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**THE EFFECTIVENESS OF MUSIC THERAPY IN PATIENTS WITH STRESS-RELATED ANXIETY, SURGICAL PROCEDURES AND OTHER RELATED DISEASES**

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**KEYWORDS**

anxiety, music therapy, music intervention.

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**ABSTRACT**

The purpose of this research is to know the mechanism and the relationship between listening to music and overcoming anxiety. This literature writing uses the literature review method by searching the literature using the keywords Anxiety, Music therapy and Music Intervention in several databases that published within the last 10 years. All types of research related to anxiety and music therapy with human samples were included and studies with abstracts only, studies with animal research subjects and studies that did not report results in English were excluded. Analisis data tidak dilakukan pada penelitian ini. After the appropriate literature is found, the writing of the literature manuscript begins. The results of this study explain that one of the psychological interventions that can be done is music therapy. Music therapy is stated to be effective in reducing the level of anxiety in patients with anxiety, beneficial in reducing anxietas due to work, hospital procedures such as surgery and cancer.

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**INTRODUCTION**

Anxiety is an emotional state characterized by stress, nervousness, worry, fear and unpleasant feelings that can have an impact on health problems, daily life, cognitive processes, attention and emotions (Jiménez-Jiménez et al., 2013); (Panteleeva et al., 2018). Anxiety can occur in all ages and is one of the most common mental illnesses in the general population. Based on data from the World Health Organization (WHO), in 2019, there were 301 million people experiencing anxiety, of which 58 million were children and adolescents. This figure then increased by 26% in 2020 due to the Coronavirus Disease (COVID)-19 (Organization, 2022). Previous research stated that Indonesia has the highest prevalence of anxiety in Southeast Asia, which is around 53.09%, followed by Malaysia and Thailand (Tay et al., 2022).

The interaction of biopsychosocial factors such as genetics, brain biology and chemistry, stress and the environment can cause anxiety. Individuals with certain physical health conditions are at risk of experiencing anxiety (Chand et al., 2021); (MedlinePlus, 2020). Certain physical health conditions, such as illness or illness, can contribute to anxiety. This situation requires a non-pharmacological therapeutic approach to relieve the anxiety (Krishnaswamy & Nair, 2016). Guidelines from the National Institute for Health and Clinical Excellence say psychological treatment must be the first line in treating anxiety (Panteleeva et al., 2018). Listening to music makes it possible to compensate for unpleasant symptoms from negative psychological processes of anxiety, one of which is caused by a person's physical condition or health (Parada-Cabaleiro et al., 2021).

Several states of anxiety at the time of surgery were strongly correlated with a high incidence of postoperative pain, an increased need for analgesics and anaesthetics and a longer recovery, so therapy is needed to help relieve anxiety. According to the National Association for Music Therapy, music therapy consists of using music to achieve therapeutic goals such as restoring, maintaining and improving both physical and mental health (Jiménez-Jiménez et al., 2013). In other circumstances, such as in critically ill patients, it turns out that music therapy can consistently be associated with reduced anxiety about the illness they are suffering from (Umbrello et al., 2019).

Music has been used in various medical fields to meet a patient's physiological, psychological and spiritual needs. Listening to music is said to trigger the limbic system in the brain to release endorphins which can increase feelings of calm, happiness, and well-being (Bradt et al., 2013). A study by Witte et al. showed that music interventions could effectively reduce stress while providing evidence that music interventions can reduce anxiety in medical and mental healthcare practices (De Witte et al., 2020). The high number of cases of anxiety in society is a burden to the health system and various therapies have been used to treat anxiety. The effects of listening to music have often been discussed. However, the empirical evidence and theoretical mechanisms underlying them are still controversial. Therefore, writing this literature is done to know the mechanism and the relationship between listening to music and overcoming anxiety.

## **METHODS**

The method of writing this study is a literature review → type of research A literature search regarding the effectiveness of music therapy in patients with stress-related anxiety, surgical procedures and other diseases was carried out with the keywords Anxiety, Music therapy and Music Intervention in several databases such as Pubmed, Google Scholar, Medline, Ebsco, Hindawi, Science Direct and Cochrane which published within the last 10 years. All types of research related to anxiety and music therapy with human samples were included. The exclusion criteria for this study were studies with abstracts only, studies with animal research subjects and studies that did not report results in English After the appropriate research is found, this research does not carry out data analysis and literature writing is carried out according to a predetermined format

