

The Effect of Music on Perceived Stress

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Abstract

Background: The purpose of this study was to examine the effect of music on perceived stress among college students. This topic is a popular research topic as it has been seen that students prefer listening to music as a means to relieve stress they may be experiencing, as they believe it has stress-relieving effects. This study focuses on students' scores on a stress scale survey while in silence and while listening to music.

Objective: This study aims to research mindfulness and hobbies and the benefits obtained by those who practice them in hopes of discovering if the two can be interchangeable when seeking self-help, stress reduction, and personal development.

Design and Method: This study was designed to examine/investigate the effects of music on perceived stress among college students. Using a 1x 1 experimental design, where there were 30 participants, (13 males, 17 females). The participants were given a survey to complete in order to measure their perceived stress. Half of the participants listened to '90s alternative music for 10 minutes prior to taking the stress scale, whereas the other half did not listen to music. There was a main effect found between music and perceived stress. There was a significant finding in the effects of music on perceived stress. The main research questions are: *What are the effects of music on perceived stress? How does music influence factors such as academic performance among college students?*

Results: There was a significant finding in the effects of music on perceived stress. Stress is important to examine among college students as it is something that most people will experience at some point and they should know ways to handle it. As for music, it has been shown that those who listened to music prior to taking the stress scale received lower stress scale scores than those who did not.

Conclusions: The results demonstrate that listening to music provides students with stress relief. The hypothesis was proven to be correct in that students who listened to music for a few minutes prior to filling out the stress scale survey received significantly lower stress scale scores compared to those who remained in silence. This shows that music has a greater influence on stress than many may think, and with stress being so prominent among students' music is a tool that should be used by many if it happens to provide relief.

Keywords: *Music, Stress, Study, Performance, Experimental*

Chapter 1: Introduction

Background and Overview

The purpose of this study was to examine the effect of music on perceived stress among college students. The independent variable in an experiment that could be conducted is music, as that is the variable in the study which is believed to be the cause of the effect to the dependent variable, which in this case is perceived stress. This topic is a popular research topic as it has been seen that students prefer listening to music as a means to relieve stress they may be experiencing, as they believe it has stress-relieving effects. This paper focuses on studies that focuses on students' scores on a stress scale survey while in silence and while listening to music.

Empirical evidence supports the view that music listening has been suggested to beneficially impact health via stress-reducing effects (Thoma, Marca, Bronnimann, Finkel, Ehlert, & Nater, 2013). Music is a facet that has been used to help manage stress. Stress is a common occurrence in society, and if it is left unchecked it can lead to negatively impacting one's mental and physical well-being. It has been shown that music is a useful tool for relaxation and stress reduction (Satchel, 2015). Music is a key method used by therapists, psychologists, and psychiatrists as a therapeutic intervention (Aktan & Yazar, 2014). This is important because stress is something that all college students deal with and seeing ways in which music can affect this is important as it can help relieve it in some instances.

The aim of this study is to observe the effects music has on perceived stress, it is to find out if music is beneficial in relieving stress among college students. Research has discovered and confirmed that a large population of students listen to music as a means to relieve themselves of stress. Many students tend to feel peaceful and much more pleasant while listening to music, yet this varies among people. This study will explore what effect listening to music has on perceived

stress. After conducting investigating this study, I hope to use the results to figure out the best to go about relieving stress, and to see if my hypothesis was correct or incorrect, along with developing more specific interventions for stress.

Research Questions

This study will explore the following questions:

RQ#1: *What are the effects of music on perceived stress?*

RQ#2: *How can music be beneficial in relieving stress among college students?*

Definition of Key Terms

Music: *vocal or instrumental sounds (or both) combined in such a way as to produce beauty of form, harmony, and expression of emotion.*

Stress: *the body's response to physical, mental, or emotional pressure. Stress causes chemical changes in the body that can raise blood pressure, heart rate, and blood sugar levels. It may also lead to feelings of frustration, anxiety, anger, or depression.*

Study: *the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies, and understandings*

Performance: *the action or process of carrying out or accomplishing an action, task, or function.*

Experimental: *based on untested ideas or techniques and not yet established or finalized.*

