aggression in the instinct of combat. When we examine the desire for love, we also find a drive for hostility, according to Freud. When both of them fall out, the best friend becomes the most vehement foe. There is a longing for love as well as aggressiveness in our response to every stimulus. Aggression, according to the instinct theory, is inherited and biological in origin, and is manifested both overtly and covertly, that is, outwardly and inside. After that, Freud came to the conclusion that it was pointless to strive to eradicate man's aggressive tendencies. His positive social recommendations included dividing human civilizations into small communities where the aggressive drive could find a handy and largely harmless outlet in hostility toward those outside the group. Life and death instincts, according to Freud, are primordial instincts from which all other instincts are formed. However, Freud's concept of aggressive instinct or death instinct, which he said is the root of human conflict, has recently been dismissed.

## **2. Frustration Aggression Hypothesis:**

Miller and Dollard define frustration as "that condition that exists when a goalresponse is interfered with" in their stimulating but no less illuminating book "Frustration and Aggression." Frustrating occurrences are those that obstruct a person's goal-oriented behavior, jeopardize his self-esteem, or deny him the opportunity to satisfy his vital objectives and immediate aims. According to the Frustration-Aggression Hypothesis,

1. When a person's efforts to achieve a goal are thwarted, he develops an aggressive drive, which leads to behaviours such as injuring or destroying the person or object who has caused the frustration.
2. Aggression is less desirable when it is expressed.

Aggression is the basic and fundamental reaction to dissatisfaction, however other responses such as regression, disengagement, reaction construction, and displacement, among others, may also occur. Aggression, according to this theory, is a learned behaviour rather than an inborn one. They claim that because dissatisfaction is universal, violence is also universal, and hence frustration can be called a drive. Even though the presence of some genetic or biological components in aggression cannot be ruled out in humans, Marke and Ervin (1970) believe that these mechanisms are under man's cognitive control. A person with a specific brain damage may react aggressively to situations that a typical person without a brain injury would not respond violently to. This shows that a healthy person has cognitive control, whereas a brain injury victim does not. Learning and socio-cultural factors influence the regularity with which aggressive behaviour is expressed, the form it takes, and the contexts in which it is displayed in normal people.

According to proponents of the Frustration-Aggression hypothesis, aggression is always the result of some form of frustration. "These reactions are not eliminated," they add, "even if they are temporarily compressed, postponed, masked, shifted, or otherwise misdirected from their immediate and logical purposes." As a result, aggressiveness is bound to follow frustration." The most influential paradigm for intergroup prejudice and aggressiveness is thought to be this theory. Frustration causes aggression, which functions as a drive or purpose to react, combat, or attack, according to this idea. Another idea, based on Freudian theory, claims that repeated frustrations and harsh treatment as a kid result in the development of an authoritarian mentality that is rigid, unfriendly, undemocratic, and biased against outgroups, making them prone to violence. Such dissatisfied individuals lack positive social relationships and are unable to engage in successful social interactions.

They are gloomy, irritable, and become enthralled with seemingly insignificant problems. They begin quarrelling, disputing, and making counter arguments in an agitated manner with the smallest provocation, as though hostility is deeply embedded in their psyche. Such individuals are despised by society.

## **3. Social Learning Theory:**

The proponents of social learning theory, such as Bandura, Berkowitz, and others, believe that arousal caused by frustration does not always lead to aggression, but rather sets the conditions for coping with a frightening circumstance. It can inspire a variety of emotions, depending on how an individual learnt to cope with difficult situations in the past. Bandura (1965) proved that violent responses can be acquired by reward, imitation, or modelling, all of which fall within the category of social learning theory. In a study of nursery school students, it was discovered that when an adult displayed various sorts of hostile behaviour toward a giant doll, the children imitated the same behaviour.



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They were then shown cinematic versions of aggressive modelling with dolls acting as cartoons. The children who had seen real-life cartoon characters exhibited more violent behaviour, according to the findings. Children remembered these aggressive reactions even after eight months, according to follow-up investigations.

This proves that aggressive behaviour is mostly learnt and imitated from the environment in which the child lives. Julian Rotter (1954, 1982), a contributor to Social Learning Theory, claims that the likelihood of a given behaviour occurring in a given situation is determined by the organism's learning and imitation in a social situation, the expectancies about the outcome of a behaviour, and the reinforcement value they assign to such outcomes, i.e. the degree to which they prefer one reinforcement to another. Bandura believes that behaviour is determined by the interaction of cognitive and environmental elements, a concept known as reciprocal determinism. Modeling or learning by imitation is a method in which children or other people learn by seeing others, either accidentally or purposely. However, a model's selection is influenced by a variety of criteria such as age, sex, status, resemblance to oneself, whether he loves or dislikes him, whether he respects or dis-respects him, and so on. Typically, a boy accepts his father as a model and a daughter accepts her mother as a model as a result of sex role identification, and they mimic their parents accordingly. However, if the boy dislikes his father for any reason but adores his mother, he may view his mother as a role model and emulate her behaviour, likes and dislikes, attire, mood, and so on.

The importance of modelling and operant conditioning learning on the acquisition of various behaviours is emphasised in social learning theory. According to social learning theory, children are praised verbally when they act in ways that conform to gender norms and stereotypes, i.e., when they act like boys or girls who are sanctioned and expected by society. The child imitates such activities because of the acceptance of his parents and the sanction of society. Punishment, on the other hand, eliminates some types of learning and behaviour that are not accepted by society and culture. When a boy imitates the male members of his family and a girl imitates the female members of his family, they are more likely to adopt the same sex models' behaviour. 1.4.2) Prevention, control and management of aggression:

Miller Dollard and colleagues proposed the Frustration – Aggression hypothesis, which stated that aggression develops in an individual as a result of frustrating events and bursts to a point where it becomes severe. The accumulation of frustrating experiences should be discouraged in order to avoid angry outbursts. Allowing the individual to release his anxiety and pent-up emotions in between can help with this. Aggressive acts and violence become unmanageable if anger, hostility, and tension are not released and restrained.

i. Catharsis: As a result, Freud recommended catharsis, or the release of pent-up emotions, as the best way to relieve tension. Even now, the notion of catharsis is widely applied in psychotherapy. The principles of catharsis, according to everyone's experience, reduce violent experiences. Everyone has probably seen that when modest anger and feelings of sorrow are communicated, they feel relieved; otherwise, they feel anxious.

ii. Talking Therapy: When a person feels hostility or annoyance toward someone, he can release his aggression without harming the enemy or target of aggression if he tells someone he trusts, such as a good friend, a spouse, a son or daughter, or any well-wisher.

