
The Creation of Music Therapy to Relieve Muscle Pain From Office Syndrome

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Abstract:

The study investigates music therapy's clinical efficacy and underlying mechanisms in treating chronic musculoskeletal pain (CMP) in office workers. The research objectives include studying the symptoms of muscle pain resulting from office syndrome, analyzing the effectiveness of music therapy in relieving muscle pain from office syndrome, and creating and evaluating three music therapy compositions specifically designed for this purpose. The study uses a mix of methods, including a literature review on office syndrome and music therapy, the creation of three therapeutic music pieces, and clinical trials with 12 CMP patients split into three groups: control (medication only), experimental group 1 (music therapy), and experimental group 2 (medication and music therapy combined). Data collection and assessment tools include the Life Information Scale, which incorporates traditional Chinese metaphysics to tailor personalized therapies; the GAD-7 scale for measuring anxiety levels; the PHQ-9 for assessing depression levels; the Simplified McGill Pain Questionnaire (SF-MPQ) for evaluating pain intensity and quality; and the PSQI for assessing sleep quality. Findings indicate that common symptoms of office syndrome include muscle pain, stiffness, headaches, and eye fatigue, often aggravated by poor posture and prolonged sitting. The preliminary results show that music therapy can significantly reduce muscle tension, improve blood circulation, and enhance mental well-being. The study emphasizes the importance of integrating music therapy with ergonomic adjustments and regular physical activity. The three compositions created for the study incorporate soothing melodies, rhythms, and harmonies designed to promote relaxation and pain relief, integrating brainwave entrainment techniques such as binaural beats to enhance therapeutic effects. The study concludes that music therapy, particularly when combined with ergonomic and lifestyle interventions, can effectively alleviate muscle pain associated with office syndrome. Recommendations for future research include expanding sample sizes, exploring different musical genres, and integrating advanced AI technology to personalize music therapy further.

Keywords: music therapy, music creation, office syndrome, chronic musculoskeletal pain, ergonomics, personalized therapy

Introduction

Office syndrome is an increasingly highlighted area of concern in modern workplace health. As the nature of work has evolved, an increasing number of employees spend long periods carrying out repetitive tasks in office settings, such as computer use, file sorting, and prolonged sitting. These behavioral patterns often lead to muscle tension and pain, particularly in the neck, shoulders, and back (PainManag, Nurs. 2014). Background investigations show that muscle pain not only affects individual health, job satisfaction, and quality of life, but may also negatively impact businesses' economic situation due to reduced work efficiency and increased medical expenses. While muscle pain may appear to be a personal health issue, it is often the result of a

combination of factors, including work design, workstation layout, improper ergonomics, intense workloads, insufficient rest break arrangements, and workplace culture. 2003).

Therefore, conducting background surveys on office syndrome-related muscle pain can aid in identifying its prevalence, influencing factors, and preventative measures, as well as designing effective intervention strategies. It not only impacts the personal lives of workers, but also contributes to the overall health management and productivity of organizations (JAMA). Office syndrome impacts both the organization and the individual, necessitating significant attention. At the same time, we can motivate employees to take proactive self-management steps, like regular exercise, maintaining good work posture, and implementing appropriate stress management strategies, through educational outreach and raising awareness of this issue (Am J Nurs. 2004).

RESEARCH OBJECTIVES

This study's primary goal is to investigate the clinical effectiveness and mechanism of action of music therapy for chronic pain resulting from office syndrome. The specific objectives are as follows:

1. To study symptom of muscle pain from office syndrome
2. To analyze music therapy for relieving muscle pain from office syndrome
3. To create a music therapy to relieve muscle pain from office syndrome (3 songs)