Chapter 2: Literature Review

The article “The Effect of Music on the Human Stress Response,” by Thoma, Marca, Bronnimann, Finkel, Ehlert, and Nater examines the effect of music on the human stress response. Within the article, the authors provide some background knowledge in which they explain that music listening has been suggested to beneficially impact health through stress-reducing effects. However, the existing research available presents itself with a limited number of investigations and with errors in the reported findings available which may be a result from extraneous variable influences. The aim of this current study was to address this gap in knowledge and to overcome the errors within the reported finding by thoroughly examining the effects music has within endocrine, autonomic, cognitive, and emotional domains of the human stress response. Within the article the authors explain how prolonged experiences of stress have to deal with poor individual health, and come with financial costs for society. Due to this, the development of cost-effective stress prevention or stress management methods has become something important and focused on by numerous research efforts. The authors make it known that music has been proven and shown in past findings to be beneficial relating to stress-related physiological, cognitive, and emotional processes. Such findings show that through simply listening to music one can have a stress-related intervention tool free of cost. To conclude their article, the authors state “our findings indicate that music listening impacted the psychobiological stress system. Listening to music prior to a standardized stressor predominantly affected the autonomic nervous system...these findings may help better understanding the beneficial effects of music on the human body (Thoma et al., 2013, p.1).

The article “A Closer Look at the Interaction between Music, Personality and Its’ Effect on Individuals’ Stress,” by Kristen M. Satchel examines the relationship between music and

personality, along with the effects it has on an individuals' stress. Within the article, the author discusses how stress is a common occurrence in society, and if not dealt with it can lead to dangerous situations whether negatively impacting an individuals' physical or mental well-being. The author explains that music is a tool that has been used by people to help manage stress, yet differences in main personality traits have been shown to be linked to the differences in the use of music as well. As explained, the strongest association that can be seen between both personality and music use is its positive correlation between Neuroticism and emotional use of music, this shows that less emotionally stable individuals appear to show greater music sensitivity. The purpose of this research is to determine what genres of music control/maintain stress throughout the different Big Five personality traits. The author hypothesized that those who identified with the personality trait Openness and Conscientiousness would report lower amounts of perceived stress, whereas those who identified with traits of Neuroticism and Extraversion would report higher levels of perceived stress. The author concludes her research by explaining that her hypothesis were substantiated and by stated "with music being used as a universal tool for a multitude of activities among students, including studying, homework, physical exercise, and casual reading it is essential know which music genre is more suitable for an individual to experience less stress while trying to complete a task" (Satchel, 2015, p.12).

The article "A Study on Perceived Stress of University Students: Whether Reed Music Reduces Stress," by Aktan and Yazar examines whether or not reed music has a reduction effect on stress. Within the article the authors discuss how music is a key method that is used by therapists, psychologists, and psychiatrists as a therapeutic intervention for numerous patients they may have. They discuss how their current study aims to analyze the effects of listening to reed music on the perceived stress level of university students by initially examining countless

theories of stress in detail. As they explain, stress has been one of the most significant subjects within the study of psychology, and numerous studies have been conducted for many years in order to find out the main reasons for stress. Within their experiment, the authors gathered 49 psychology students to evaluate the stress levels of participants, in which the Perceived Stress Scale was used in both the pre-test and post-test procedure. According to the pre-test scores, participants were equally matched and split into three groups such as two control groups and one experimental group. In which, the experimental group attended six reed music sessions during the span of three weeks, and results indicated that reed music may influence perceived stress. The authors conclude their experiments by explaining that this current work was aimed to examine whether listening to reed music reduces the perceived stress levels of university students. In which, their findings indicated that there was a significant difference between the pre- and post-test scores of the experimental group, whereas there was no significant difference between the pre and post PSS scores of the control group. What this means is that the results show that listening to reed music reduced the perceived stress levels of the participants, and the first hypothesis of the current work was supported by the results that were obtained. As the authors conclude they state “further research may also focus on this difference in a more frequent period by using a scale which can measure the stress level of participants after each session...this analysis may also help to examine the question of how many reed music sessions are enough in order to reduce stress” (Aktan & Yazar, 2014, p.76).

The article “The effects of music listening on pain and stress in the daily life of patients with fibromyalgia syndrome,” by Linnemann, Kappert, Fischer, Doerr, Strahler, and Nater examines the effects listening to music has on pain and stress in the daily life of patients with fibromyalgia. Within the article the authors explain that listening to music is associated with both

pain and stress-reducing effects, yet the effects of listening to music in daily life remain understudied, along with underlying health-beneficial effects of listening to music. The authors proceed to explain that they examined the effects of listening to music on pain and stress in the daily life of a sample of women with fibromyalgia and investigated whether a potentially pain-reducing effect of music listening was mediated by biological stress-responsive systems. The authors explain in the article that the effects of music listening on perceived control over pain were not shown by markers of stress-responsive systems, and that music listening in daily life improved the perceived control over pain in female patients. In addition, clinicians that use music therapy should become aware of the potential role of music listening in daily life, as it has the potential to improve symptom control in chronic pain patients. The authors believe that it might be necessary to use more intensive engagement with music in order to study the role of underlying biological mechanisms. As stated within the conclusion, “we were able to show that mere music listening in daily life has beneficially effects on control over pain. It seems to be relevant why one listens to music as in our study, listening to music for the reason of ‘activation’ or ‘relaxation’ predicted successful pain coping” (Linnemann, Kappert, Fischer, Doerr, Strahler, & Nater, 2015, p.1).

