



Best Practice

Evidence based information sheets for health professionals

Music as an Intervention in Hospitals

Recommendations

- The use of music in the pre-procedural period may reduce psychological anxiety and reduce the volume of sedative drugs required to manage anxiety. **(Grade A)**
- Music may reduce the respiratory rate of the patients, caused by anxiety. However, music should only be used in conjunction with standard care in the management of physiologically presented anxiety. **(Grade B)**
- The use of music may reduce pain related to surgical operation or painful procedure and reduce the volume of analgesic drugs required to manage pain. However, it should not be used as a primary intervention for the management of pain due to its small effect. **(Grade A)**
- Music recommended to be flowing and non-lyrical with 60 to 80 beat per minute that consists of low tones with strings, and with minimal brass percussion. A volume level of 60 dB is also recommended. **(Grade B)**
- No sufficient evidence was identified to recommend the use of music intervention for the improvement of following outcomes: **(Grade C)**
 - the perception of well-being
 - reduction of side effects of analgesic drugs
 - the physiological parameters of anxiety
- No significant difference was found between patients who selected the type of music and those who did not choose. **(Grade C)**

Information Source

This Best Practice information sheet, which updates and supersedes the JBI information sheet of the same title published in 2001,² has been based on 4 systematic reviews published in 2002-2008.³⁻⁶

Background

Music as a therapeutic intervention is a development largely of the mid 20th century, however, it has existed in various forms in most cultures for many centuries. In recent years the use of music as an intervention has increased and this, to some extent, may reflect the growing interest in complimentary therapies.³ Music has been used for patients of all ages, from infants, children, adults to older adults, and pre-procedural/operative and post-procedural/operative intervention to reduce anxiety or pain. Music is often used in conjunction with other activities such as education programs, videos and relaxing messages.³

The common theory behind music therapy is that music acts as a distracter.⁶ The basic assumption for this is the fact that music is a form of communication, and has been described as a universal language, and so it can provide an escape from negative stimuli such as pain and anxiety

to something pleasant and encouraging.⁶ A patient's mind can escape into his or her own familiar and soothing world.⁶

Definitions

Music in the context of this Best Practice Information Sheet, was considered to be recorded music played, via a MP3 player, tape recorder or compact disc player, for a patient before, during or after a single episode of diagnostic/therapeutic procedure.

Grades of Recommendation

These Grades of Recommendation have been based on the JBI-developed 2006 *Grades of Effectiveness*¹

Grade A Strong support that merits application

Grade B Moderate support that warrants consideration of application

Grade C Not Supported

Objectives

The purpose of this Best Practice Information Sheet is to provide summarised evidence on music listening in managing anxiety or pain related to procedural or operative interventions.

Types of Intervention

The Best Practice Information Sheet included pre-procedure/operation, during procedure/operation and post-procedural/operational music listening. It excluded other forms of music therapy.

Quality of the Research

Overall, quality of included studies in the systematic reviews was poor to moderate. The commonly identified methodological issues were inadequate randomisation, small sample size and insufficient information provided on the employed methodologies.

Types of Intervention-Findings

Type of Music

A wide range of music was identified in the systematic reviews and the most common approach was to provide patients with a selection from which to choose. Styles included classical, jazz, easy listening, country and Western, Chinese instrumental, Western slow rhythm, relaxing, piano, peaceful pan flute and new age. Other styles included Trance-Zen dance by Halpern and tape number three from music Rx by Dr Bonny.³⁻⁶

Type of Music Device

The commonly used music devices include compact disc or cassette tape with or without headphone or MP3 player.