Literature Review

Office Syndrome: Muscle pain is the most common and well-known problem in the office syndrome spectrum, drawing widespread attention from office workers worldwide. For years, academic journals, research reports, and media have documented this issue's various facets, including its epidemiological characteristics, etiology, preventive measures, and management strategies. For instance, according to a report by Frank A. Low back pain. (BMJ. 1993) in the "Journal of Occupational Health," prolonged desk work in an office setting often leads to muscle pain, particularly in the neck, shoulders, and lower back. This pain not only affects physical health but can also cause emotional anxiety and stress. Poor posture, repetitive motions, and long periods without changing position are common causes of muscle tension and pain. Individuals may experience emotional anxiety as the pain persists, worrying about how it could affect their work performance and daily lives. Moreover, working in front of a computer screen for extended periods not only burdens the eyes but can also exacerbate headaches and feelings of anxiety. To alleviate these symptoms, it is recommended to engage in regular physical activity, improve the ergonomic design of workstations, and adopt appropriate rest and relaxation techniques to reduce work-related stress. In Biomedicine (2016) Chronic pain. Long-term office work, characterized by prolonged periods of desk-bound activities, can lead to a host of health issues, including but not limited to muscle pain and emotional anxiety. These conditions are often a result of maintaining a fixed posture for extended durations, repetitive motions, and work-related stress. The neck, shoulders, and back are the primary sites of muscle pain, while continuous physical discomfort and health concerns can exacerbate emotional anxiety. As discussed in the 2016 article in Biomedicine, "Chronic Pain: The Need and Hope for Opioid Alternatives," it is imperative to explore pain management strategies beyond opioid medications for such chronic pain conditions.

Music Therapy: Music therapy is a practice that utilizes the therapeutic nature of music to support and improve an individual's psychological, social, and physiological functions. With the increase in related research, music therapy has become an important branch in the fields of psychotherapy and rehabilitative medicine. For instance, an article by Sihvonen, A. J., Pitkäniemi, A., Särkämö, T., and Soynila, S. (2022) highlights the use of music therapy to improve patients' quality of life, particularly in managing chronic pain and reducing psychological stress.

Researchers have also found that music therapy can play a crucial role in neurological rehabilitation. Straaten van G. Actieve conducted the study in 2010. Music therapy plays a pivotal role in neurorehabilitation. As a non-verbal mode of communication capable of eliciting emotions, memories, and cognitive functions, music is considered an effective therapy for neurodegenerative disorders like Korsakoff syndrome. Patients engage in interactive musical activities through music therapy, such as composing music, singing, or playing instruments, which activate neural networks in the brain. Additionally, music therapy can help improve executive functions in patients with Korsakoff syndrome, such as planning, organization, decision-making, and problem-solving abilities. Decision-making activities in music therapy, such as choosing instruments or musical pieces, require the patient to make active decisions, thereby exercising their decision-making abilities. Likewise, playing instruments or collaboratively completing a musical piece demands planning and organization, improving these skills. In this way, music therapy provides a creative and engaging form of rehabilitation for individuals with Korsakoff syndrome. It not only aids in enhancing their cognitive and executive functions, but also boosts their mood and quality of life through the power of music.

Music creation: The creation of therapeutic electronic ambient music is a meticulously planned process that requires the music to not only resonate emotionally with listeners, but also to exert a positive influence on their physiological and psychological states. When composing this type of music, musicians typically follow several basic principles: First is the clarity of intention—before composing, musicians need to define the therapeutic purpose of the music, whether it is to reduce stress, treat depression, improve sleep quality, or aid in relaxation and meditation. Next is prioritizing the listener’s experience—throughout the creation process, the feelings and experiences of the audience are considered paramount to ensure that the musical work achieves the desired healing effect. Last but not least, musicians engage in continuous exploration and innovation, constantly experimenting with new music technologies and sound designs to find the most effective expression for therapeutic music. When it comes to creating therapeutic electronic ambient music, melody, harmony, rhythm, and sound texture are the main components of the composition. The melody is usually gentle and captivating, connecting directly with the listener’s inner world. Harmony must be expansive and profound to create a comprehensive, immersive auditory environment. Rhythm in therapeutic music is often subtle, not overly emphasized, but its variations and nuanced dynamic treatment can effectively help listeners achieve a smooth emotional transition. Sound texture is especially important as it deepens the therapeutic nature and sensory richness of the music through different layers and textures of sound. Additionally, the clever use of environmental sounds and electronic synthesis effects is an indispensable element of therapeutic electronic ambient music. The introduction of environmental sounds such as running water, wind, and birdsong adds to the music’s realism and natural feel, making listeners feel as though they are in nature, thereby achieving better healing effects. Electronic synthesis offers limitless possibilities, allowing creators to use music software and hardware to produce sound effects that traditional instruments cannot achieve, making the music more personalized and creative. Throughout the creative process, musicians will integrate these elements, making multiple adjustments and refinements to ensure that the final piece leaves a profound and lasting healing impression on listeners.