The article “The effects of music listening after a stressful task on immune functions, neuroendocrine responses, and emotional states in college students,” by Hirokawa, and Ohira examine the effects of listening to high-uplifting or low-uplifting music after a stressful task on immune functions, neuroendocrine responses, and emotional states in college students. Within the article the authors discuss that subjects of study performed stressful tasks before they experienced the experimental conditions which were high-uplifting music, low-uplifting music, and silence. They explain that the results indicated that low-uplifting music has a trend of

increasing a sense of well-being whereas high-uplifting music showed trends of increasing the norepinephrine level, liveliness, and decreasing depression. The authors make known that the results of the study were seen to be inconclusive, but that high-uplifting and low-uplifting music had different effects on immune, neuroendocrine, and psychological responses, along with the fact that classification of music is significant to research that looks at the effects of music on these responses. The authors conclude their research by explaining that the effects of music listening after a stressful task on a variety of immune functions and emotional states were examined, and results indicated that the two types of music had various effects. The author state “this study was an exploratory study to investigate effects of music after a stressful task on psychological and physiological states...it has limitations that need to be addressed in future research” (Hirokawa & Hideki, 2003, p.3).

Chapter 3: Methods

The study used articles that contained experimental designs. The design of this study is descriptive. I chose this design because based on studies observed there was 1 independent variable which was music and the studies involved each subject going through similar conditions. Employing this research design represents an innovation in the field. The design I chose represents the most appropriate approach for this project because there were two stimuli/variable involved in the experiment, and the conditions were kept constant in order to keep the extraneous variables away. This research design is based on scholarly journal articles, notable media sources, and affiliated websites. Most of this research was acquired through Purchase Colleges' online database, as well as google and google scholar.

I selected the following questions to guide my research:

RQ#1: *What are the effects of music on perceived stress?*

RQ#2: *How can music be beneficial in relieving stress among college students?*

I used specific terms to gather information from academic articles, and books. These search keywords included: *Music, Stress, Perceived Stress, Stress Among College Students, Stress and Music, Effects of Music on Stress, Effects of Music on Stress Among College Students, Perceived Stress Effects on College Students, etc.* After finding the necessary articles, I placed them all aside in separate tabs, and printed physical copies in order to take proper notes to get my research together.

Chapter 4: Results

This study's research question is answered by citing an experimental design by Thoma et al. (2013), with music as the independent variables in the study. A one-way ANOVA was used to determine if there were any significant effects from the variables of the study.

Experimental conditions

Thoma et al.'s study shows that there is an overall range of stress scores were from 1-40. To test the hypothesis that music affects perceived stress, a 1 (music) x 1 (stress) experimental design, a between-subjects' one-way ANOVA was performed (2013, p. 5). An alpha level of .05 was used for all statistical tests. Participants who listened to music prior to taking the stress scale indicated lower levels of stress compared to those who didn't. There was a significant difference between the stress scale scores of the group of participants who listened to music and the group that didn't. As predicted those who listened to music prior to the stress scale had lower stress scores ($M=19.7$, $SD=.62$) than those who did not listen to music ($M=28.1$, $SD=.99$). This produced a significant main effect between groups, with $F(1, 28) = 50.98$, $p < .001$.

Possible Interaction Between Your independent variable

The results of this analysis show that there was a significant interaction between the independent variable music, $F=50.978$ and $p < .001$. The analysis of the data for independent variable of music supported the hypotheses of the experiment.

Limitations

As with all studies, there were limitations that may have weakened the Thoma et al.'s (2013) study and may account for unexpected findings. The participants came from a convenience sample that consisted of mostly college juniors and seniors, all native English speakers. Both of these factors limit the ability of the present study to generalize other

populations, specifically adolescent groups. In regard to future studies in order to get rid of this limitation, this study should be open to being more generalized. In which people of all age groups should be able to participate, it would be interesting to test out the effects of music on stress on the youth, adolescents, adults, along with the elderly. In addition, it could be open to anyone regardless if they are a native English speaker or not.

