

Music intervention as anxiety and stress relief



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Music Intervention as Anxiety and Stress Relief during Minor Medical Procedures

Introduction

This concept analysis will address the anxiety and stress relief effect of music on patients during routine medical procedures. Music can have a calming effect on patients which can greatly reduce the anxiety and stress the patients may be feeling while enduring procedures such as blood draws or IV insertions (Mok & Wong, 2003). The anxiety felt by many patients can provide many obstacles throughout the appointment such as the inability to listen effectively due to the inability to focus (Baldwin, 2016), a negative impact on seeking out further medical treatments in the future (Detz, Lopez & Sarkar, 2013), and a general increase in muscle tightness, heart rate, blood pressure and respirations (Bandelow, Boerner, Kasper, Linden, Wittchen & Möller, 2013). The alleviation of some of this anxiety and stress may have a powerful impact that could contribute to a patient's overall health and continue to build a strong foundation for the relationship between the patient and their health care provider.

It is significant that the concept of using music for anxiety relief is studied further as this could provide a new involvement for patients in their own healthcare. It could also provide cost effective ways for the healthcare providers to ensure patients are comfortable, are relaxed and walk away feeling better about their relationship with their health care provider. Music

is a universal language that we can all relate to and we should use it to our advantage in the medical field.

Music has been successfully used to reduce anxiety in dental procedures (Lahmann et al., 2008), the use of music may be a simple and inexpensive way for hospitals, clinics or doctor's offices to make the patients experience better and less stressful. It has been found that music may even be have sufficient anxiety and pain relief in postoperative settings that it may be used as a substitute for adverse effect causing opioid medications (Allred, Byers & Sole, 2008). Therefore it is significant that health care professionals should attempt to use the benefits of this non-pharmacologic intervention while treating their patients. The specific use of personally chosen music will ensure that the patient feels they have control over the situation and are involved in their own care (Erlang, Nielsen, Hansen & FINDERUP, 2015).

Assumptions

The underlying assumptions of this concept analysis include that inherently people like music and it can aid in anxiety reduction as shown by lowered blood pressure, heart rate and respiratory rates (Bandelow, Boerner, Kasper, Linden, Wittchen & Möller 2013). It has also been used in therapy and other medical practices such as dentistry to assist patients in coping with stress, pain and anxiety (Lahmann et al., 2008). Even though everyone copes differently with stress, it can be assumed that many people use music to reduce stress for physiological, cognitive and emotional processes (Thoma, La Marca, Bönnimann, Finkel, Ehlert & Nater, 2013)

Preview

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In the following section of this concept analysis the reader will be presented with a review of literature reviews that describe the concept in different disciplines. Using the Walker and Avant (2005) method, the concept analysis will include a discussion of the concept and its attributes, antecedents and consequences. Lastly, Empirical referents will also be discussed.

Literature Review

The literature review for this concept analysis was done with materials found on the following databases: Cumulative Index of Nursing and Allied Health (CINAHL), DePaul Library Book Circulation, UptoDate and Google Scholar. The databases were searched between 1990 and 2017, focusing on articles published after 2000. The CINAHL database produced 1 result for “ nursing theory music”, 11, 857 results for “ music”, 333 for “ music anxiety”, 1, 531 results for “ generalized anxiety disorder”, 61 results for “ previous pain experience”, and 52 results for “ music procedure”. UptoDate was searched for “ generalized anxiety disorder” with an undisclosed amount of total results. Google Scholar produced 908, 000 results for “ music therapy, 46, 200 results for “ music calming”, 597, 000 results for “ music preference”, 102, 000 results for “ music therapy anxiety reduction”, 1, 100, 000 results for “ trust anxiety”, 268, 000 results for “ nursing theory music”, 1, 890, 000 results for “ nurse patient relationship”, 976, 000 results for “ patient nurse communication long term”, 1, 990, 000 results for “ music psychology”, 749, 000 results for “ music anxiety” and 70, 400 results by searching “ music social bonding”. Two additional sources were used, 2 books about music found in the DePaul University Library Book Circulation database when searching for “ music medicine” and “ music philosophy”.

Music Therapy

According to Oxford dictionary music can be defined as “vocal or instrumental sounds (or both) combined in such a way as to produce beauty of form, harmony, and expression of emotion” (Oxford Dictionary, n. d.). As music is an abstract form of art, it is able to relate the composers and musician’s feelings and intention through direct imitation, approximate imitation and symbolization (Cooke, 2001). With this ability to convey emotion and feelings, music is able to stimulate a heightened emotional response from its creators and listeners (Sloboda, 1991), creating a framework for therapists to create an enriched environment through the use of music.

Within music therapy the terms ‘music’ and ‘music therapy’ have been used “interchangeably”, this was especially “common practice at that time when the profession was not yet established” (Horden, 2000). Music in and of itself is defined as “the use of music and/or musical elements (sound, rhythm, melody, and harmony)” within the music therapy discipline. To describe music therapy the World Federation of Music Therapy goes one step further and defines it as “a process designed to facilitate and promote communication, relationships, learning, mobilization, expression, organization and other relevant therapeutic objectives, in order to meet physical, emotional, mental, social and cognitive needs.” (Horden, 2000).