Related Studies: The first step in using music therapy for muscle pain is understanding the sound frequencies used in a piece of music. According to a study by Thompson et al. (2023), different frequencies of sound resonate differently with our bodies, with lower sound frequencies notably strengthening the parasympathetic nervous system, commonly referred to as the “rest and digest” system, which could aid in muscle relaxation. A balance between low and high frequencies can perform a sort of sonic massage on aching muscles, providing temporary relief. Creating an appealing melody is another key to crafting music for muscle pain therapy.

Fernandez and Merritt's (2022) research elaborates that soothing melodies can trigger the release of endorphins in the brain, our body's natural painkillers, reducing muscle discomfort. Repeated and predictable melodic patterns may induce a meditative state, further enhancing the possibility of pain relief. Harmony can invoke strong responses both emotionally and physiologically, which can directly impact pain perception. According to Uribe et al. (2024), major chords are often associated with calm, relaxed states and can guide one's body into a state of tranquility, relieving muscle tension. While dissonant chords may provoke emotional tension, they can still achieve the purpose of distraction, diverting attention away from the pain. Overall, combining the insights from both research studies, one gets a glimpse of the profound impact that music, as a form of therapy, can have in healthcare settings. Its resonance goes beyond simply treating ailments or symptoms. Instead, music therapy encompasses the patient's physical and mental well-being. It demonstrates the immense healing benefits that a tailor-made, patient-preferred musical intervention can bring. Therefore, the way forward could involve innovatively integrating musical elements into diverse therapeutic practices globally—a holistic approach to healing, one note at a time.

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METHODOLOGY

Participants: From March 2024 to June 2024, Huadong Hospital's Pain Clinic, affiliated with Fudan University in Shanghai, admitted all patients with chronic musculoskeletal pain (CMP) and neck and shoulder pain. The researcher conducted this study in accordance with the regulations of the National Health Commission of the People's Republic of China and the CFDA, obtaining ethical approval. The procedures are in accordance with clinical trial management guidelines and relevant laws and regulations. The researcher divided the subjects into three groups, each containing three patients, for a total of nine patients.

Data Collection and Assessment Tools : The Ethics Committee of the Affiliated East Hospital of Fudan University approved this study, and the researchers collected cases from the hospital's Pain Department. The researchers fully and thoroughly informed the patients and/or their representatives about the study's purpose, significance, process, and precautions. After gaining patients' understanding and consent, they voluntarily participated in the study and signed an informed consent form. Patient information confidentiality is ensured. The ethics approval number is 2021K104. Registered in the Chinese Clinical Trial Registry: ChiCTR2100052993.

Table 1 Data Collection and Assessment Tools

Assessment Method	Keywords
Life Information Scale	The Four Pillars of Destiny encompass traditional Chinese metaphysics, personalized therapy, and information about fate.
Psychological Evaluation	GAD-7 anxiety assessment, depression assessment
Pain Assessment	Simplified McGill Pain Questionnaire (SF-MPQ)
Sleep Quality Assessment	The multi-dimensional evaluation includes PSQI, sleep quality, and sleep conditions.

