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Case Report

Music Therapy for Chronically ill Patient

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ABSTRACT

People with chronic diseases have increased risk of developing anxiety disorders. Chronic illnesses are mostly incurable. Therefore, its treatment goals are primarily focused on managing symptoms experienced by the patient. Patients with chronic illnesses often fear their symptoms will be worsening or recurring. Some research have found that history a chronic illness can increase the risk of developing anxiety or an anxiety disorder. There have been many modalities for chronic illness treatment. Many studies showed non-pharmacological methods such as music therapy can decrease fear and stress. Music Therapy is the use of clinical & evidence-based music interventions to achieve individual goals in a therapeutic program by a trusted professional. Many studies showed the effect of music on reducing anxiety level. The study has shown the efficacy of a single session of music therapy in decreasing symptoms in severely ill patients. Music therapy sessions are designed with a number of factors in mind, including the clients' physical health, communication abilities, cognitive skills, emotional well-being, and interests, that will be assessed by the therapist who determines what the patient can do and what their needs. A key element of music therapy is nurturing good relationship between music therapists and their patients. This case report provides one of the goals of music therapy that is restoring someone's function or establishing his/her potential it to achieve a better quality of life.

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Introduction

Music therapy (MT), as defined by The World Federation of Music, is "the use of music and/or musical elements (rhythm, sound, harmony, and melody) by certified music therapists on an individual or group basis, which aim is to encourage and aid communication, learning, relationship, mobilization, therapeutic, expression, organizing, and other applicable purposes, to reach physical, mental, emotional, cognitive, and social needs". The aim of music therapy is to develop the potential and/or restore its recipient's function which leads to better interpersonal relationships and better quality of life through prevention, treatment, or rehabilitation processes [1].

In a lot of western countries, music therapy has been included as a branch of alternative medicine and is used for therapeutic purposes in many disorders such as Alzheimer's disease, HIV/AIDS, autism spectrum disorder, substance abuse, trauma, learning disabilities, cardiovascular diseases, and various mental illnesses such as anxiety disorders and schizophrenia, which has been documented in a lot of researches and studies [1]. On a bioneurological level, music listening and music making activate brain areas involved with reward, emotion, and arousals such as the nucleus accumbens, amygdala, anterior insula, cingulate cortex, orbitofrontal cortex, and mediodorsal thalamus, through which affective and cognitive modulation of pain can be achieved. On a psychological level, toning and humming are used to help enhance body awareness, promote a positive connection with one's body, and facilitate relaxation [2, 3]. Patients with chronic care often experience significant physical and emotional pain. This symptom may be exist due to feeling of fear and uncertainty. The persistent pain responds to a general sympathetic response (increased blood pressure, pulse rate, frequency of respiration rate, peripheral resistance), interferes with appetite and sleep patterns. Anxiety, too, is able to increase response of pain. Therefore, these symptoms occur simultaneously, which interfere patient's recovery [3, 4]. In the case reports illustrate the finding that music therapy can be successfully applied in persons with chronic illnesses to help them with self-expression.

Case Report

A 38-year-old female, face according to age, medium stature, Javanesse, she is a housewife, already married, have 3 children, wearing a brown hijab, neat clothes, sitting on a wheelchair, she looks down and limp. The patient came with her husband, take consult letter from internal medicine clinic, with a chief complaint worried when alone in the house with history of under treatment of Systemic Lupus Erythematosus (SLE) since 7-year-a go. Since last 4 months, she often thought about her first son's family, because after getting married, he lost his job due to the Coronavirus pandemic, in other hand his wife still continued work. The patient also overthink about being infected with the Corona virus and relapse of SLE. Since 1 month, before being taken to Psychiatric clinic, the patient often felt anxious with fear when she was at home alone, especially when her husband was not at home. Complaints that appear when the patient is anxious are complaints that the stomach, the gut, feels full, nausea, breath feels short and the body feels weak.

She doesn't know for exact why the feeling of anxiety arises, because the activity of going to the market every morning is routinely carried out by her husband. The patient also complains of shortness of breath and then the body feels weak, even though the patient the patient doesn't have a history of asthma or previous coughs. The patient stated that the physical complaints that were felt at the beginning of SLE were more severe than now, but the patient did not feel anxious or afraid when living alone at home. 2 weeks before being taken to the Psychiatric Clinic, the patient also complained of disturbed sleep patterns, patient can start sleeping at around 09.00 PM but wakes up around 00.00 AM, when she wakes up trying to pray and read the newspaper or hearing music until the patient can sleep again. But last week, she was difficult to go back sleep until morning.