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Aggression can be controlled by talking out one's buried and repressed urges. Continuous but unexpressed aggressive anxiety and mental disease will be expressed if nothing else is done. When the victim's experiences are shared with others, the victim becomes more comfortable.

iii. Writing Therapy: When a less powerful person is insulted by a more powerful person, the less powerful person reacts aggressively. Consider the role of the wife in Indian society. If her husband mistreats or frustrates her, she is unable to vent her anger toward her because society does not accept it.

In this circumstance, the wife can write down her hostile thoughts toward her husband in order to let them out and find peace of mind. Otherwise, depression, anxiety, and neurosis may result. As a result, writing therapy can be used to manage and regulate violent inclinations.

Writing a daily diary is a form of writing therapy. That is why, as previously stated, mentally sick people keep diaries. This approach can be used to relieve unpleasant feelings without making a target of aggression.

iv. Displacement: Children's aggression can be alleviated by transferring aggression to objects such as toys, dolls, or any nonliving object. As a result, instead of expressing, suppressing, and repressing their rage, children are given toys and large dolls to play with. Several observations and experimental research show that when children are allowed to vent their rage and violence during their development, they become less hostile as adults. As a result, in order to regulate one's aggressive behaviour, which is harmful to society, one must learn to unleash pent-up emotions in modest doses as and when the situation requires. Displacement of rage can be used to achieve non-aggression.

v. Catharsis: In an experiment, Fishback used a college student who was subjected to disparaging words and insults. One group was given T.A.T cards to release his pent-up feelings, while the other group was given T.A.T cards to write stories on.

These participants showed less animosity and violence than the third group, which was given an aptitude exam and thus did not have the opportunity to express his violent feelings. Many other research have revealed similar evidence that catharsis can be effective in lowering and managing feelings of aggression and control.

vi. Appropriate Early Childhood Training: Appropriate early childhood training, proper parental care, and an appropriate parenting style can help to reduce aggressive behaviour to some extent. By attempting to meet the child's basic needs, the child will be exposed to fewer situations that cause dissatisfaction. The youngster should not be chastised for crying for an extended amount of time. He should be taught from an early age how to deal with frustration in a positive rather than negative way. Instead of being rigorous, his training should be flexible.

vii. Positive Parental Model: Children should be exposed to positive and normal role models. Parents should make every effort to avoid fighting in front of their children. They should strive to be role models for the child. They ought to practise what they teach. There should be no disconnect between what is preached and what is actually done.

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viii. Training to Tolerate Frustration: Instead of fulfilling all of the child's required and unnecessary wishes, he should be taught to tolerate frustration in certain situations. The child's frustration tolerance can be increased by not granting his wants. Without a doubt, legitimate needs should be met. However, certain unwelcome requests should not be granted, and he should be progressively taught to accept the frustration of certain needs. People's aggressive reactions vary due to differences in their frustration tolerance capability. In this scenario, imitating models and enduring frustration can help a lot with aggressive management and control.

Control of Aggressive Models on Television, Video Shows, and Films: A lot of aggressive behaviour can be managed by limiting a child's exposure to aggressive and violent models on television, pictures, and video.

i. Non-Reinforcing Action: Aggressive behaviour is reinforced when it is encouraged. However, arousal of wrath and animosity can be lessened through non-reinforcing behaviour. The child will learn to lessen his hostile acts if his excessive aggressive behaviour is discouraged through social learning and socialising. Aggressive behaviour will be non-reinforcing if it is only mildly punished.

ii. Loss of Love: When a child engages in various hostile and violent activities, his parents, particularly the mother, should inform him that she will not love or care for him if he engages in hostile activities. A child who never wants to lose his mother's affection will make every effort to achieve so.

iii. Observation of Non Aggressive Models: Allowing highly aggressive boys to observe models who behave in a restrained and non-aggressive manner in the face of provocation can effectively reduce aggression. The television and film industries can do a good job doing this. Nonviolent films and serials should be made in greater numbers and broadcast on television.

Imitation is at its peak throughout the formative years of a person's personality. According to social psychologists, if children's aggressive behaviour is unregulated or unconstrained throughout their formative years, it is more likely to be reinforced and continued later in life, which is bad for society and nation. iv. Teaching Discipline and Morality: A lot of aggressive behaviour can be controlled by teaching the child to be disciplined and to develop positive values and morality. In this sense, parents and teachers must take an active role. A disciplined and socialised person with moral beliefs is less likely to engage in regular violence, which is destructive to the family and society. v. Punishment Flexibility During Childhood and No Rigid Training: The life histories of various convicts and offenders in jails have revealed that the majority of individuals who have been imprisoned for aggressive activities were brutally disciplined as children and punished repeatedly. That is why it is said that if a lady has been harshly punished by her mother-in-law, she will severely punish her daughter-in-law when she becomes a mother-in-law. vi. Parental Aggression: It's a well-known fact that angry parents raise angry children. As a result, parents must work to control their rage, impatience, and animosity. Children should be taught that there are various non-violent or gently aggressive ways to deal with frustration. Parents should strive to provide a good example for their children.

Finally, every parent must work to help their children develop a socially acceptable personality so that their aggressiveness may be managed to a significant degree, ensuring

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peace and happiness in society. Aggression at its the most extreme becomes pathological. It unquestionably degrades a person's individuality. When aggression becomes a personality trait in such persons, it becomes a type of personality disorder that obstructs normal and integrated personality development.

As a result, it is critical to prevent violent behaviour in children as early as possible by limiting their exposure to frustration. It should also be controlled and managed in order to foster the development of a normal and sociable personality.

Though nonaggression is beneficial to a healthy and happy society, too much of it is harmful. Aggression is necessary for self-defense and security, social management, and the release of tension and hostility to some extent. As a result, aggression should be used sparingly and only when necessary. Sublimation, rationalisation, projection, and socially acceptable behaviour such as sports, mountaineering, athletics, and other acts of courage and adventure can all be used to change aggressiveness into non-violence.

**Statement of the problem:** to study the effect of music intervention on the stress and anger levels of college going subjects.