Music Listening for Pre-Procedural Anxiety

A systematic review that looked at the effectiveness of pre-procedural music-listening included 12 studies on anxiety of patients before undergoing procedures such as vascular angiography, cystoscopy and biopsy, breast biopsy, colonoscopy, cardiac-catheterisation, gynaecological laparoscopy and orthopaedic procedures such as arthroscopy, and extracorporeal shock wave lithotripsy.⁵ The time of the music-listening intervention ranged from 5 to 60 minutes while the most frequent length of time was between 15 and 30 minutes.⁵

Degree of anxiety was assessed in both psychological and physiological changes when confronted with a stress such as operations and diagnostic procedures. Psychological component of anxiety was commonly measured using the State Trait Anxiety Inventory (STAI). Other psychological measures include visual analogue scale and the Profile of Mood States (POMS). The physiological measures include respiration, blood pressure and heart rate, heart rate variability, skin temperature, blood glucose levels, stroke volume and cardiac output.⁵

Psychological measures

Music listening had a consistently positive and statistically significant effect on reducing psychological parameters of pre-procedural state anxiety.⁵ Five trials found music had a statistically significant effect on reducing anxiety scores compared with the control group in between-group comparison. Three trials found that post-test anxiety measures significantly decreased when compared with the pre-test score.⁵

No evidence was found to support the use of music over no-music use in improving the perception of well-being. One study examined the effect of pre-operative relaxation music on patients' experience of well being, which was measured with a 100-mm visual analogue scale with end-points of calm and very anxious. The study found that pre-operative well-being was significantly higher in both music intervention and control groups after the session but no between group difference was found.⁵

One study examined the effects of music listening on mood state prior to cardiac catheterisation. The POMS tool was used as measurement tool. However, music listening did not have significant effect on changes in mood state either in the pre-post values or between the control and music intervention groups.

Physiological measures

The physiological parameters of anxiety did not show any consistent positive effects on patients who had received music listening.⁵ However, some evidence was found that music had an effect on the reduction of respiratory rate.

Blood Pressure

Five studies compared mean blood pressure readings between a music listening group and a control group (no-music). However no statistical difference was found between the groups in reduction of blood pressure. Four studies reported data comparing pre- and post-intervention mean blood pressure readings within groups. Two studies found reductions in both systolic and diastolic blood pressure for the intervention group when comparing pre- and post-intervention readings but only one study demonstrated statistical significance.⁵

Pulse

Eight studies reported between group comparative data but only one study showed a significant difference in pulse reduction between a music listening group and a control group. In the studies that examined pre- and post procedural difference, only one of three studies found a statistically significant reduction in pulse rate in the music listening group.⁵

Respiration Rate

Of five studies that reported between-group difference of respiration rate, three studies showed that the music listening group had a significantly greater reduction of respiration rate compared with patients who did not listen to music. Of four studies that compared pre- and post-intervention mean respiration rate, three studies had significant reductions in respiration rate for the music listening group while the control groups did not have a statistically significant reduction.⁵

Music Listening for Anxiety and Pain Related to Surgical Operation

A systematic review that looked at the effectiveness of pre, post or intra-operative music-intervention included 42 studies on anxiety and/or pain of patients. All patients underwent elective surgery including gynaecological, abdominal, ear, nose and throat, cardiac, urologic, ophthalmologic, orthopaedic and breast biopsy.⁶

The time of the music-listening intervention in pre-operative or post-operative phase lasted from five minutes to four hours and the most frequent length of time between 15 and 30 minutes.⁵ Intra-operatively music was used during the entire period, beginning at the start of the procedure. In the majority of studies, patients were provided with music by headphones.⁶

Anxiety

Music listening is somewhat effective in reducing psychological presented anxiety and volume of sedative drugs required to manage anxiety. Anxiety was commonly measured using the State Trait Anxiety Inventory (STAI), a numeric rating scale or visual analogue scale. The review reported that the music intervention significantly reduced anxiety scores in 50% of included studies. The use of sedative drugs was significantly less for patients in the music intervention group in comparison to the control group who did not listen to music.⁶

Pain

There was some evidence to show that music listening can reduce pain and volume of analgesics required to manage pain related to surgical operation. The Visual Analogue Scale, a numeric rating scale, the McGill Pain Questionnaire and Verbal Rating Scale were used to measure pain. Music intervention was shown to have a significant pain reducing effect in 59% of the included studies. Music intervention significantly reduced the use of analgesics in 47% of the included studies.⁶

Physiological measures

There was some minor evidence to show that the use of music intervention is effective in reducing heart rate, blood pressure, respiratory rate and blood cortisol levels.⁶