According to her husband during the preparation for the marriage of his 1st child 4 months ago, the patient complained that at the time would be quiet because many families, especially from Lamongan and Pacitan, could not attend due to the Lockdown system. During the preparation for the marriage of the 1st child to the implementation of the marriage, the patient does seem busy. The patient also became more silent after knowing that her son was jobless after marriage due to coronavirus pandemic and more easily offended if the husband's words and attitudes are not appropriate. Since 1 month ago, the patient often looked anxious, when the husband go to the market to buy food to prepare for selling. The patient anxiety became more visible about 3 weeks ago, the patient seemed restless when she saw his husband moving some items in preparation for selling. The patient never had a history of medication or previous psychiatric medication. A history of SLE since 2013 and right now take Sandimmune therapy 25 Mg tablets, 2 x 1 tablet, 500 Mg Calcium Lactate, 1 x 1 tablet, Vitamin B Complex, 1 x 1 tablet. On HARS questionnaire = 31 (severe anxiety); laboratory examination LED = 100 mm/hr (conducted Jully 7th, 2020). The husband said music has always been one of egrees when she get bored. Taking all these facts into account, The examiner decided to start with music therapy to see if music could be the trigger for her to open up and express herself, with the aim of improving her anxiety.

The examiner began to advise the patient's husband to play the patient's favorite song, especially when the patient had to be alone at home every day about 30-40 minutes. Over the next few weeks, during the check-up, the husband said that the patient had changed a little, who was not as easily offended as before. Supported by the patient's children and in-laws, they communicate more often with patients. The examiner continued this procedure for the next 4 weeks, and from that moment was the turning point in our therapy sessions. She initiated talking about her love for music, and she started sing along to the music that sounded familiar to her when she was alone at home. The examiner still advises the patient to keep playing his favorite song when the patient plans to stay temporarily at his relative's house in Lamongan.

Discussion

Definition

Music is used in various modalities, such

as passive listening, active music, and discussion. This results in complex definition of music therapy [1, 5]. Biley defines music therapy as controlled listening to music and its effect on emotional, physiological, and psychological during injury or illness treatment.

According to the AMTA (American Music Therapy Association), music therapy is "using music and/or musical elements consisting of rhythm, sound, harmony, melody, tempo, and dynamic to achieve individual goals in a therapy, done by a certified professional who has completed a training of music therapy program" [6]. Furthermore, based on the World Federation of Music, music therapy is described as music and/or instruments used by a certificated music therapist for an individual or patient group to improve learning, communication, mobilization, relationships, expression, organization, and other therapeutic objectives to meet biopsychosocial needs. Its goal is also to restore someone's function or establish his/her potential in order to achieve a better quality of life [1, 7]. A key element for music therapy is nurturing a good relationship between music therapists and their patient.

There are few mechanisms explaining how music can work effectively as a healing modality [1]. Brain imaging studies show that listening to music generates neural activity which affects the cortex and the subcortex. These areas are associated with emotions, memory, attention span, and motoric function [1, 8]. Music is able to increase the ability of both hemispheres of the brain to work harmoniously. Music perception and performance are very complex. They involve perceptual, autonomous, emotional, behavioral, and cognitive processing [1, 9].

Music is created from sound waves which enter our ears to the primary acoustic circuit. In the cochlea, transduction of music from sound wave into nerve signals occurs. Musical rhythm is able to construct behavior and synchronously alter emotions, and also change bodily physiological functions including pulse rate, tone of muscle, blood pressure, and respiratory rate [1, 9, 10]. Soft, slow, lyricless music with a little harmony and percussion instruments can significantly reduce systolic blood pressure, pulse rate, and respiration rate [9, 11]. Parasympathetic system is predominantly affected by music which stimulate relaxation characterized by an alpha brainwave frequency and physiologically manifests as regular deep breathing and a decreased heart rate. In contrast, music with a fast beat increases sympathetic nerve activity [9, 12].