### **Significance of the study**

In recent past, Japan and Scotland experimented on the visual stimulus in order to cut down the suicide and the night crime rates. They installed blue colored street lights and it subsequently had an impact on the suicide and crime rates. They were down by 9 to 20 percent. It was then hypothesized that since blue is the color of calmness and creativity, it had an impact on suicide and crime rates. Now, this study focuses on the auditory stimulus that might be impacting the anger and stress levels through auditory channels. "Blue colored street light" was the determining factor in the above experiment. Similarly, "hindustani classical music " is the determining factor in this experiment. In the recent past, people are more and more stressed due to the fragile state of their emotional and mental setup and an inability to cope with it. On the other hand, anger, a very powerful emotion, is finding its strength in impulsivity. Having said that, this musical intervention can counter both of these enduring components. The ragas selected for intervention are Raag Durga and Raag Bhoop. Raag durga is said to ease the tension and raag bhoop is said to lower the blood pressure. In a recent electroencephalography (EEG) study on the impact of Indian classical music, especially of Hindustani ragas on individuals, Dr Shantala Hegde, assistant professor, neuropsychology unit, National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, says that after listening to Hindustani ragas, 20 musically untrained subjects showed increased overall positive brain wave frequency power, higher even than that in highly relaxed meditative states.

"Listening to certain ragas, for example Desi-Todi, for 30 minutes every day for 20 days, has been shown to produce a significant decrease in systolic and diastolic blood pressure, to reduce stress, anxiety and depression, and to enhance feelings of life satisfaction, experience of hope and optimism." 1.7) Objectives of the study:

Since the Unconscious affects our Conscious behavior, this study attempts to counter aggression and stress at an unconscious level through auditory channels with musical intervention.

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If such music intervention is conducted on the general population, the cases of heat-of-the-moment aggression and the cases of burnouts will decrease considerably. Certain musical phrases or segments or ragas, if played in public spaces such as bus stands, public urinals, washrooms of pubs and discotheques etc. then the overall stress and aggression of the general population, which is deeply rooted in their unconscious will be negated and the society and every other social structure may become peaceful, tolerant, compassionate and sensible, which in turn will create human beings who will, in coming times, help create a sustainable world.

### REVIEW OF LITERATURE

The current research studies the effects of music intervention on the stress and anger levels of college going subjects. This chapter gives relevant reviews of stress and anger variables.

#### *Review of literature*

##### **Variable 1: Stress**

1] Title: The Effect of Music on the Human Stress Response. Myriam V. Thoma, Roberto La Marca, and Urs M. Nater. The Effect of Music on the Human Stress Response. Published online, PMC (Pubmed central), 2013 Aug 5. The aim of the study was to thoroughly examine music effects across endocrine, autonomic, cognitive, and emotional domains of the human stress response. Sixty healthy female volunteers (mean age 25 years) were exposed to a standardized psychosocial stress test after having been randomly assigned to one of three different conditions prior to the stress test: 1) relaxing music ('Miserere', Allegri) (RM).

2) sound of rippling water (SW)

3) rest without acoustic stimulation (R). Salivary cortisol and salivary alpha-amylase (sAA), heart rate (HR), respiratory sinus arrhythmia (RSA), subjective stress perception and anxiety were repeatedly assessed in all subjects. The researchers hypothesized that listening to RM prior to the stress test, compared to SW or R would result in a decreased stress response across all measured parameters.

The three conditions significantly differed regarding cortisol response ( $p = 0.025$ ) to the stressor, with highest concentrations in the RM and lowest in the SW condition. After the stressor, sAA ( $p=0.026$ ) baseline values were reached considerably faster in the RM group than in the R group. HR and psychological measures did not significantly differ between groups.

The findings of this study indicate that music listening impacted the psychobiological stress system. Listening to music prior to a standardized stressor predominantly affected the autonomic nervous system (in terms of a faster recovery), and to a lesser degree the endocrine and psychological stress response. These findings may help better understand the beneficial effects of music on the human body.

2] Title: Psychological and Physiological Signatures of Music Listening in Different Listening Environments—An Exploratory Study.

Mari Tervaniemi, Tommi Makkonen and Peixin Nie. Published 3 May 2021, Brain Sciences.

The main aim of this study was to investigate whether music listening modulates music emotion ratings differentially in two different listening environments, namely, at home vs. in the laboratory and also to measure the cortisol levels in the body. In total, there were 37

## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

participants who were 20–40 years of age (mean 26.4 years, SD 4.4 years; 19 male). The researchers concluded that while music listening modulated the cortisol levels, there was no significant difference in this modulation as observed at home or in the laboratory.

3] Title: Music Listening as a Strategy for Managing COVID-19 Stress in First-Year University Students. This study was conducted by Dianna Vidas, Joel L. Larwood, Nicole L. Nelson and Genevieve A. Dingle. This study was designed to examine the effectiveness of music listening for managing stress and supporting well-being during COVID-19. The songs were analyzed with the SpotifyR package, which allowed for investigation of musical features such as valence (positivity), energy, tempo, danceability, and other features of songs. Participants were 402 first year students enrolled in a variety of degree programs in a major metropolitan University in Queensland, Australia. Participants indicated their levels of stress related to COVID-19 on a purpose-built measure of 13 items developed by members of the broader project. Questions were taken to a small group of student advisors, predominantly international students, to collaboratively determine face validity for assessing stress due to COVID-19 for domestic and international students. The COVID-19 stress scale showed good internal consistency,  $\alpha = 0.857$ . The current study examined music listening during the COVID-19 pandemic, and in line with previous research with young people, found music listening, among other strategies, was an effective stress management strategy for both domestic and international University students.

4] Title: Music training and empathy positively impact adults' sensitivity to infant distress. This study was conducted by Christine E. Parsons, Katherine S. Young, Else-Marie E. Jegind, Peter Vuust, Alan Stein and Morten L. Kringelbach. This study examined factors that might impact perception of emotion in infant vocal cues. Participants were recruited from the general community in Aarhus using posters, online advertisements, and social media. All provided written informed consent for participation. Inclusion criteria for participation were: not currently experiencing any psychological or physical conditions, no problems with hearing, normal vision or vision correct to normal. Fifty-seven women and 52 men participated, of whom 29 were mothers and 25 were fathers. All of the fathers and mothers had infants aged less than 18 months ( $M = 8.1$  months,  $SD = 4.43$ ). A total of 109 men and women participated (see Table 1 for demographic information). Participants were aged between 21 and 39 years. Measures of current depressive symptoms and empathy were obtained using Beck Depression Inventory-Second Edition (BDI-II) and the Empathy Quotient (EQ). Fifteen digital recordings of infant cry bursts from the OxVoc database (Parsons et al., 2014b) were used in this study. Parents with music training performed better ( $M = 44.04$ ,  $SD = 7.28$ ) than parents without [ $M = 38.3$ ,  $SD = 5.63$ ;  $t(52) = 3.22$ ,  $p < 0.002$ ]. The listener variables examined were parental status, music training, and self-reported empathy. The task required that adults discriminate differences in pitch and interpret these as differences in infant distress. There were two main findings. First, among parents, those with music training showed greater sensitivity to distress in infant cries, as manipulated by pitch, than those without music training. Second, for adults who were not parents, empathy was positively associated with sensitivity to distress. Music training and empathy appeared to only have measurable effects in the parent and non-parent groups, respectively.

