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**The Effect of Music Therapy on Different  
Types of Pain, Stress, and Cardiac Function**

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## Abstract

Music therapy, also known as music intervention, have been proved on multiple occasions by numerous studies to have many beneficial effects on one's health and well being from many different aspects. In this report, results from a number of studies that have been dedicated to understand and determine the extent of those beneficial effects have been gathered and discussed. Each study had its own perspective, and studied the effect of music therapy on different stressors, on different age groups and health conditions, ranging from postoperative patients to healthy college students. The first study was concerned with understanding the exact beneficial effects of music therapy on postoperative cardiac surgery patients, which showed a significant improvement in noise annoyance, blood pressure and even heart rate after the implementation of music therapy. The second study was very similar to the first one, in that they studied the effect of music therapy as an analgesic for postoperative nasal surgery patients, which showed a noticeable decrease in postoperative pain, that lead to the decreased use of oral analgesics by the patients, a reduction in BP and HR was also noticed. The third study however, was more concerned with studying the effect of music on healthy individuals, which in this case were college students that have been exposed to a specific stressor, and the results were also similar to the first and second studies, in that all subjects showed a significant decrease in systolic blood pressure, heart rate and even an increase in IgA release. The fourth and last study was different in that they presented different types of music and assessed their effects on the cardiorespiratory autonomic function, which revealed an increase in HR, BP and ventilation when fast tempo music (fast paced music) was played, and a marked reduction in all three when slow, meditative music was played. Results from all sources support the claim that music therapy in indeed a beneficial non-pharmacological approach in improving the overall quality of life.

## Introduction

What is music therapy? According to the AMTA (American Music Therapy Association), music therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program. Utilization of music therapy comes in many forms, music therapy intervention can be designed to 1) *promote wellness*, 2) *manage stress*, 3) *alleviate pain*, 4) *express feelings and emotions*, 5) *enhance memory*, 6) *promote physical rehabilitation*, amongst many other uses. <sup>1</sup> **The aim of this report is to assess whether music therapy have that big of an impact on different stress related conditions, and to determine the extent of its effect on the quality of life.**

## Discussion

As it's name implies and as previously mentioned, music therapy is the use of music intervention in the clinical world, utilizing it to have beneficial effects, and also finding out what effects does it have on each state and condition is the main aim of this report, data from a number of different sources have been gathered, each source studied the effect of music intervention on a specific stressor, and/or on a certain age group or patients in a certain condition.

**The First Study** was concerned with understanding the effect of music intervention on noise annoyance, blood pressure, and heart rate in postoperative cardiac surgery patients. Noise annoyance is important because it stimulates the sympathetic nervous system and thus increase the (undesired) workload on the hearts of such patients. Method: (40) patients on postoperative day, were exposed to 15 minutes without music (baseline intervals), followed by 15 minutes with music (music intervals), and this cycle was repeated multiple times. Results: Subjects had lower noise annoyance during music intervention intervals than normal (baseline) times. Diastolic blood pressure decreased on the second music interval. There was also a noticeable decrease in heart rate and systolic blood pressure. Upon these results, it's safe to say that music intervention was proved to have beneficial effects on the overall wellbeing of the postoperative cardiac surgery patients, and its use should be further studied and maybe even implemented in the clinical field.<sup>2</sup>

**The Second Study** had almost the same aim as the first study, as it was concerned with assessing the effect of music therapy on postoperative pain, heart rate, systolic blood pressure and analgesic use following nasal surgery. Because the prevalence of unrelieved postoperative pain is high and may lead to adverse effects as prolonged hospitalization and others, another approach had to be found in order to try and alleviate such pain, and here is where music therapy came into play. Method: a number of fifty-seven patients (24 females, 33 males) with a mean age of 39.9 years, ranging from 15 to 69 years, were matched for age and sex and were non-selectively divided into two groups, experimental and control groups. Members of the experimental group were exposed to intermittent intervals of music during the first 24-hour postoperative period and pain intensity was measured throughout the 24 hours. Results: Significant decreases in pain

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intensity over time were found in the experimental group compared to the control group. In addition, the experimental group had a lower systolic blood pressure and heart rate, and took fewer oral analgesics for pain. The results of this study were almost identical to the first one, suggesting that music therapy is indeed effective in alleviating postoperative pain, as well as in improving the overall condition and mood of the patients.<sup>3</sup>

**The Third Study** however, was concerned with understanding the beneficial effects of music intervention on normal controls (healthy college students) to see if it had any effect on anxiety, stress, blood pressure and heart rate. Method: a number of (43) female and (33) male undergraduate students were exposed to a cognitive stressor task, involving preparation for an oral presentation. Measurement of subject's anxiety, HR, BP, cortisol and salivary IgA were obtained during rest and after presentation of the stressor. Stressor caused a significant increase in subjective anxiety, HR, systolic BP in both males and females. Results following music intervention: The stress induced increases were all prevented by exposure to relaxing music. Also this effect appeared to be independent of gender, as both females and males showed almost the same results. Music also enhanced baseline salivary IgA levels in the absence of any stress-induced effects. These results strongly suggest that music therapy might be an effective anxiolytic treatment.<sup>4</sup>

**The Fourth Study's** aim was to assess the potential clinical use, of different types of music and its effect on the cardiorespiratory autonomic function. Method: a number of (12) musicians and (12) non-musicians matched controls were exposed to a five-minute baseline, then presentation of 6 different types of music in a random order, with a randomly inserted two-minute pause. Results: Ventilation, heart rate and blood pressure increased with faster tempi (fast paced music), the pause reduced all three even below baseline. They concluded that music induces an arousal effect, predominantly related to the tempo. Slow or meditative music can induce a relaxing effect and relaxation is particularly evident during a pause.<sup>5</sup>

### **Conclusions and Recommendations**

Looking at the data and results provided by all four studies, we conclude that music therapy (music intervention) is indeed effective and provides many beneficial effects to improve the overall quality of life of the patient or even of a healthy individual who is under stress or suffering from anxiety. It is also important to note that different types of music have different effects, for instance, faster paced music (music with fast tempo) have an excitatory effect and causes a significant increase in HR, BP, ventilation and so on. However, slow (meditative) music, is shown to reduce all three and cause significant improvement in states of anxiety and stress. So overall, music therapy can be considered as a non-pharmacological treatment of anxiety, stress and pain. It is highly recommended that further studies should be done, and then the implementation of this therapeutic approach in our country, by providing the needed facilities, and the proper training of music therapy professionals.

### **Bibliography**

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