Types of Music Therapy

The following are music therapy techniques currently in use: 1) Production techniques; 2) Structured improvisation techniques; which consists of a) thematic improvisation b) communicative improvisation c) free improvisation; 3) Reproductive techniques which include singing or playing composed songs and learning or practicing musical skills; 4) Reception techniques which include listening to music directly (the therapist plays music), listening to recorded music, listening to music and body perceptions, as well as listening to music and dancing or moving. Music therapy is usually provided by qualified music therapists. The sessions are

focused on the patient (client centered). Patients can be a group of people or individuals (one to one). Each music therapy session has a specific goal, for example, to train socialization, emotions, motor skills, and other aspects. There are a variety of music therapy techniques and forms available today. One example is listening to old music or playing the violin in dementia patients. One popular form of music therapy is playing the drums. This therapy is often used in patients with motor problems, such as Parkinson's [1, 7].

Guided Imagery and Music (GIM) was created by Helen Bonny. "GIM is a process, where there is an image generation while listening to music". Classical GIM involves sessions that have a 90-120 minutes duration, consisting of 4 stages, which are introduction, induction, musical journey, and ending. While the patient listens to classical music, the therapist guides the client through a process of deep exploration. But GIM was later adapted into briefer sessions, using other types of music, also other supportive interventions [1].

Behavioral Music Therapy (BMT) was created by Clifford K. Madsen in the USA and is the most popular music therapy model in that country until now. It uses ways of behavioral therapy. BMT is defined as using music as stimulus or reinforcement clues, to enhance or alter adaptive behavior, and quell behavior that are maladaptive [1].

In a study conducted by Chlan, Weinert, Heiderscheit, Tracy, Skaar, Guttormson, & Savik, the results of patient-directed music (PDM), noise-canceling headphones (NCH), and usual care were compared, among ICU patients receiving acute ventilatory support for respiratory failure, PDM resulted in a greater anxiety reduction compared with usual care, but not compared with NCH. Concurrently, PDM resulted in greater reduction in sedation frequency compared with usual care or NCH, and greater reduction in sedation intensity compared with usual care, but not compared with NCH [13].

The relational quality of music may be one of the most unique and powerful features of music therapy for people who suffer from serious and chronic mental illness. Both stigma (originating from others) and symptomatology (originating from the individual) create a chasm between the individual with mental illness and the communities that would normally provide the interpersonal support that is necessary for health and well-being. That chasm can be bridged in music therapy, as engagement in music creates a safe and affirming experiential container in which limitations and misunderstanding can be left behind, and new awareness and understanding can develop [14].

Anxiety Level in Chronically ill Patients

Anxiety is a condition characterized by fear, increased tension or motor activity, agitation, autonomy, and withdrawal of fear. Anxiety is often complained by patients undergoing mechanical ventilation. Anxiety occurs because of unpleasant experiences the patients had by using mechanical ventilation. Therefore, the anxiety exacerbated by fear leads to enhanced stimulation of the sympathetic nervous system, creating symptoms like increased work of breathing, oxygen demand, and myocardial activity. Patients who are mechanically ventilated for over 2 days can feel the ETT

(endotracheal tube), cannot speak, feel thirsty, feel tense, uncontrolled, have difficulty swallowing, and end up with quite intense anxiety [15].

The study by Chlan and Savik aimed to explain the rate of anxiety ratings in patients who are critically ill and using mechanical ventilation. Individual anxiety ratings reported by patients show highly individualized and varied patterns of anxiety. The rate of anxiety gradually decreased in some patients. However, other patients report levels of anxiety that fluctuate or increase. In general, there was a slight decrease in anxiety rate over time with widely varying patterns of symptom experience. The results from the mixed model analysis show that the VAS-A rating gradually decreases over time. Unfortunately, no statistically significant decrease in the rate of anxiety was reported in this study. Sedative drug administration didn't affect patients' daily anxiety level significantly [15].

Benefits of Music Therapy for Anxiety

There have been many modalities for anxiety treatment. Non-pharmacological methods such as music and aromatherapy. Music can decrease fear and stress. Many studies showed the effect of music on reducing anxiety levels [16].

Anxiety activates various stress systems (like Hypoyhalamic-pituitart-adrenal axis (HPA axis) or sympathetic nervous system). A high level of anxiety before treatment and response to stress enhanced sensation of pain, a complication of treatment, and delay optimal recovery. These are the manifestation of stress hormones (cortisol and catecholamines). Cortisol is released due to long-term anxiety in contrast to catecholamines which are secreted when experiencing short-term anxiety [16].