### **Variable 2 : Anger**

1] Extreme metal music and anger processing. This study was conducted by Leah Sharman and Genevieve A. Dingle. The purpose of this study was to investigate the effects of extreme music listening (compared to a no music control condition) on anger processing. In this study, anger was operationalized in this study in terms of both subjective ratings of hostility

## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

and irritability and physiological recording of heart rate, which were expected to increase when participants experienced an increase in anger. The final sample consisted of 39 participants (72% male), with ages ranging from 18 to 34 years ( $M = 22.36$ ,  $SD = 3.19$  years). Before the trial began, participants were randomly allocated to either the music or control condition. Participants were requested to refrain from smoking, exercising, and drinking caffeinated and alcoholic beverages for at least 3 hours before participating in order to avoid unwanted effects on heart rate (this was checked with questions in the questionnaire). Participants were given a diagram and instructions on how to attach their recording electrodes before being asked to sit silently for 5 minutes and "not to think about anything in particular" for the baseline heart rate recording. After then, participants were asked to answer the first set of questions on the Positive and Negative Affect Scale (see PANAS in Measures) (T1). The 16-minute angry interview was then done by the experimenter. The second set was then completed by the participants. The second set of PANAS questions was then completed by the participants (T2). Those assigned to the music condition were advised to choose their favourite song(s) from their own music device and listen for 10 minutes. Participants responded to demographic questions such as age and gender. Participants' musical background and current musical involvement was assessed in a questionnaire consisting of seven dichotomous (yes/no) questions. Heart rate was recorded according to published guidelines. Repeated measures of participants' subjective emotional state was assessed with a modified version of the PANAS. Participants were asked nine dichotomous (yes/no) questions during a structured interview, regarding the extent to which they listened to extreme music. The Depression, Anxiety, and Stress Scale (DASS) is a 42-item questionnaire used to assess the same. The stress interview proposed by Dimsdale et al. (1988), and modified by Lobbestael et al. (2008), was used for anger induction. The interview involved participants describing one or more events that produced a strong feeling of anger over a period of 16 min. The findings support the view that extreme music listeners use music to regulate their anger and to feel active and inspired. This emotion regulation effect is similar to that found in some research on sad music listening. This study found that extreme music fans listen to music when angry to match their anger, and to feel more active and inspired. They also listen to music to regulate sadness and to enhance positive emotions. The results refute the notion that extreme music causes anger but further research is required to replicate these findings in naturalistic social contexts, and to investigate the potential contributions of individual listener variables on this relationship between extreme music listening and anger processing.

### *Summary*

Researchers have shown over the years that there is significant effect of music on psychological and psychophysical systems. But more research is yet to happen on the frequencies and their subsequent effects on particular regions of the brain such as the amygdala. The results shown by the studies are on the surface level. Still these results show that anger and stress can be countered by music intervention.

## **METHODOLOGY**

This chapter includes the methodology used to carry out the research project. This chapter includes operational definitions of the variables, plan of the research, hypothesis, sample, tools, procedure and the proposed statistical analysis.

### *Variables Under Study*

Anger, Stress, and musical intervention are the variables of this study.

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### *Operational Definitions*

- Stress: Stress can be defined as any type of change that causes physical, emotional and psychological strain.
- Anger: Anger is the emotion characterised by active hostility or opposition toward someone or something that one feels has deliberately done wrong to that person.
- Intervention: These are the actions performed to bring about change in the people.

### *Research Design*

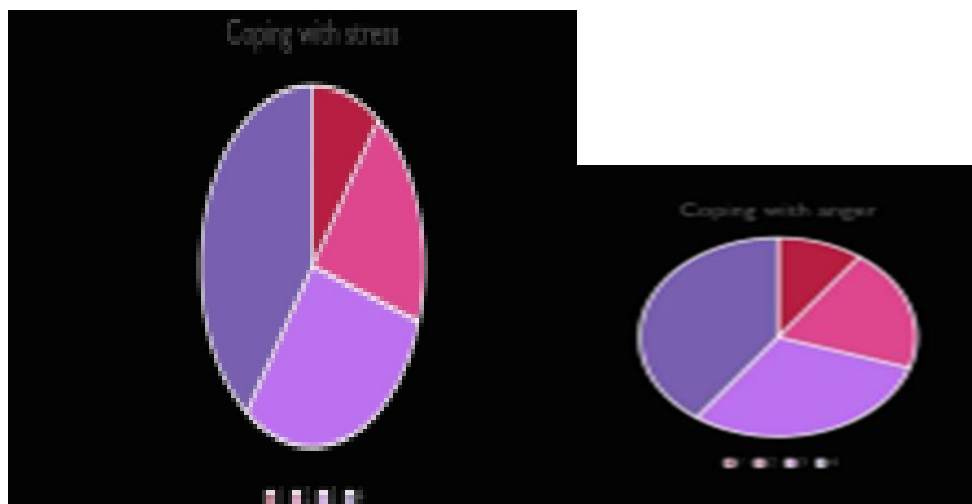
- Design: pretest posttest design
- Scales used: For anger variable: Dr.Rajeev Bharadwaj's AG scale. For stress variable: Smith Stress Symptoms Inventory.

### *Hypothesis:*

Musical intervention will decrease the levels of anger and stress in college going subjects.

### *Sample:*

30 college going students with no prior exposure to the knowledge of hindustani classical music. Conduction: 20 minutes of raag durga and raag bhoop for 21 days in alternate manner. Raag durga is said to ease the tension and raag bhoop is said to lower the blood pressure. The conduction will take place in an online/offline mode.



### *Tools*

Smith Stress Symptoms Inventory and R.L. Bhardwaj's Aggression Scale were the tools used in this study.

### **Smith Stress Symptoms Inventory**

This Inventory was published in 2000. This has various revisions, each of which covering different areas. The Smith Inventory Series is a set of self-report questionnaires designed to measure various aspects of stress, relaxation, meditation, and mindfulness.