Medication Treatment: The 2018 expert consensus on pharmacotherapy for chronic musculoskeletal pain says that nonsteroidal anti-inflammatory drugs (NSAIDs), opioid therapy (including oral, transdermal, transmucosal, intranasal, and sublingual), and topical medications (like lidocaine, capsaicin, etc.) are all types of medication treatment.

Table 2 Research Methods

Instrument/Medication Name	Company
Flurbiprofen Gel Patch (Zepusu 40mg/patch)	Mikasa Seiyaku Co., Ltd., Japan
QuietComfort 35 II	Bose Corporation

In this study, the medication treatment involves using NSAID patches (Flurbiprofen Gel Patch), applied twice daily, one patch per application, to the affected area.

Group A, also known as the Control Group, received a medication treatment (Flurbiprofen Gel Patch).

Group B (Experimental Group 1): Music therapy (3 songs)

Group C (Experimental Group 2): Combination of medication treatment and music therapy (3 songs)

Patients with neck and shoulder CMP included in the experimental groups undergo music therapy, scheduled to listen to 3 songs.

Audio Tracks: These are specially designed audio tracks with specific frequency bands, incorporating brainwave induction technologies such as binaural beats, isochoric tones, and monaural beats, combined with tactile vibration technology and natural sounds. (Sound intensity 50-70 dB)

Scoring and Data Analysis : Data will be statistically analyzed and validated using SPSS.26 software. For general data such as gender and education level, count data will be expressed as frequencies. Data meeting frequency requirements will be tested using the X² test; otherwise, the exact probability method will be used. Measurement data will be expressed as mean ± standard deviation. Shapiro - Wilk normality test and homogeneity of variance analysis will be performed on the obtained data. If the conditions are met, one-way ANOVA and the Least-Significant-Difference method will be used for pairwise comparisons. If normal distribution and homogeneity of variance are not met, the non-parametric U test will be used.

Findings And Discussions

The symptom of muscle pain from office syndrome : What does the term "symptom of muscle pain from office syndrome" mean? Zheng Yongjun (2024) said muscle pain related to office syndrome typically results from prolonged sitting, poor posture, or repetitive strain. It mainly affects the back, neck, shoulders, and arms. The condition presents as persistent muscle pain, stiffness, and tension. Patients might also experience secondary symptoms such as headaches and eye fatigue due to prolonged periods of looking at screens. The lack of movement over extended hours exacerbates these issues, resulting in what we collectively refer to as office syndrome. Office syndrome symptoms include persistent muscle pain, stiffness, and tension, especially in the back, neck, shoulders, and arms. According to Zheng Yongjun (2024), the symptoms of office syndrome include persistent muscle pain, stiffness, and tension, particularly in the back, neck, shoulders, and arms. Additionally, individuals often report headaches, eye fatigue, and sometimes even tingling sensations in the limbs. Maintaining the same posture for long periods, inadequate ergonomic support, and a lack of regular movement or breaks during work hours typically aggravate these symptoms.



Figure 1. Doctor Zheng Yongjun
Source: Xiaochen Zhang 2024

The cause of the symptom of muscle pain from office syndrome is unknown, Zheng Yongjun (2024) stated: The primary causes of muscle pain from office syndrome include prolonged sitting, poor posture, and repetitive strain. Prolonged sitting without proper support strains the back and neck muscles, while poor posture exacerbates this strain, leading to pain and discomfort. Repetitive actions, such as typing or using a mouse, can lead to repetitive strain injuries. In addition to these mechanical factors, Eastern medicine stresses the importance of an individual's constitution. According to the Five Movements and Six Qi theory, constitutions such as yang deficiency, yin deficiency, and qi deficiency impact one's adaptability to environmental changes and disease susceptibility. For instance, a person with a qi deficiency might be more prone to fatigue and muscle pain due to poor circulation and low energy levels. Treatment guidelines for symptoms of muscle pain from office syndrome are available. Zheng Yongjun (2024) stated: It is important to manage muscle pain from office syndrome at both the individual and workplace levels:

Individual Level:

1. Engage in regular physical exercise and stretching activities to strengthen and relax muscles.
2. Maintain a healthy diet rich in anti-inflammatory foods.
3. Ensure sufficient rest and good sleep hygiene to allow the body to recover.
4. Physical therapy and massage can help alleviate muscle tension and improve blood flow.
5. When necessary, medication such as NSAIDs can be used to manage pain.

