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Effectiveness of music therapy in managing sleep deprivation

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Abstract

Music Therapy is an effective rhythmic based intervention in different populations and bringing out positive results. Pressure and stress in terms of performing in this competitive world are responsible for hampering normal sleeping habits of people. Poor quality of sleep over an extended period of time leads to occurrence of health issues like diabetes. Musical intervention can be operated easily and provision of preference-based music activities are possible. Current musical interventions are focusing on both long lasting and immediate outcomes to enhance sleep quality among individuals. Drawing upon findings from multiple studies and reviews, this particular paper is illustrating the strength of music therapy as a non-medicine approach towards improving sleep quality of people. Medication provided to cure sleep deprivation often shows negative effects such as prolonged headache and nausea. Hence, it is identified that music therapy is an appropriate measure towards curing sleep deprivation.

Keywords: Music therapy, sleep deprivation, non-medicine, sleep quality

Introduction

Integration of Music Therapy in treating sleep deprivation is an initiative that is a non-drug approach. Soothing music plays a key role in helping people to relax. Music also accounts for an effective way of treating people suffering from sleep trouble like insomnia. This accounts for the role music plays in managing the stress of individuals. Playing soft music before going to bed helps reduce the time to fall asleep. It is also responsible for improving sleep quality. This study aims to illuminate the effectiveness of Music therapy in tackling sleep deprivation using diverse papers from multiple studies.

The Concept of Music Therapy and Sleep Deprivation

Music therapy is identified as a Nonpharmacologic pain therapy that helps in managing the stress level of chronically ill patients. Music therapy accounts as an effective measure to cure patients suffering from primary-level insomnia. In many cases, chronic illnesses lead to physiological outcomes such as stress, and anxiety and create the need for interventions. Musical intervention is a therapeutic process that includes an effective interaction developed through music experience. There are different factors responsible for sleep deprivation such as age-associated changes, stress, and even lifestyle. Disruption of natural sleep patterns can lead to sleep deprivation. It can occur irrespective of the age, or gender of an individual. In many cases, the consumption of a certain medicine to tackle a health issue can lead to an increase in total sleep time. This type of disruption in the natural sleep pattern leads to disruption of circadian rhythm thus impacting the sleep cycle. Single musical interventions help in improving short-term quality identified in postoperative elderly patients (Kim *et al.* 2020) [15]. The study which conducted music therapy on 133 elderly patients used a random sample technique to divide patients. The overall process identified the effectiveness of music therapy in managing sleep deprivation in people, in this case, elderly people have been considered. Environmental factors, unfamiliar surroundings, and personal factors such as stress are responsible for causing sleep deprivation.

Comparing the application of Music Therapy in Stress Management for Adults and Adolescents

Music therapy is responsible for intervening in issues that are troubling the sleep cycle. Research on nursing students helped to evaluate the socio-demographic characteristics of students (Kavurmaci *et al.* 2020) [14]. The study emphasized determining the impact of music

therapy on improving sleep quality of students. The use of Pittsburgh Sleep Quality Index comprised 24 questions that measured attributes such as sleep latency, sleep quality, and sleep duration. Effective analysis of these values helps in determining the positive impact of relaxing time in enhancing the overall sleep quality of adolescents. The positive outcome of music therapy in changing sleep quality accounted for music as a sedative for curing sleep deprivation in adults. The utilization of music therapy as a preventive measure highlighted its role in the regulation of emotion and reducing stress as well (Aalbers *et al.* 2020) ^[1]. This intervention as identified in this research uses an active and receptive method to decrease anxiety symptoms in adults. However, the combined effect of music therapy with virtual reality is responsible for providing a better relaxation experience (Cabezas *et al.* 2021) ^[3]. This experience which was carried out on University students highlighted an effective performance of decreasing up to 50% stress. It is suggested that since musical intervention is possible in diverse settings such as hospitals, schools, and clinics, its administration accounts quite conveniently (Shen, 2024) ^[24]. Soft music serves as a valuable aid in combating sleep deprivation. Since it has no side effects unlike medication, it accounts as an effective measure to combat sleep deprivation for adults. The use of group music therapy for adolescents helps to make them understand the importance of interpersonal relationships while managing physical pain (Wiess *et al.*, 2020) ^[28]. This particular research took insights from the 2005 disengagement that occurred in Israel to broaden the significance of music therapy in improving quality of life as well. Research reflected on the effectiveness of music therapy in decreasing depressive symptoms (Aalbers *et al.* 2020) ^[1]. Adolescents often fail to express thoughts verbally, and thus the inclusion of music therapy helps in bringing changes. In the case of adults, music therapy is mainly responsible for treating sleep disturbances. Hence, it is convenient to imply that music therapy primarily treats deprivation in the case of adults, however, in the case of adolescents it is responsible for improving personal relations. The same therapeutic approach is accountable for enhancing the quality of life from different perspectives.