### **Relaxation, Meditation, and Mindfulness**

- SRSI3: The Smith Relaxation States Inventory 3. Measures 18 Relaxation States (R-States) and three stress states (somatic stress, worry, negative emotion). State ("How do you feel right now?") format.



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- SRSI3d: The Smith Relaxation States Inventory 3d. Disposition version of the SRSI3 that taps how often one experiences R-States and stress states (how many times a day, week, month, year)
- SRRAI3: The Smith Relaxation Recalled Activity Inventory 3. Taps R-States and stress states recalled for one's "most effective relaxation and renewal activity" practiced during the prior two weeks.
- SRSI3b: The Smith Relaxation States Inventory 3b. Short version of the SRSI3 for client and workshop use.
- SRAI: The Smith Relaxation Attitudes Inventory measures eight negative beliefs hypothesized to interfere with considering or practicing relaxation, meditation, or mindfulness techniques.
- SRBI: The Smith Relaxation Beliefs Inventory measures eight beliefs hypothesized to support the practice of relaxation, meditation, and mindfulness techniques.
- Technique Evaluation
- SRES: The Smith Relaxation Evaluation Scale. Three-item scale for quickly assessing the overall effectiveness of a just-practiced technique. Stress
- SSSI: The Smith Stress Symptoms Inventory. Measures Worry, Negative Emotion, Autonomic Arousal/Anxiety, Striated Muscle Tension, Depression, Interpersonal Conflict / Anger. State Version ("How do you feel right now?"). SSSId: Smith Stress Symptoms Inventory. Dispositional ("How do you generally feel?") version of the SSSI.
- SJSI: The Smith Job Stress Inventory. Personal Symptoms, Sources of Job Stress (Design of Work Tasks, Management Style, Interpersonal Relationships, Work Roles, Career Concerns, Environmental Conditions, Feedback), and "What I Think this Job Needs." Scales based on categories delineated by the National Institute of Occupational Safety and Health (NIOSH).
- SIRBI: The Smith Irrational Beliefs Inventory. Measures 24 categories of irrational thinking frequently mentioned in cognitive therapy literature.

In this study, The Smith Stress Symptoms Inventory State Version and Smith Stress Symptoms Inventory Disposition Version are being used. 6 factors namely Worry, Negative Emotion, Autonomic Arousal/Anxiety, Striated Muscle Tension, Depression, Interpersonal Conflict / Anger and Attentional deficits have been measured against 4 point Likert scale. The Reliability of this tool is .60 to .88.

### **R. L. Bhardwaj's Aggression Scale**

This scale consists of 28 items. Correlation between each item score and total score was significant at .01 level. It is a self-administration scale. It can be administered in the cases of 10+ years of age in individual as well as group settings. Normally it takes 10 to 15 mins to take the test. There are 5 alternate answers and the subject has to select only one. Scoring of these 5 alternatives follow the system of 5, 4, 3, 2, 1 from upper to lower end. The reliability of this scale is from .79 to .86 and its validity is from .78 to .83.

### ***Procedure for Data Collection***

For this study, 30 college going students with no prior exposure to the knowledge of Hindustani classical music were chosen using incidental sampling. The Smith Stress Symptoms Inventory and R. L. Bhardwaj's Aggression Scale were given to them. This was the pre-test of this study and the responses were collected using Google form. This was followed by music intervention. After the test they were provided with links of two raagas:

## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

raag bhoop and raag durga, and were asked to listen. The process involved the subjects listening to both ragas on alternate days (1 raag each day) for 21 days. It was conducted through online/offline mode. After the completion of stipulated time, posttest was conducted using the same tools, through same process. The data was further processed by using statistical analysis.

### Plan for Statistical Analysis

This was a comparative study in which pretest responses and posttest responses were compared. Paired t test was used to understand the difference between the responses given by the subjects before and after the music intervention. Also mean, median, mode, skewness, standard error of skewness, kurtosis, standard error of kurtosis, standard deviation and standard error of mean were calculated. Various histograms and bar graphs were calculated based on the results of the analysis.

### Summary

In this chapter we saw that, for this study, 30 college going students with no prior exposure to the knowledge of hindustani classical music were chosen using incidental sampling. Smith Stress Symptoms Inventory and R.L. Bhardwaj's Aggression Scale were the tools were used for this purpose. Musical intervention will decrease the levels of anger and stress in college going subjects' hypotheses have been stated for this study. The procedure for data collection has been explained in this chapter. Descriptive statistics i.e. Mean & SD and inferential statistics i.e. correlation & 't' test are going to be used for analyzing the collected data.

## RESULT AND DISCUSSION

The objective of the study was to establish a link between musical intervention and levels of anger and stress. For this purpose the sample of 30 college going students was collected through convenience sampling. For statistical analysis, paired t tests were employed. The analysis is presented below.

### Descriptive Statistics

		Statistics					
		VAR000 22	VAR000 17	VAR000 18	VAR000 19	VAR000 20	VAR000 21
N	Valid	30	30	30	30	30	30
	Missing	1	1	1	1	1	1
Mean		71.9000	69.5667	42.4667	53.9667	42.9667	39.8000
Median		71.0000	66.0000	42.5000	56.0000	41.0000	39.0000
Mode		73.00	56.00	39.00	57.00	39.00	39.00
Std. Deviation		9.66455	17.1397 6	3.18112	6.17829	4.49124	2.26518
Skewness		.657	1.138	.478	-.420	.846	4.461
Std. Error of Skewness		.427	.427	.427	.427	.427	.427
Kurtosis		.674	1.158	-1.020	-.163	-.285	22.051
Std. Error of Kurtosis		.833	.833	.833	.833	.833	.833

These results indicate that there is a significant difference between the means of variables: aggression, stress disposition and stress state. It also indicates that the levels of the variables are significantly lower in post test.