Workplace Level:

1. Provide a healthy work environment with ergonomically designed workstations to support proper posture.
2. Encourage reasonable work hours with regular breaks to reduce prolonged sitting.

3. Implement employee health promotion programs that include physical activity, stress management, and ergonomic training.

4. In traditional Chinese medicine, we also consider the individual’s constitution. For different constitution types, I recommend corresponding adjustment measures:

Yang Deficiency: Enhance yang by consuming yang-nourishing foods such as ginger, garlic, and lamb and staying in warm environments. Gentle exercises like Tai Chi can also help. **Qi Deficiency:** Focus on replenishing qi and blood through a balanced diet, which includes foods like dates, beans, and lean meats. Practices such as Qigong can improve the body's qi and blood circulation. Regular traditional Chinese medicine adjustments, such as acupuncture and cupping, can also help alleviate muscle pain and adjust the constitution. Combining the theory of the Five Movements and Six Qi with music therapy can be particularly effective. Music therapy regulates emotions and physical states through rhythm, melody, and harmony, which helps relieve stress and pain and improve mood. By choosing music types that adapt to the current climate, we can harmonize Qi and blood within the body and balance Yin and Yang. Personalized music selection based on individual constitutions enhances the therapeutic effect, providing a new perspective for health management in modern office environments. This approach not only helps alleviate physical symptoms but also promotes mental well-being, ultimately improving work efficiency and quality of life. For example, using calming music with slower rhythms and soothing melodies can help reduce stress and muscle tension, while more energetic music can invigorate and boost mood.

The importance of music therapy in treating disease or muscle pain from office syndrome.

Music therapy is increasingly recognized as an effective method for alleviating muscle pain associated with office syndrome. Prolonged sitting, poor posture, and repetitive strain primarily cause this condition among office workers. Office syndrome manifests as sustained muscle tension, ischemia, metabolic disorders, and psychological stress, leading to chronic pain. Integrating music therapy into treatment plans provides a holistic approach that addresses both the physiological and psychological aspects of pain.

Table 3 Pathological Mechanisms of Muscle Pain

Aspect	Mechanism and Effects	Role of Music Therapy
Nervous System	Prolonged poor posture leads to sustained muscle tension, triggering ischemia and metabolic disorders. (PainManag. Nurs. 2014)	Music therapy modulates the autonomic nervous system, promoting endorphin release and reducing pain perception. (J. Music Ther. 2015)
Muscular System	Repeated strain causes micro-damage and inflammatory response, releasing pain mediators. (EBioMedicine 2016)	Low-frequency vibrations from music act as "sonic massage," relieving muscle tension and improving circulation. (J. Music Ther. 2015; Pain Med. 2016)
Psychological Factors	Chronic pain affects mental well-being, with stress and anxiety amplifying pain perception. (J. Music Ther. 2018)	Music therapy lowers cortisol levels, alleviating stress and anxiety, which indirectly reduces muscle pain. (PainManag. Nurs. 2014)