Place of residence, or age of the individual accounts as an essential attribute in determining sleep cycle. Research mentioned the use of quantitative analysis and a qualitative analysis technique to determine the association of aspects such as internet addiction, anxiety, and depressive symptoms with sleeping habits (Sharma *et al.*, 2020) ^[23]. It is convenient to regard that the ongoing emotional aspect of an individual determines mental health status and also determines sleeping habits. Studies mentioned the application of group music therapy for teenagers which also ensures a meaningful intrapersonal and interpersonal experience (Rooyen *et al.*, 2020) ^[26]. As teenagers experience growth in relationships, it also reflects on the development of perspectives in terms of social relationships and the importance of establishing connections within society. Engaging in group music therapy is responsible for improving intrapersonal relations of teenagers and thus improving coping mechanisms as well. Increased level of self-satisfaction improves behavior, including sleeping behavior. Studies also mentioned the requirement of music therapy in tackling sleep in the post-COVID time (Kalko *et al.* 2021) ^[13]. As the habits and lifestyles of adults are changing predominately in the post-lockdown era, it is

essential to incorporate non-drug therapy to intervene with sleep troubles.

Hence, it is convenient to consider that the application of music therapy in managing stress levels for adults and adolescents is positively impactful.

Music Therapy as a Tool to Manage Sleep trouble of Adults and Elderly Person

Music therapy plays a crucial role in managing stress in people. In the competitive world, one of the key factors responsible for influencing the sleeping habits of people is stress. Research implies that music therapy is a “natural tranquilizer” to uplift the human spirit (Deore, 2021) ^[4]. Since this is a non-drug intervention, there is no chance of harmful side effects which is possible in the case of the use of drugs to treat sleep deprivation. Musical intervention accounts for an effective strategy to put the mind at ease and relax muscles. Music is responsible for promoting sleep by mitigating negative physiological outcomes such as stress (Jha *et al.* 2021) ^[12]. Music therapy is a device to induce sleep among elderly patients. The sleeping hour varies concerning the age and activities a person is involved in. Psychiatric ailments such as anxiety, and depression accounted as reasons behind hampering sleep quality (Wang *et al.* 2021) ^[27]. The study identified pharmacological treatment as an effective measure of this approach. This short-term intervention often results in creating dependence for long-term use. Proper sleep is necessary to maintain immunity and also contribute to physical and emotional well-being. Music therapy is identified as a complementary approach to improve sleep quality (Kalko *et al.* 2021) ^[13]. The research even identified musical intervention as a significant measure to reduce fear and anxiety-related disorders which are responsible for negatively affecting sleep quality.

In comparison to teenagers and young adults, the prevalence of sleep deprivation is significantly high in elders. Clinical effectiveness of music intervention in curing an elderly person (Baker *et al.* 2022) ^[2]. The effectiveness of music in curing depressive symptoms is responsible for enhancing sleep quality. It has been identified that the effectiveness of group music therapy in the emotional wellness of people is predominant (Teich, 2020) ^[25]. The study identified the positive impact of group musical therapy which highlighted the potential to eliminate the hierarchy of power and encourage positive interactions among people. This is an interactive way to offer therapy to more people and also improve their communication aspect. The immense application of music therapy in managing sleep deprivation also lies in the fact that it is a cost-effective measurement (Loewy, 2020) ^[16]. The application of music therapy as a potential stimulator for curing sleep-related issues from ancient to current times helps in increasing resilience and maintaining wellness (Loewy, 2020) ^[16]. Since it is a no-drug intervention it helps in saving both money and protects people from getting any addiction. The use of music in reducing workplace stress and ultimately improving sleep quality became evident with time (Finnerty *et al.* 2022) ^[7]. This research used 2210 articles from diverse sources and reflected on the self-facilitated part of music therapy. Music interventions work in mood dimensions and help to manage workplace stress in the case of adults. Stress plays a key role in disrupting sleeping patterns. The immense benefit of the application of mixed music therapy for adults with COPD is

identified through studies (Huang *et al.* 2021) [11]. This study evaluated the benefits of music therapy in relieving anxiety, and depression and thus improving sleep quality. Hence, effective inclusion of music therapy in a well-designed format helps in handling sleep deprivation.