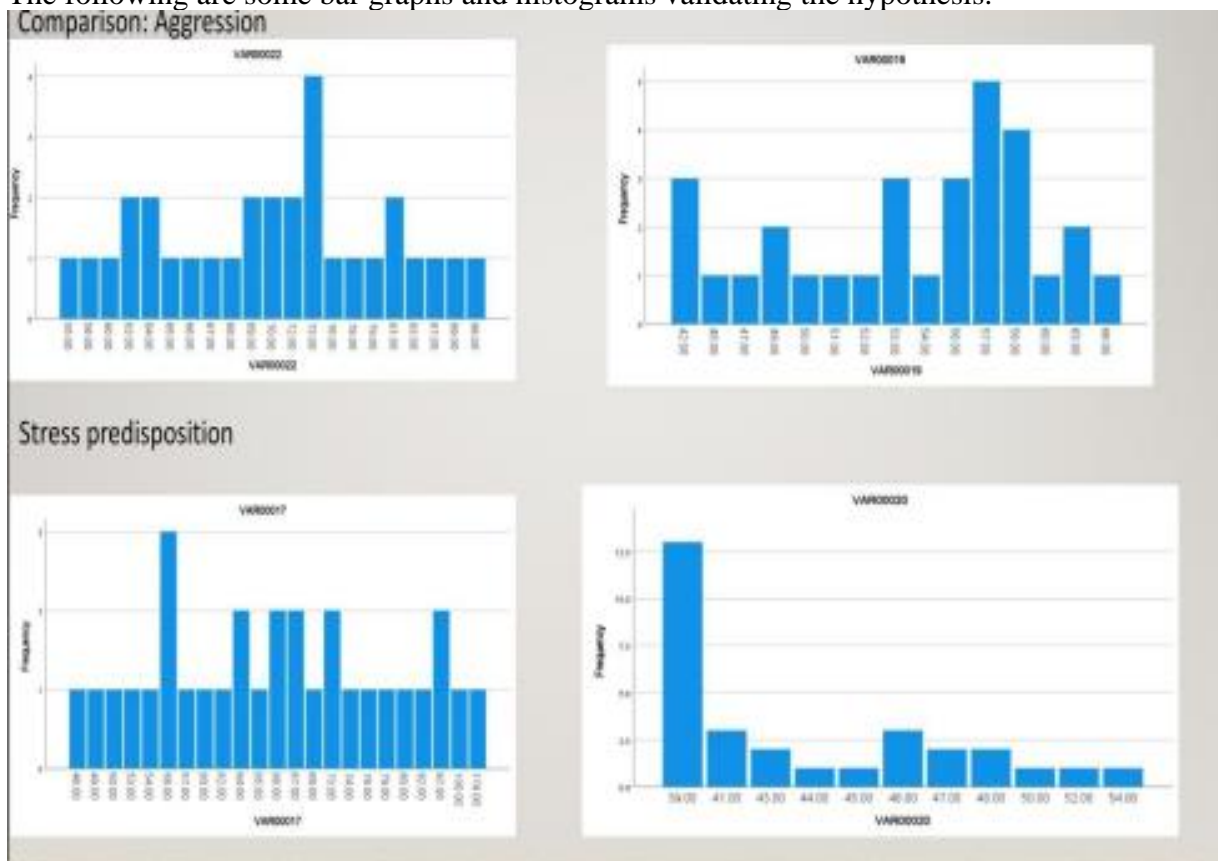
## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

### Paired t test:

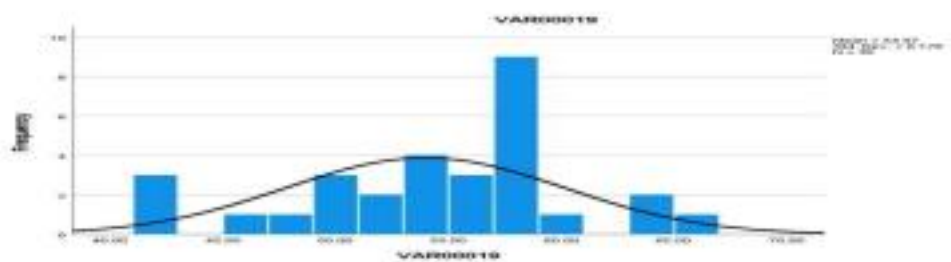
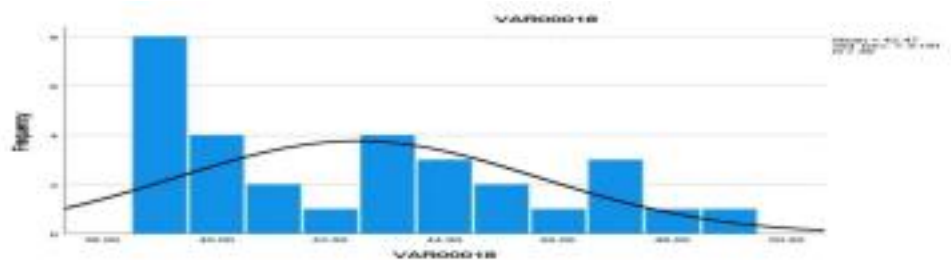
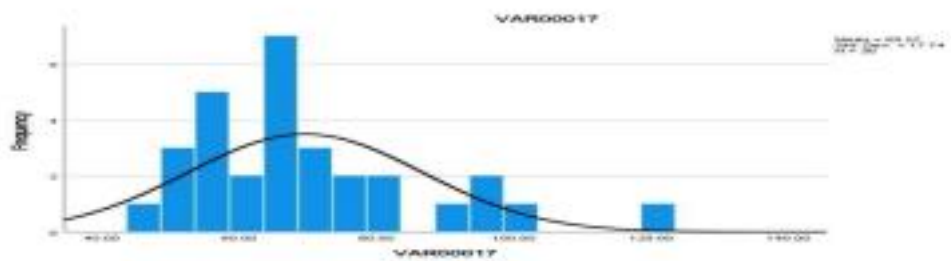
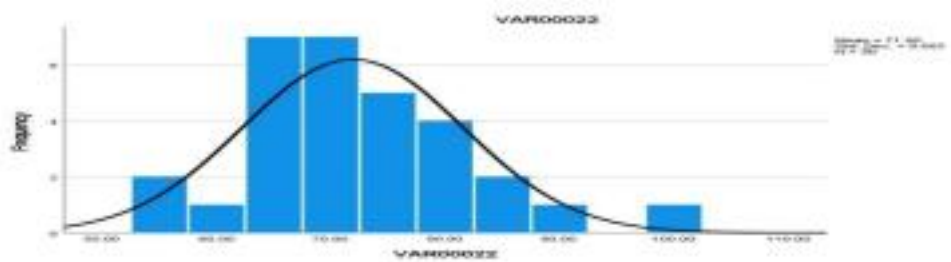
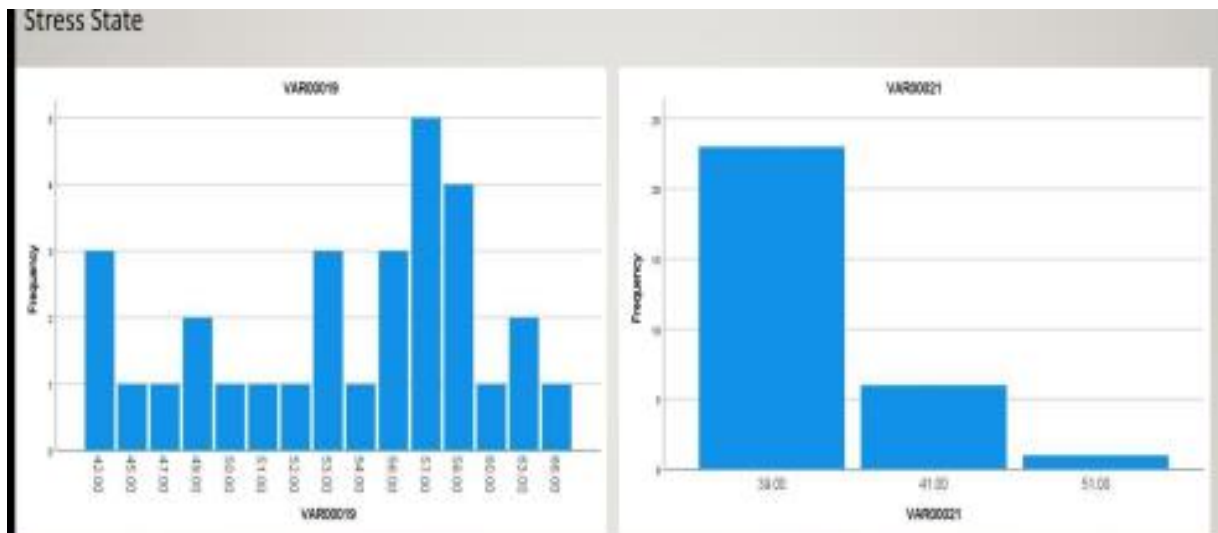
		Paired Differences					t	df	significance
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Aggression	VAR00016 - VAR00019	17.96667	10.42372	1.90310	14.07438	21.85895	9.441	29	<.001
Stress predisposition	VAR00017 - VAR00020	26.60000	16.04219	2.92889	20.60975	32.59025	9.082	29	<.001
Stress state	VAR00018 - VAR00021	2.66667	4.13841	.75557	1.12136	4.21197	3.529	29	.001