## **RESULTS AND DISCUSSION**

### **Anxiety**

Mental health is now a concern worldwide, and one of the mental health concerns is anxiety due to COVID-19 (Tay et al., 2022). Anxiety is one of the most common psychiatric disorders that have symptoms of an emotional state characterized by stress, nervousness, worry, fear and unpleasant feelings that can have an impact on health problems, daily life, cognitive processes, attention and emotions (Chand et al., 2021); (Jiménez-Jiménez et al., 2013); (Panteleeva et al., 2018). Other sources state that anxiety is an emotional state characterized by tension, worry, fear and physical changes, such as rapid heartbeat, shortness of breath, nausea and vomiting that occur as a reaction to stress (Lu et al., 2021). Based on WHO data, in 2019, there were 301 million people experiencing anxiety, of which 58 million were children and adolescents. This figure then increased by 26% in 2020 due to COVID-19, and anxiety can occur in all ages (Organization, 2022). Indonesia has the highest anxiety prevalence in Southeast Asia, around 53.09%, followed by Malaysia and Thailand (Tay et al., 2022).

The mechanism of anxiety is related to the central nervous system, such as norepinephrine, serotonin, dopamine and Gamma-Aminobutyric Acid (GABA). The autonomic nervous system mediates most of the symptoms, especially the sympathetic nervous system. The amygdala plays an

essential role in dampening fear and anxiety. Patients with anxiety have been found to display an increased amygdala response to anxiety cues. Structures of the amygdala and limbic system are also connected to prefrontal cortex areas, and prefrontal limbic activation abnormalities can be reversed by psychological intervention (Chand et al., 2021).

The interaction of biopsychosocial factors such as genetics, brain biology and chemistry, stress and the environment can cause anxiety. Individuals with certain physical health conditions also risk experiencing anxiety (Chand et al., 2021); (MedlinePlus, 2020). Certain physical health conditions, in this case, illness or illness such as patients who are about to undergo surgery, patients who are going to undergo prostate biopsies and patients who have experienced burns, can also contribute to anxiety (Kabuk et al., 2022); (Krishnaswamy & Nair, 2016); (Lee et al., 2023).

### **Music Therapy**

Music therapy can be described as a systematic intervention process in which therapists help patients to improve their health by using music (Stegemann et al., 2019). Music therapy is believed to have a therapeutic effect, which can reduce pain and anxiety (Krishnaswamy & Nair, 2016). Music is also used in various medical fields to meet a patient's physiological, psychological and spiritual needs. Listening to music is said to trigger the limbic system in the brain to release endorphins which can increase feelings of calm, happiness, and well-being (Bradt et al., 2013). The advantages of using music therapy are relatively low cost, no side effects and significant benefits in reducing stress, so it is essential to prevent and treat psychological problems caused by cancer and its diagnosis (Eseadi & Ngwu, 2023).

Music can be used therapeutically as a perceptual stimulus, exerting its effects through entrainment through synchronizing cardiovascular rhythms to achieve relaxation. This music therapy can also reduce the activity of the sympathetic nervous system. This response causes decreased adrenergic activity and can produce altered states of consciousness and decreased neuromuscular arousal. This relaxation response is a physiological indicator of the relaxation response with decreased heart rate, blood pressure, respiratory rate, metabolic rate, oxygen consumption, skeletal muscle tension, epinephrine level, gastric acidity and sweat gland motility and activity. Auditory stimulation from listening to music also affects the limbic system of the brain, the centre of emotions and feelings, thereby reducing the ability of neurotransmitters to convey feelings of discomfort and discomfort, and triggering the release of endorphins (Bradt et al., 2013); (Jiménez-Jiménez et al., 2013). Music therapy can induce relaxation at the neurophysiological level through its impact on automatic and central nervous responses. More specifically, it is believed that the anxiolytic effect of music is achieved through its suppressive action on the sympathetic nervous system leading to decreased adrenergic activity and decreased neuromuscular arousal (Bradt et al., 2013). Music therapy that can be given to patients is relaxing melodies that can help reduce anxiety caused by invasive procedures. The most significant effect of music therapy was observed in interventions that lasted between 30 and 60 minutes (Lee et al., 2023). Other sources suggest that listening to music for 20-30 minutes is healing (Kabuk et al., 2022).

### **Relationship of Music Therapy in Overcoming Anxiety**

Anxiety can interfere with health, daily life, cognitive processes, attention and emotions. Today, the incidence of anxiety is increasing, so according to the latest National Institute for Health and Clinical Excellence guidelines, psychological treatment should be the first line of treatment for anxiety (Panteleeva et al., 2018). One of the psychological interventions that can be done is through music therapy. Previous meta-analysis research stated that listening to music can reduce anxiety, and the type and mode of music used do not significantly affect these results (Panteleeva et al., 2018). Another meta-analysis study conducted by Lu et al. also stated the same thing. This study stated that music therapy can reduce anxiety compared to the group that did not receive therapy (Lu et al., 2021). The two studies

also align with the meta-analysis research conducted by Witte et al., who state that music interventions can effectively reduce stress and suggest increasing the use of music interventions in medical and mental healthcare practices (De Witte et al., 2020). Another study conducted by Gutierrez et al. states that music therapy is effective in reducing levels of anxiety and depression in patients with Generalized Anxiety Disorder (Gutiérrez & Camarena, 2015).

