



KEY POINT SUMMARY

OBJECTIVES

To evaluate the effects of music on anxiety levels and physiological stress responses among mechanically ventilated patients in an intensive care unit.

Effects of music intervention on physiological stress response and anxiety level of mechanically ventilated patients in China: a randomised controlled trial

Han, L., Li, J. P., Sit, J. W., Chung, L., Jiao, Z. Y., & Ma, W. G. 2010 | *Journal of Clinical Nursing*. Volume 19, Issue 7-8, Pages 978-987

Key Concepts/Context

Mechanical ventilation (MV) is one of the most common treatments used in intensive care units (ICUs). MV is known for causing stress and anxiety in patients due to frequent instances of sleep deprivation, pain, fear, communication difficulties, loneliness, and lack of control. Heightened levels of anxiety can manifest in various detrimental physiological responses and ultimately lead to a sicker patient. Intravenous sedatives are often used to promote relaxation and relieve anxiety, but previous studies have shown that use of sedation is associated with delayed weaning from MV, thereby increasing care costs and time spent in the hospital. Previous studies have shown that music can serve as a method to lessen anxiety in various ways. Musical therapy has been held in high regard throughout China for centuries, but previous studies on specifically Asian populations have been sparse and inconclusive.

Methods

137 patients (mean age of 46.18 years, 60 men and 77 women) receiving MV were randomly divided into three groups. An intervention group listened to music through headphones, a placebo group wore headphones playing no music, and a control group had neither headphones nor music. All patients were using either synchronized intermittent mandatory ventilation (SIMV) mode and/or pressure control (PC) mode. No participating patients were receiving intravenous analgesia or sedatives.

The three randomly designated groups were assigned to a single 30-minute session of intervention, placebo, or control. Participants were blinded to which group they would be assigned.



Participants in the intervention group were given over 40 choices of both Eastern and Western music to listen to during the experiment. Music was played using a VX505 mp3 player with volumes adjusted to patient satisfaction.

Participants in the placebo group rested quietly with closed eyes while wearing headphones, while participants in the control group rested in silence with no headphones.

A Chinese version of the Spielberger State-Trait Anxiety Inventory (C-STAI) was used to measure state anxiety (anxiety felt at the present moment). The C-STAI is a self-reported questionnaire including 20 items with four possible responses. State anxiety was measured before and after the 30-minute sessions.

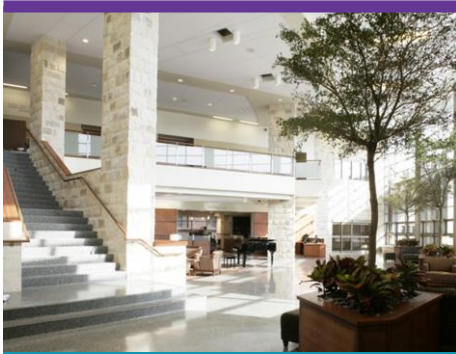
Respiratory rate (RR), heart rate (HR), blood pressure, and oxygen saturation were measured as indicators of stress-arousal and relaxation. RR, HR, and oxygen saturation were obtained at baseline every five minutes both during and after the sessions.

Findings

Mean state anxiety scores for the intervention group dropped from 51.5 to 40.8. Scores for the placebo group dropped from 50.18 to 46.84. The control group saw a slight decrease from 52.9 to 52.14. Physiologically, the intervention group saw a decrease in heart and respiratory rate over time while listening to music. Patients in both the musical intervention and placebo group saw a significant reduction in systolic blood pressure, which may have been due to the headphones blocking out background ICU noise. In summary, the findings were consistent with previous studies supporting the notion that music is an effective non-pharmacological treatment for patient anxiety.

Design Implications

Individual audio-playing devices rather than audio playing from speakers could help promote a personalized experience and decrease overall background noise. Diminished ICU noise was associated with lowered physiological responses that would normally indicate anxiety; therefore any attempt to shield MV patients from ICU noises could be beneficial. This could be done with sound-cancelling headphones or some other form of soundproofing in the MV room. Darkened rooms were used in this study, which may also have contributed to anxiety reduction by inducing a state of rest and relaxation.



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Limitations

Special environmental conditions and instructions from the researchers, such as a private darkened room, requests to close eyes and think pleasant thoughts, and special scheduling of the study activities may have contributed to the effectiveness of the musical intervention. The author identifies two limitations: a limitation in musical selection for patients in the intervention group, and a lack of examination into the long-term effects of repeated music sessions (rather than just a single 30-minute session).

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