According to the paired t test statistics, the difference between the score was significant at .01 level. The results corroborated the hypothesis, which was, music intervention will decrease the levels of anger and stress in college going subjects.

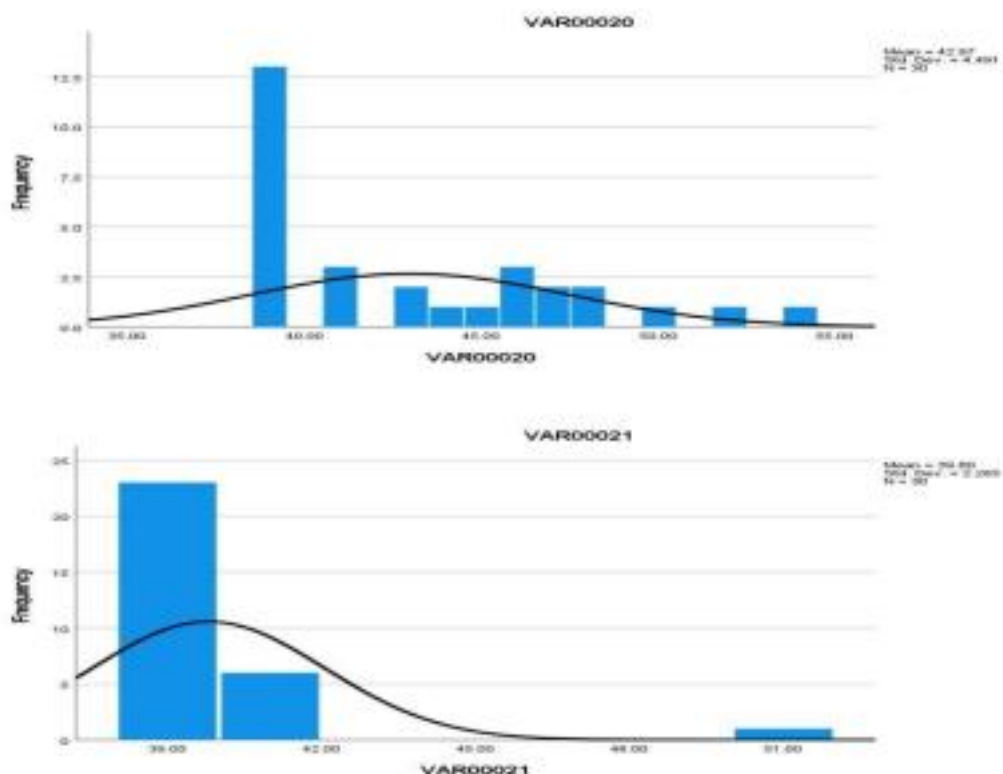
The following are some bar graphs and histograms validating the hypothesis.



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### DISCUSSION

When the responses to the variable anger/aggression were compared in terms of pretest and post test, there was a significant drop in the means and also the frequency of responses in post test. This condition was the same for every other variable, which means that the results are in line with the hypothesis.

#### Summary

To summarize the above information, it can be said that the results prove that there was a significant musical intervention that in turn, affected the pretest and post test scores. The levels of anger and stress were significantly reduced in the post test results.

### SUMMARY, CONCLUSIONS AND SUGGESTIONS

#### Summary

This study shows a positive effect of music intervention on anger and stress levels. This was done through comparing means of pretest responses and post test responses, in which the mean of post test responses were less in value. Also, for statistical analyses, paired t test was employed, which found the difference between the scores as significant at .01 level.

#### Conclusion

This study finds that there is a significant impact of musical intervention on anger and stress levels.

#### Implications

This study predominantly focuses on “corrective measures” that should be taken to lower anger and stress levels. Thus, this study can be applied in prison settings, mental health

## **The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects**

institutions, behavior correctional institutions and other institutions. The intervention used in this study can be used after detection of increased stress and anger levels. The tools used in this study can help us in understanding the extremities of variables that one is experiencing and thus can be referred to more intense psychological intervention. For instance, if a certain participant gives extreme responses on scales used for this study (Bharadwaj's AG scale and Smith Stress Symptoms Inventory), then that participant will be directed to receive more intense psychological or musical intervention than the intervention used for this study.