Type of Music

The tempo of the music seems to be the most important factor. Use of slow and flowing music with 60 to 80 beats per minute appears to have positive outcomes on relaxation and pain relief. The recommended type of music is non-lyrical consisting of low tones with strings, and with minimal brass percussion. A volume level of 60 dB is also recommended. Despite several papers advocating patients' own choice of music, no significant difference was found between patients who selected the type of music and those who did not choose.⁶

Music Listening for Pain Management

A systematic review that looked at the effectiveness of music-intervention for the management of acute, chronic or cancer pain included 51 studies. Of the 51 studies, 28 evaluated pain during a diagnostic or therapeutic procedure such as colonoscopy or lithotripsy. Fourteen studies evaluated postoperative pain. Other studies evaluated chronic and other cancer pain, labour pain and experimental pain.⁴

Pain Intensity

Music listening can reduce post-operative pain intensity level. The statistical pooling shows that music reduced post-operative pain intensity levels. However, the maximum reduction in pain intensity levels is only 0.9 units on a zero to ten scale and its clinical significance is unclear.⁴

Pain Relief

Listening to music can reduce pain in various hospital settings. A statistical pooling shows that patients who listened to music had a 70% greater probability of having at least 50% of pain relief than patients who did not listen to music.⁴

Opioid Requirements

Listening to music can reduce the amount of analgesic drugs required for the management of pre-operative pain. A statistical pooling showed that music reduced morphine use by 1mg (18.4%) two hours after surgery. The use of music also reduced opioid requirements during painful procedures, however, it was not statistically significant.⁴

Side Effects

There is no evidence to suggest that listening to music has any effect on reducing side effects of analgesic drugs. No statistically significant difference was found on the use of music in reducing side effects of analgesia such as nausea.⁴

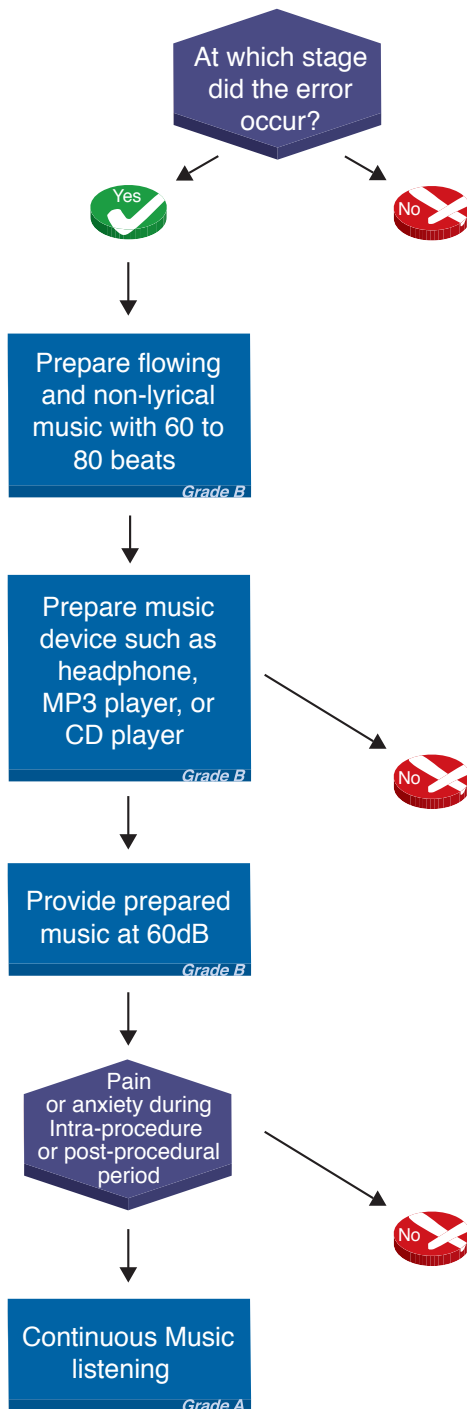
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In addition this Best Practice information sheet has been reviewed by nominees of international Joanna Briggs Collaborating Centres.

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* Music intervention should be used in conjunction with standard pain/anxiety care such as prescribed medications.



This *Best Practice* information sheet presents the best available evidence on this topic. Implications for practice are made with an expectation that health professionals will utilise this evidence with consideration of their context, their client's preference and their clinical judgement.⁷

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