Occupation is also a risk factor for anxiety. One meta-analysis study stated that in the era of the COVID-19 pandemic, 23% of health workers experienced stress, and 22.8% showed symptoms of depression due to COVID-19. The study also reported that nurses experienced these symptoms more intensely than other health workers 37% of nurses experienced anxiety, 35% experienced depression and 43% experienced sleep problems during the COVID-19 pandemic (Yıldırım & Yıldız, 2022). Three studies have assessed music therapy on anxiety experienced by nurses during the COVID-19 pandemic. Previous research states that music has a significant role in reducing anxiety levels. The study also stated that listening to music for 10 minutes with a MPEG-1 Audio Layer (MP3) player was associated with an overall increase in vital parameters and anxiety in medical emergency response units, especially when set at 432Hz (Calamassi et al., 2022). Another research that. Obtained the same thing where music therapy can significantly reduce anxiety in nurses compared to the control group and can increase nurses' accuracy, attention and quality of work (Zamanifar et al., 2020). Previous research also stated the same thing where music therapy and mindfulness-based breathing can reduce stress, anxiety, improve sleep quality, reduce fatigue and improve well-being (Yıldırım & Yıldız, 2022).

Hospital procedures, one of which is surgery, can cause preoperative anxiety and postoperative pain, which are clinically relevant issues that can determine morbidity, length of stay in hospital and even death (Kühlmann et al., 2018). Based on a literature search, music therapy can reduce anxiety in patients who wish to undergo surgery in the hospital. A meta-analytic study conducted by Kuhlmann et al. stated that music has been shown to reduce the use of postoperative analgesics and is more effective in reducing preoperative anxiety than orally administered midazolam (Kühlmann et al., 2018). Another meta-analysis conducted by Lee et al. also stated that music intervention effectively reduces anxiety, pain and physiological response in surgical patients. The study also stated that the most significant effect was observed in interventions that lasted between 30 and 60 minutes (Lee et al., 2023). Other research also states that music therapy has a beneficial effect on reducing anxiety during pre-surgery, surgery and post-surgery (Kühlmann et al., 2018). Previous studies also stated that listening to music may have a beneficial effect on preoperative anxiety. Other studies suggest that music therapy can reduce anxiety levels in patients undergoing varicose veins surgery (Bradt et al., 2013); (Jiménez-Jiménez et al., 2013). Research conducted by Akelma et al. also stated that using selected music in patients undergoing surgery would reduce pre- and postoperative anxiety, regulate hemodynamic variables and increase postoperative patient satisfaction (Altınsoy et al., 2020).

Illness can also be a factor causing anxiety, as stated in previous research, which stated that colorectal cancer patients could experience significant pressure in the form of depression and anxiety after receiving a cancer diagnosis (Huang & Huang, 2023). The study also states that music therapy can be used as a psychological intervention in cancer patients to help patients increase personal strength and improve well-being (Huang & Huang, 2023). Other studies also state that music therapy significantly reduces anxiety and depressive symptoms associated with cancer (Eseadi & Ngwu, 2023). This is also in line with other studies which state that music intervention significantly improves anxiety, depression, pain and fatigue in cancer patients, especially adults (Tsai et al., 2014). Research Rosetti et al. also stated a similar matter where music therapy intervention effectively reduced anxiety levels experienced by patients with breast or head and neck cancer undergoing radiotherapy simulation. The

study also showed that the intervention effectively reduced clinically significant levels of patient suffering (Rossetti et al., 2017).

Based on literature searches that have been done, music therapy is effective in reducing the level of patient anxiety, work-related anxiety, hospital procedures and severe diseases such as cancer. Music therapy has great benefits in lowering the level of anxietas, it is hoped that there will be further research to evaluate the effectiveness of music therapy against anxietas.

## CONCLUSION

Anxiety can interfere with health, daily life, cognitive processes, attention and emotions, so it must be appropriately handled. Psychological medication is said to be the first line of treatment for anxiety. Based on the results of this study, music therapy is effective in reducing the level of anxiety in patients with anxiety. Music therapy is also beneficial in reducing anxiety due to work, hospital procedures such as surgery and cancer.

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