The musical intervention used in this study can also be used on a daily basis as a “preventive measure”. For instance, one may not experience extreme stress or anger but one can still follow the intervention phase daily so that the levels of anger and stress would be in control.

### ***Limitations***

Although the results corroborated the hypothesis, shouldn't ignore the fact that these results are on the surface level. Music, fundamentally, is nothing but a combination of different frequencies. The frequency of the surs SA is 240 hertz, RE is 270 hertz, GA is 300 hertz, MA is 320 hertz, PA is 360 hertz, DHA is 400 hertz and NI is 450 hertz. Thus, a deep study on how the combination of these frequencies affect amygdala, the region of the brain that is responsible for anger and hypothalamic-pituitary-adrenal (HPA) axis, an intricate, yet robust, neuroendocrine mechanism that mediates the effects of stressors by regulating numerous physiological processes, such as metabolism, immune responses, and the autonomic nervous system (ANS), is yet to be explored. Also, these results might have been more accurate if there would be a screening process for personality. For instance, if a subject is high on Neuroticism, a personality trait which increases the likelihood of experiencing negative emotions, he or she would perhaps be given a more intense psychological or musical intervention.

Another thing to mention is that this study is very time consuming. It will minimum 21 to 90 days for others to acknowledge the change in the emotional, mental and physical systems of the subject. This study fails to establish the role of the control group. If control group would have been a part of the study, then a more exact understanding of the extent to which music intervention is affecting stress and anger levels, would have taken place.

This study does not cover different age groups such as geriatric population, children population and middle-aged population.

### ***Suggestions for further study***

More research is needed in this study, specifically involving a control group so that it can be understood that to what extent this musical intervention actually is affecting anger and stress levels. A different kind of musical intervention such as rock music can be used in order to explore other outcomes. For instance, Raag Charukeshi is used for meditation purposes because it settles you down due to certain combinations of Surs. It is also a Raag that injects pathos. So, if such kind of Raag is used for intervention, more varied outcomes will be witnessed.

This study can also be altered according to the age groups, gender, background of the subject etc. Research says that women experience twice as much stress than men. It also states that men are more tolerant than women. When it comes to anger, both men and women experience anger in equal intensity and frequency. So accordingly, this study can implement a screening process and use different scales and musical intervention.

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### **Acknowledgement**

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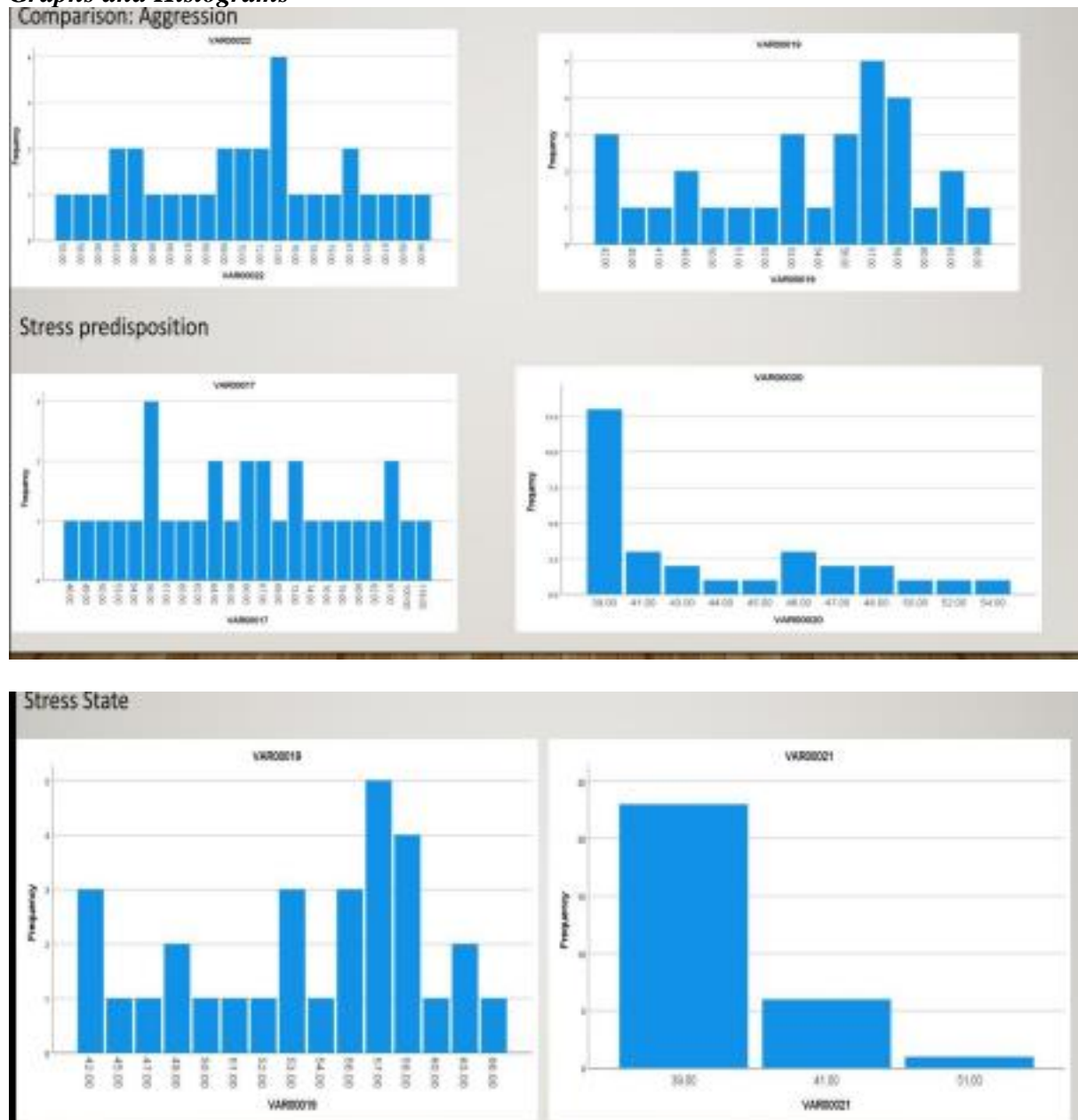
### **Conflict of Interest**

The author(s) declared no conflict of interest.

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**APPENDIX C**

**Graphs and Histograms**





## The Effect of Music Intervention on The Stress and Anger Levels of College Going Subjects