Despite the limitations of the study, there were strengths that should be noted. The demographic questions were short and straightforward, allowing the participants to go about completing them with ease. The demographic questions gave a good insight on the music genre preferences of participants along with how many hours per day they spending listening to music in general. In addition, stress scale survey questions were straightforward and to the point making it easy for participants to complete, as the format was simple as well. Along with this, the stress scale survey is very common and used by many researchers when conducting experiments that relate to examining effects on stress. What this means is the survey is reliable and provides valid results when measuring stress, as it is approved and used by many.

This study supports my hypotheses that music is shows to have a significant positive effect on stress. Although music listening has been shown to alleviate pain, it would appear to be a promising means of symptom reduction and health promotion, given that it is an activity of daily life that is popular, cost-effective, and easily accessible (Linnemann, Kappert, Fischer, Doerr, Strahler, & Nater, 2015). Stress is a persistent emotion that can affect mental and physical health, making it vital to identify multiple ways to overcome stress. Stress is an overwhelming feeling that many college students face at one point in their school life, and finding a means to relieve that stress can have very significant effects; in this case, such a means is music.

Chapter 5: Discussion

This study aimed to examine the effect of music on perceived stress among college students. Many factors cause the way we process and handle stress, but there are ways in which we can ease our stress. There was a statistically significant finding when looking at the effects of music on perceived stress. Other scholars' research projects supported my hypotheses. In terms of the participants in the experimental group would have lower stress scale scores than the participants in the control group. The fifteen participants who were subject to listening to music for roughly ten minutes prior to taking the stress scale survey received significantly lower stress scale scores than the other fifteen who remained in silence and immediately completed the survey following the demographic questions. It has been found that music affects stress-related physiological, cognitive, and emotional processes beneficially. Thus, the use of listening to music as a non-invasive and highly accepted intervention tool has received special interest in the management of stress and stress-related health issues (Thoma, Marca, Bronnimann, Finkel, Ehlert, & Nater, 2013).

Listening to music can be used to alleviate the emotional effects of stress and anxiety; when a person is engaging in activities that call for cognitive processing, such as studying for a test, completing homework assignments, or reading and writing (Satchel, 2015). More research is to be done on examining and measuring the effects of music on perceived stress among college students. Such extensive research can relate to the various genres of music and whether a specific genre, in particular, can appear to have a more significant influence on stress relief than others. In addition, research can be performed on examining whether up-beat or low-beat music has differing influences on the effects of stress among students. It is interesting to see how listening to people on a daily basis can ease their stress levels and how this means can be put to use by

college students everywhere. There are significant benefits that can be seen when looking at the effect of music on stress. These benefits are that music has been shown to relieve stress among individuals resulting in lower overall stress scores.

The results demonstrate that listening to music provides students with stress relief. Furthermore, the hypothesis was proven correct in that students who listened to music for a few minutes prior to filling out the stress scale survey received significantly lower stress scale scores than those who remained in silence. This relief shows that music has a more significant influence on stress than many may think, and with stress being so prominent among students, music is a tool that many should use if it happens to provide relief.

As with all studies, some limitations may have weakened this study and may account for unexpected findings. The participants came from a convenience sample consisting primarily of college juniors and seniors, all native English speakers. Both of these factors limit the ability of the present study to generalize other populations, specifically adolescent groups. Regarding future studies, to get rid of this limitation, this study should be open to being more generalized. People of all age groups should be able to participate; it would be interesting to test out the effects of music on stress on the youth, adolescents, adults, and the elderly. In addition, it could be open to anyone regardless if they are a native English speaker or not.

Despite the study's limitations, there were strengths that should be noted. First, the demographic questions were short and straightforward, allowing the participants to go about completing them with ease. The demographic questions gave a good insight on the music genre preferences of participants, along with how many hours per day they spent listening to music in general. In addition, stress scale survey questions were straightforward and to the point, making it easy for participants to complete, as the format was also simple. The stress scale survey is

widespread and used by many researchers when conducting experiments related to examining the effects of stress. This means that the survey is reliable and provides valid results when measuring stress, as it is approved and used by many.

In regard to future experiments, an area of extension would be broadening/expanding the experimental group rather than limiting it to college students. For example, researchers could investigate the effects of different genres of music on perceived stress on both males and females of different ages. It would be interesting to see the varying effects of different kinds of music on perceived stress and the differences among genders. In addition, it would be interesting to see the varying effects music has on stress relief among different age groups, whether from the youth to the elderly, along with examining the effects music has on stress in different environmental settings or circumstances as well. This study was designed to replicate past research and analyze the effects music has on perceived stress when looking at college students. The hypothesis that listening to music would result in lower stress scale scores was shown to be supported by the results.

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