

Music in Pediatric Care

2009 Research, compiled by Beverly Seng, CMP

Music relieves children's pain and anxiety.

In a study of 80 children undergoing surgery, only one of the 40 children who received music required morphine, while 9 of the 40 who did not listen to music required morphine for pain control. The children who listened to music also had decreased anxiety compared to controls, as measured by the Facial Affective Scale. ¹

Music relieves children's anxiety.

In a study of 39 children with tumors, those who listened to music were much less anxious and more compliant with the painful procedures they had to undergo (such as bone marrow aspiration and arterial catheterization). The parents' anxiety was not reduced, but parents expressed satisfaction with the music. ²

A Chinese study found that 30 minutes of listening to recorded music prior to acupuncture treatments relieved anxiety and reduced heart rates in children with cerebral palsy. However, there was no effect on their experience of pain. ³

A "sensory adapted dental environment" that included music was compared to a standard dental environment in its effects on 16 children with developmental disabilities, who were undergoing dental procedures. ⁴ The sensory adapted environment created a substantial increase in relaxation and cooperation among the

¹ **School-aged children's experiences of postoperative music medicine on pain, distress, and anxiety.** Nilsson S, Kokinsky E, Nilsson U, Sidenvall B, Enskär K. *Pediatric Anaesth.* 2009 Dec; 19(12):1184-90. Epub 2009 Oct 23.

² **Role of interactive music in oncological pediatric patients undergoing painful procedures.** Bufalini A. *Minerva Pediatr.* 2009 Aug;61(4):379-389.

³ **Effects of music on anxiety and pain in children with cerebral palsy receiving acupuncture: a randomized controlled trial.** Yu H, Liu Y, Li S, Ma X. *Int J Nurs Stud.* 2009 Nov;46(11): 1423-30. Epub 2009 Jun 3.

⁴ **Effect of sensory adaptation on anxiety of children with developmental disabilities: a new approach.** Shapiro M, Melmed RN, Sgan-Cohen HD, Parush S. *Pediatr Dent.* 2009 May-Jun;31(3):222-8.

patients. For example, the anxious behaviors lasted 9 minutes in the adapted environment as compared to 23 minutes in the standard environment; magnitude of anxious behaviors was 8.5 as compared to 15.5; degree of relaxation was 2014 as compared to 763. Another 2009 article also concluded that music reduces pain and anxiety in children undergoing dental procedures, but this article had no abstract.⁵

Music therapy (not defined) in palliative care caused the children's parents to be **twenty-three times** more likely to be satisfied with the overall care their children received.⁶

Anxiety was reduced in adolescents and adults who listened to music through headphones while receiving root canals. Heart rate and blood pressure were not affected. ⁷

An exploratory study of a "therapeutic music video" used twice a week for three weeks with adolescents and young adults undergoing stem-cell transplantation (comparing the experience to listening to an audio book) found that those viewing the video had greater hope, and a greater sense of spirituality, mastery and self-transcendence.⁸ At 100 days later, those who had viewed the music video still had greater gains in coping, spirituality, self-transcendence, and quality of life. This study points to a new avenue for us to explore: we can collaborate with others to create such videos.

⁵ **Music therapy may reduce pain and anxiety in children undergoing medical and dental procedures. Bekhuis T.**

J Evid Based Dent Pract. 2009 Dec;9(4):213-4.

⁶ **Music therapy in an integrated pediatric palliative care program.**

Knapp C, Madden V, Wang H, Curtis C, Sloyer P, Shenkman E. Am J Hosp Palliat Care. 2009 Dec-2010 Jan; 26(6): 449-55. Epub 2009 Aug 7.

⁷ **Music may reduce anxiety during invasive procedures in adolescents and adults.**

Newton JT. Evid Based Dent. 2009;10(1):15.

⁸ **Exploring the feasibility of a therapeutic music video intervention in adolescents and young adults during stem-cell transplantation.**

Burns DS, Robb SL, Haase JE. Cancer Nurs. 2009 Sep-Oct;32(5):E8-E16.

Music increased the effectiveness of acupuncture treatments in patients with cerebral palsy.

In a Chinese study of 60 children with cerebral palsy, half were given acupuncture plus music and the other half were given just the acupuncture.⁹ Treatments were given three times per week for 36 weeks. All the children improved in motor function, but the group receiving the music had significantly greater improvement in creeping, kneeling, standing, and walking.

It is fascinating to find that music empowers acupuncture and that improvements in movement capability can come from music heard during acupuncture and not heard during the movement itself, as occurs in many studies. I applaud researchers willing to carry out such a long-term study to reveal the efficacy of music. It is likely that a shorter study would not have been able to discern the effects of the music.

Adolescents' music-listening habits are damaging to their health and well being.

1. Hearing Loss

A study of 490 Korean adolescents found hearing loss among male adolescents who had used portable music players for over five years, and among those who had used earphones.¹⁰ Researchers concluded: "To preserve hearing, adolescents should avoid using portable music players for long periods of time and should avoid using earphones."

⁹ **Acupuncture combined with music therapy for treatment of 30 cases of cerebral palsy. Yu HB, Liu YF, Wu LX.**

J Tradit Chin Med. 2009 Dec;29(4):243-8.

¹⁰ **Hearing threshold of Korean adolescents associated with the use of personal music players. Kim MG, Hong SM, Shim HJ, Kim YD, Cha CI, Yeo SG.**

Yonsei Med J. 2009 Dec 31; 50(6): 771-6. Epub 2009 Dec 18.

2. Unhealthy eating

In spite of identical intensity of pre-meal hunger, adolescents consumed more soda while watching television but more water while listening to music!¹¹ Researchers opined that the difference in consumption might be caused by a conditioned response to television watching.

3. Tendency toward violence, sexual experimentation, and drug use.

The Academy of Pediatrics issued a strong warning about the lyrics of violence, sexuality and drug use that permeate music and music videos experienced by children and youth.¹² Research shows that much music popular with teenagers has detrimental effects on schoolwork, social interactions mood and emotions, and behavior. Moreover, because teenagers often listen with headphones parents are unaware of the lyrics of the music to which their children are listening. The Academy charged: "it is essential for pediatricians and parents to take a stand regarding music lyrics."

The journal *Addiction* published a study of 959 ninth graders at three large urban high schools, which found that each child was exposed to an average of **27**

¹¹ **Influence of environmental factors on food intake and choice of beverage during meals in teenagers: a laboratory study.**

Péneau S, Mekhmoukh A, Chapelot D, Dalix AM, Airinei G, Hercberg S, Bellisle F.
Br J Nutr. 2009 Dec;102(12):1854-9.

¹² **From the American Academy of Pediatrics: Policy statement--Impact of music, music lyrics, and music videos on children and youth.**

Council on Communications and Media. Pediatrics. 2009 Nov; 124(5): 1488-94. Epub 2009 Oct 19.

references to marijuana per day in the lyrics of their music.¹³ Compared to those in the lowest tertile of exposure to such lyrics, those in the highest tertile were **twice as likely to have used marijuana** in the previous 30 days, even after adjusting for socio-demographic variables, parenting styles and personality characteristics. The study indicates that the lyrics are influencing the behavior, rather than that the behavior affects the choice of music.

These articles recall to me Janalea Hoffman's insistence that we choose lyrics with care, both for listening and for singing. She writes that popular love songs are really songs about loss of love and despair, and that insists that such lyrics will depress our spirits. This research validates her position.

¹³ **Exposure to cannabis in popular music and cannabis use among adolescents.**

Primack BA, Douglas EL, Kraemer KL.

Addiction. 2009 Dec 22. [Epub ahead of print]