Office Environment	Poor posture and repetitive movements in the office environment led to muscle tension and pain. (Am J Nurs. 2004)	Music therapy creates a relaxing atmosphere, helping employees relax and recover during their workday. (Ergonomics Health Modern Office Environments. 2016)
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The role of music therapy and its physiological benefits are significant. Music therapy alleviates muscle tension by influencing the autonomic nervous system, promoting relaxation, and improving blood circulation. For instance, expressive tones from instruments like the erhu can evoke emotional responses that help process and release stress, thus reducing muscle tension. Low-frequency vibrations from instruments such as cellos provide "sonic massage," relieving muscle tension and improving circulation. (J. Music Ther. 2015) Psychological Benefits: Music therapy addresses psychological stress, a significant factor in muscle pain. Through rhythm and harmony, music induces relaxation, reduces anxiety, and improves mood. Music therapy can significantly lower cortisol levels, alleviate stress, and improve overall psychological health. According to studies by PainManag. Nurs. (2014) and J. Music Ther. (2018), music therapy can significantly lower cortisol levels, alleviate stress, and improve overall psychological health. Integration with Traditional Treatments: Combining music therapy with traditional medical treatments enhances overall therapeutic effects. For example, integrating music therapy with physical therapy and ergonomic adjustments provides a more comprehensive approach to treating muscle pain. Music therapy not only improves pain tolerance but also enhances treatment adherence and satisfaction. (J. Music Ther, 2015). Music therapy provides a comprehensive approach to managing office syndrome muscle pain. By addressing both physiological and psychological aspects of pain, it complements traditional medical treatments and promotes overall health. Music therapy, which integrates neuroscience, brainwave modulation, and culturally sensitive music elements, is a powerful tool for alleviating pain and improving the quality of life for office workers.

The result to create a music therapy for relieve muscle pain from office syndrome (3 songs)

By combining modern electronic music with traditional Chinese music and integrating tea culture and the Five Elements theory, "Dragon-well Tea" is not just a piece of music but a multidimensional mind-body healing experience. It aims to make listeners feel the profoundness of Chinese culture through the power of music while achieving the effects of muscle pain relief and mental relaxation. This innovative music therapy offers a novel and effective self-healing tool for office syndrome patients.

Musical content: Song structure A-B-A-C-A-B-A, there are a total of 7 sections consisting of sections which can be described as follows.

A | B | A | C | A | B | A

A Section: Introduces the main melody with an electric piano and guzheng, creating a soothing atmosphere.

B Section: Incorporates sampled sounds of rain and wind from West Lake, enhancing the natural feel.

A Section: Repeats the main melody with the electric piano and guzheng, reinforcing the auditory experience.

C Section: Features an improvisational segment based on the main theme, adding variation and creative elements.

A Section: Returns to the main melody, maintaining overall coherence.

B Section: Reintroduces natural sampled sounds, enhancing the immersive experience.

A Section: Concludes with the main melody, providing a sense of completeness and relaxation.

The image displays a musical score for the piece "Dragon-well Tea". It consists of two systems of music. The first system covers measures 49 to 52, and the second system covers measures 53 to 56. Each system includes a vocal line (treble clef), a piano accompaniment (Pno., grand staff), and a guitar part (bottom line). Chord progressions are indicated above the piano part: Fmaj7, G, Am7, and Am7. A "rit." (ritardando) marking is placed above measure 55. The guitar part features a G chord box in measures 49 and 53.

Figure:2 Song Score: Dragon-well Tea
 Source:Xiaochen Zhang 2024



Figure: 3 The QR code to listen

The B section of "Dragon-well Tea" meticulously crafts its texture to create a rich yet uncluttered soundscape. The harmony, characterized by smooth chord progressions (Fmaj7-G7-Am7) and mellow tones, provides a tranquil foundation. The counterpoint, with its delicate melodic insertions and dynamic sound pairs, adds depth and complexity without disrupting the piece's serene atmosphere. The natural sounds of rain and wind enhance the overall texture, creating an immersive auditory experience that evokes the serene environment of West Lake. This multi-layered texture not only enhances the music's expressiveness and impact, but also helps the listener better immerse themselves in the relaxing atmosphere created by the music.