First, music can decrease anxiety by affecting the autonomic nerve system that regulates body physiology, like heart rate, respiration rate, digestion, and pupillary response. Second, music suppressed sympathetic nervous system activity, which leads to decreased adrenergic and neuromuscular activity. Third, various studies have revealed cortisol and other HPA axis neuropeptides decrease after listening to music, which causes the limbic system to release endorphins that minimize the feeling of pain and discomfort and also maximize comfort [16].

Another theory states that music draws patients away from stimuli that trigger anxiety. Music can also activate imagery which is important in managing anxiety because it mediates a transient escape from a stressful reality. In addition, music can also reduce environmental threats. Psychosocial music provides patients with aesthetic experiences that is able to give the patients peace and comfort [16]. Music theraphy intervention aims to use music as a pleasant stimulus to block anxiety, fear, and tension and avoid patient from unpleasant thoughts. Listening music for forty-five minutes could encourage relaxation of an individual during the sleeping period [17, 18].

Studies Supporting the Effects of Music Therapy on Anxiety

Patients who are admitted to the ICU are prone to a variety of stress, like fear of the unknown, difficulty sleeping, noisy environment, agitation, pain, discomfort, thirst, immobility and frustration due to restraint, confusion, dyspnea, difficulty to communi-

cate, and being unable to relax. The use of mechanical ventilation can also be stressful, especially when the patient is unable to adjust his/her own breathing pattern, and during the process of endotracheal suction. Due to the ETT placement, the patient cannot speak, swallow, and eat. When the patient recover from his/her illness, they may be "weaned" from mechanical ventilation support. The weaning process itself requires increased breathing effort, which may exacerbate anxiety. Patients call mechanical ventilation an inhuman, unpleasant, and anxiety-inducing tool [19].

Severe anxiety is estimated to occur in around 70-80% of patients in the ICU, especially in patients who depend on ventilator for respiration support. Anxiety may have a dangerous effect on a person's overall recovery process. If left untreated, anxiety triggers the sympathetic nervous system, increases respiratory work and fatigue, and sharply inhibits ventilator stopping. Furthermore, activation of the sympathetic nervous system is able to elicit many adverse effects, including narrowing of the arteries and veins, myocardial stimulation, and bronchoconstriction. Psychological stressors, including fear and anxiety, are also one of the most powerful movers of the HPA axis [19].

Clinical studies support the use of music therapy to treat anxiety for patients in the ICU. Music therapy is able to reduce suffering and anxiety without using pharmacotherapy. Music therapy can also facilitate rest and sleep by creating a peaceful environment. In addition, the use of headphones prevents unwanted background noise, which is often present in the ICU. It is also able to filter out unfamiliar and unpleasant sounds of the hospital, thereby reducing the need for sedatives and leading to faster recovery. There was a significant reduction in anxiety in the patient, accompanied by decreased exposure to sedatives and better sleep quality [19].

A study done by Saadatmand et al. showed that the likelihood of having higher level of agitation was 11 times lower in the music group compared to the control group, implying that music therapy decreased agitation rates in patients who are sedated and mechanically ventilated. Music therapy is also able to reduce patient's pain and control his/her levels of sedatives during endotracheal suction. Suction is considered to be bothersome and painful, as are blood draws, lumbar puncture, and chest drainage insertion. The study also confirmed the strong considerations of music therapy in neonatal ICU where listening to music improves safety, enhances suction, and safeguards preterm low birth babies [19].

The study by Thompson and Grocke aimed to test the efficacy of a single session of music therapy in decreasing symptoms in severely ill patients. This study was a randomized study, with measurements using the Edmonton Symptom Assessment System (ESAS), and other variables measured, namely heart rate. The experimental group received a single music therapy intervention and the control received volunteer visits. Its results showed a significant anxiety level decreased in the group receiving music therapy [20]. The use of music therapy can be applied practically and easily, especially because music can be combined with various activities, such as singing, clapping, dancing, and others [21].

Conclusion

Management of stress is an important area for intervention in patients who are chronically ill. Studies showed that music can serve as a therapeutic tool, not just for entertainment. Music is less expensive when compared to sedatives or analgesics, and it reduces the time nurses spend on calming techniques and other pharmacological interventions. Music therapy can be done by professional certified music therapists or general paramedics. In comparison to many pharmacological interventions, music therapy is safer, with lesser side effects. Music therapy can help patients to cope with their illness, improve their physical, social, emotional, and spiritual well-being, also help them to control and reduce pain and/or agitation.

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