Boundaries between Insomnia and Sleep Deprivation

The aspect of sleep deprivation is often associated with anxiety, onset of depression, and even insomnia. Sleep deprivation is often associated with poor response to anti-depression medicine (Rahmani *et al.* 2020) [20]. It is accounted as an impact of drugs which leads to breaking off the sleep cycle. On the other hand, insomnia is identified as difficulty in regulating the sleep clock. Insomnia accounts for a predominant characteristic of early onset of depression. In many circumstances, anti-depressant medications are suggested, which often triggers sleep deprivation. Insomnia and sleep deprivation are identified as chronic factors contributing to the tremendous state of sleep loss (Palagini *et al.* 2021) [18]. This study even emphasized the fact that insomnia and sleep disturbances are responsible for creating pathways to Neurodegeneration. Alterations are identified in central nervous system functioning resulting from mild sleep deprivation (Riemann *et al.* 2020) [21]. Both chronic sleep deprivation and insomnia can lead to the occurrence of depression. Identification of early symptoms of insomnia and sleep deprivation is a necessary measure to control it (Perlis *et al.* 2022) [19]. The paper shed light on the treatment responses and impact of medication as well. Occurrences of metabolic dysfunction resulting due to insomnia and sleep deprivation (Duan *et al.* 2023) [6]. Dissatisfaction with sleep quality and quantity is responsible for impairment in social, behavioral, occupational, and even education-related functioning. Occurrence of "Alzheimer's disease" is possible due to insomnia (Sadeghmousavi *et al.* 2020) [22]. The prolonged prevalence of this sleeping disorder results in serious consequences. The incorporation of medicine-free techniques such as medicine can help in reducing challenges related to insomnia and sleep deprivation.

Theoretical framework: Sleep Theory

The application of Social Learning Theory identifies the inculcation of behavior in individuals based on past experiences. In terms of an exhibition of basic emotions such as sadness or happiness influence from life activities and situations such as hunger, thirst, or sleep is prevalent (Gattino, 2021) [9]. Social learning theory implies the influence of the external environment in building the social skills of people and also their behavior. The Free Radical Flux theory of Sleep states the accumulation of free radicals in the brain when an individual is awake and removes them during sleep (Hill *et al.* 2020) [11]. It is identified from this theory that the sleep-wake cycle is an obvious psychological manifestation responsible for regulation of healthy lifestyles of people.) The adaptive theory of sleep, emphasizes energy restoration possible from sleep (Freiberg, 2020) [8]. This theory used the tendency of animals to go to hide to avoid danger. As they utilized this period to replenish energy, the author implied the role sleep plays in repairing bodies through a period of sleep. However, since the adaptive theory of sleep is a testable approach, its true evolutionary purpose is yet to be determined.

Summary

Each process and section explain the impact of sleep

deprivation on behavior outcomes and influences the quality of life. Sleep deprivation occurs for multiple reasons such as stress, the consequence of prolonged consumption of a certain medicine, and even lifestyle. Different articles reflected the factors responsible for the occurrence of sleep deprivation. The contrast of situations identified before and after the pandemic shed light on the difference in lifestyle and stress-related issues as well. Incorporation of music therapy accounts as the most effective measure to deal with this sleep trouble. Music therapy is an initiative that does not require any medicine. This makes the approach ideal for treating sleep trouble of people irrespective of gender, race, and age.

Discussion

Data from varied data sources reflected the immense benefit of incorporating music therapy in curing sleep deprivation. Music helps in managing stress which accounts for an important factor in terms of creating trouble in sleep. The issue of sleep deprivation is not limited to age or gender. In the extremely competitive world, stress and anxiety are increasing among people, which are also responsible for sleep deprivation. It is identified from the study that factors responsible for sleep deprivation are mostly chronic illness, stress in life, and as a consequence of operation. As identified from the study, the use of music therapy to cure sleep deprivation among adults is quite prevalent. Also, in the case of elderly people, music therapy not only helps in curing sleep deprivation but also helps in handling chronic pain resulting from illness or after a long operation procedure. The use of music therapy for adolescents covers diverse areas. It helps in building patience, managing mood disorders, and helps in developing a proper sleep routine. One of the significant limitations of this study is that it uses information available from secondary databases only. It does not use any raw score data to analyze the effectiveness of music therapy in curing sleep deprivation. In case of further research, primary data should be used.

Conclusion

Music therapy is a cost-effective and less negative consequence-based approach to cure sleep deprivation. It has been accounted as an effective measure to treat sleep deprivation and other sleep-related disorders of people irrespective of gender, and age. The main proposition reached from this study are:

- Music therapy is a cost-effective initiative that can control sleep deprivation from an early stage.
- Since it has no negative side effects, this approach is readily applicable to people who are suffering from other chronic diseases such as cancer.
- It is a no-medicine approach, occurrence of any other complication from consumption of drugs is not possible.
- It is an individualistic as well as group approach.

Stress, occupational hazards, and consumption of drugs to cure depression are some attributes identified in the study of sleep deprivation. However, this is not a unique problem. To manage complications related to sleep deprivation, it is important to identify the factors responsible for it. Music helps in curing sadness and even uplifts mood. Thus, the incorporation of music therapy in managing sleep deprivation accounts for an effective approach.

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