Section C (Bar29-Bar32)

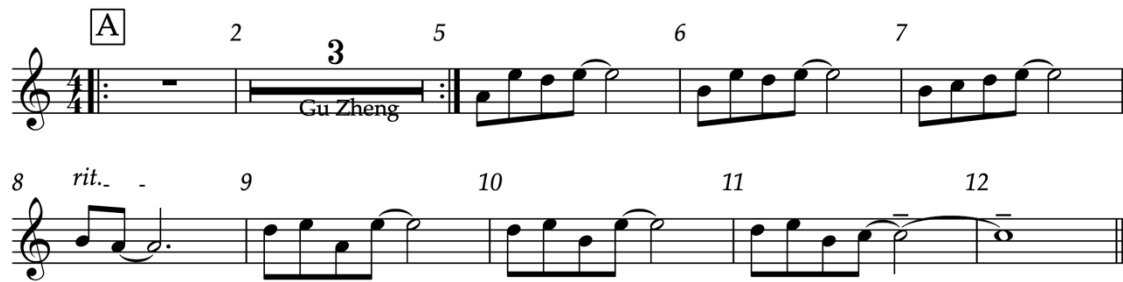


Figure: 4 Sheet music: (Bar29-Bar32)
Source: Xiaochen Zhang 2024

Psychological Perspective: From a psychological perspective, diverse tone colors and sound layers can significantly impact the listener's emotions and psychological state. Rich tonal variations and layers can capture the listener's interest and attention, enhancing the immersive quality of the music. The improvisational play of the electronic synthesizer, with its varied tonal changes, can evoke emotional resonance and psychological pleasure in the listener. The stable harmony and foundation provided by the piano and synth bass can create a sense of safety and comfort, while the delicate dynamic changes in the percussion can add tension and excitement. The overall diversity in tone, color, and dynamic changes makes the music a powerful tool for emotional expression, helping to regulate the listener's emotions and promote psychological relaxation.



Figure:5 Sheet Music: (Bar17-Bar20)
Source:Xiaochen Zhang 2024

The analysis of expert opinions indicates that "Dragon-well Tea" is highly suitable for use in music therapy aimed at relieving muscle pain from office syndrome. The song's thoughtful

composition, incorporating elements conducive to relaxation and stress relief, makes it an effective tool for managing symptoms associated with prolonged sitting and poor posture in office environments. The validation from experts reinforces the song's potential to be a valuable addition to comprehensive treatment plans for office syndrome. By combining modern electronic music with traditional Chinese music and integrating tea culture and the Five Elements theory, "Dragon-well Tea" is not just a piece of music but a multidimensional mind-body healing experience. This innovative music therapy offers a novel and effective self-healing tool for office syndrome patients.

Discussion

The study reveals that poor posture and repetitive movements contribute to muscle tension and pain, leading to chronic pain in the neck, shoulders, and back. Psychological factors like stress and anxiety also exacerbate pain perception. Ergonomic interventions, such as ergonomically designed chairs and desks, can reduce muscle tension and pain, promoting psychological well-being. A comprehensive approach integrating ergonomic and psychological interventions, including workplace wellness programs, can prevent office syndrome and improve workers' quality of life. Future research should explore the long-term benefits of these interventions in diverse office environments.

Music therapy is an effective complementary treatment for office syndrome muscle pain, reducing pain intensity, improving psychological well-being, and enhancing overall quality of life. It uses audio tracks with binaural beats, isochoric tones, and monaural beats to create a calming environment. Combining music therapy with topical NSAID patches provides superior pain relief. Music therapy also enhances sleep quality, which is crucial for pain management and recovery. Future research should investigate the mechanisms of its effects, as well as the impact of different musical elements on pain and psychological outcomes.

A study has developed three therapeutic audio tracks for chronic musculoskeletal pain patients, incorporating elements like low strings, Tibetan singing bowls, and binaural beats. The tracks encourage relaxation, reduce muscle tension, and alleviate mental fatigue and muscle pain. The patients reported significant improvements in pain intensity, sleep quality, and mood. The combined treatment of music therapy and medication provided the most effective relief from muscle pain and psychological anxiety. Future research should explore the long-term sustainability of music therapy's benefits and its applicability to other chronic pain conditions.

Conclusion

The study reveals that poor posture and repetitive movements are the primary causes of office syndrome, a condition characterized by muscle pain. This leads to muscle tension, ischemia, and micro-damage, causing discomfort in the neck, shoulders, and back. Psychological factors like stress and anxiety exacerbate the perception of pain, creating a vicious cycle. To manage office syndrome, ergonomic adjustments such as ergonomically designed office chairs and desks, regular exercise, and regular stretching are essential. Comprehensive treatment methods include psychological therapy, multidisciplinary interventions, and preventive measures like education on proper working posture and healthy work habits. The study's practical significance lies in workplace health management, as effective interventions can improve employee health, reduce sick leave rates, and increase work efficiency. Companies should implement policies for a healthy work environment to prevent and manage health issues related to office syndrome.

The study reveals that music therapy can effectively alleviate muscle pain in office workers by promoting relaxation, reducing stress, improving overall health, and influencing the autonomic nervous system. Music therapy triggers the release of endorphins, which reduce pain perception and lower heart rate and blood pressure. It also lowers stress levels, which exacerbate

muscle pain. Regular exposure to therapeutic music improves mood, reduces anxiety, and enhances psychological well-being. It also improves blood circulation, a crucial aspect of pain management. Integrating music therapy into traditional treatments like physical therapy and ergonomic adjustments can improve overall therapeutic effects. The integration of Traditional Chinese Medicine (TCM) theories with music therapy can also help regulate organ function and promote overall health. Overall, music therapy offers a holistic approach to managing muscle pain in office workers. The researcher created a music therapy for office syndrome using three unique pieces, each designed with elements such as melody, rhythm, tone color, and texture to maximize therapeutic effects. The compositions used scales and modes known for their soothing qualities, smooth melodic shapes, moderate tempo, consistent rhythms, and natural sounds to create a tranquil auditory environment. Simple yet rich harmony and counterpoint, along with repetitive structures, evoked a sense of familiarity and comfort. The therapeutic compositions provided immediate relief and long-term improvements in patients' physical and mental well-being. Positive feedback from patients highlighted significant reductions in pain and stress levels, improved sleep quality, and overall life satisfaction. The Simplified McGill Pain Questionnaire, the GAD-7 Scale, and the PSQI Scale all showed that Group C (medication plus music therapy) had the best results, showing big improvements in both muscle pain and mental anxiety. This successful application of music therapy underscores its potential as a non-invasive, effective treatment for office syndrome muscle pain.

Recommendations

The study suggests a holistic approach to managing office syndrome, involving ergonomic, psychological, and therapeutic interventions. It recommends investing in ergonomically designed furniture, providing regular training, and encouraging physical activity. Wellness initiatives should integrate psychological support, which includes stress management programs and access to mental health resources. Wellness programs can incorporate music therapy programs to promote relaxation and reduce muscle tension. Encouraging music therapy alongside other relaxation techniques can enhance its effectiveness.

Limitations And Suggestions For Further Research

The study suggests several areas for future research to improve the understanding and application of music therapy in managing office syndrome. These include expanding the sample size and diversity, exploring advanced technologies such as AI, creating new therapeutic music compositions, conducting long-term and comparative studies, and addressing psychological and mental health factors. Expanding the scope of research and integrating advanced technologies can provide more comprehensive strategies for managing office syndrome while fostering collaboration between music therapists, composers, and researchers. By focusing on these areas, future research can contribute to a healthier and more productive society.

Acknowledgements

The Ethics Committee of the Affiliated East Hospital of Fudan University approved this study, and the researchers collected cases from the hospital's Pain Department. The researchers fully and thoroughly informed the patients and/or their representatives about the study's purpose, significance, process, and precautions. After gaining patients' understanding and consent, they voluntarily participated in the study and signed an informed consent form. Patient information confidentiality is ensured. The ethics approval number is 2021K104. Registered in the Chinese Clinical Trial Registry: ChiCTR2100052993.

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