Music therapy has been used for anxiety reduction in the past including in a study about the effects of music therapy on patients anxiety while undergoing a flexible sigmoidoscopy. The results of this study confirmed that

“ patients who listened to self-selected music tapes during the procedure had significantly decreased” scores for State-trait anxiety inventory, heart rates and mean arterial pressures compared to the control group. Within this study it was concluded that “ music is an effective anxiolytic adjunct” for the flexible sigmoidoscopy procedure (Palakanis, DeNobile, Sweeney, Blankenship, 1994).

Psychology

Music psychology is a branch of psychology that focuses on the production, creation and perception of music. Within music psychology, music is defined as “ patterned action in time” which “ appears communicative, complex, generative and representational” (Hallam, Cross & Thaut, 2009). Music psychology can be applied to individual preferences, arguably due to personality, and the way music is perceived. Studies exploring influence of personality on musical preferences such as the study performed by Stephen J. Dollinger in 1993 have shown that overall personality does have an influence on the types of music individuals prefer. Dollinger, for example, showed that the personality trait “ openness” had a positive correlation to “ enjoyment of a variety of different kinds of music” (Dollinger, 1993).

Anxiety has been linked to experiencing additional stressors in childhood, an environmental factor, according to Wiedemann (2013). He points out that personality traits are another factor that can predispose people to experiencing anxiety and how strongly they experience it. Age can also be a factor in the expression of anxiety, with adolescents having a higher incidence rate of anxiety overall (Wiedemann, 2013). Lastly, Wiedeman

discusses that anxiety when due to a life event is adaptive, however once the perceived danger passes and the anxious state lasts, this may be due to a pathologic type of anxiety. These anxiety causing events may also cause the patient to experience lasting bouts of anxiety in the future during similar traumatic events (Wiedemann, 2013).

Biology

Within biology, music can have a neurobiological role. There “ music is regarded in biological terms as originating in the brain, so that most explanations concentrate on the ways in which brains process information” (Freeman, 1998). As explained by Freeman in his study, music is defined by “ deeply personal experiences of individuals” which are made unique by the separation of information within the brain as it learns more and goes through “ epistemological solipsism” or isolation of “ uniqueness of knowledge” (Freeman, 1998). As sounds pass through the inner ear, along excited sensory neurons into the primary auditory cortex, musical experience is still a neurobiological experience deprived of emotion. However, as explained by Freeman: “ as the information is processed through neighboring cortical areas concerned with speech and song” the information is passed between the “ newer brain and older part of the forebrain” and can “ generate memories evoked by listening to music, and arouse the emotional states that have become associated with now familiar songs through previous experiences” (Freeman 1998).

As this information is continuing to pass through the brain, a sense of “ social bonding” is felt by the subject through the perception, creation and sharing

of music and dance (Freeman 1998). This social bonding leads to trust, and is related to a social aspect as well as a release of neurochemicals. It is therefore a plausible assumption that music can create neurobiological stimuli that create an environment of bonding and trust building. This can be an important aspect of a patient-nurse/healthcare professional relationship.

Lastly, genetics is another factor when discussing anxiety in patients. In recent studies it has been shown that genetics explained about “ half of the variance” when it comes to the predisposition of anxiety in familial cases (Wiedemann, 2013).

Concept Maturity

This concept has gained some traction within the last few years, especially in other disciplines besides nursing. Dentistry has used music to assist patients during dental exams and procedures for several years and more studies have been done recently in using music to assist in stress and anxiety relief. Generally the concept has been researched in specific instances such as children in the ED receiving IVs or patients receiving a flexible sigmoidoscopy. A longer term study within the nursing discipline needs to be performed to ensure a complete concept analysis can be done.

Analysis

Defining attributes

The defining characteristics that are repeated in the literature include anxiety, music and a positive effect on decreased heart rate. Anxiety encompasses a general feeling of worry and concern about future events
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which may have an uncertain ending. This can be very well translated to patient's worry and fears about medical procedures that may cause them pain and discomfort as well as feeling a lack of knowledge and control over the situation. It has been confirmed that anxiety can manifest itself in things such as increased heart rate, feeling of tightness, and muscle tension (Bandelow, Boerner, Kasper, Linden, Wittchen & Möller 2013).

The effect of music on heart rate as a relaxation technique has been studied in a clinical setting. It has been proven that a patient's preferred music can have a positive effect on lowering the heart rate post procedure (Vaajoki, Kankkunen, Pietilä & Vehviläinen-Julkunen, 2011). The heart rate is defined as a clinical value measured as a full heart contraction for the duration of a full minute. The ability to lower heart rate allows us to empirically measure the effects of music on the patients during and after their procedures.

The patient will have sole control over their choice of music in this concept. Giving the patient the ability to control the type of music has also shown to provide patients with a sense of choice and involvement in the procedure (Erlang, Nielsen, Hansen & Finderup, 2015). The musical choices of the patients will be songs played by instruments that are kept in a key with harmonies and rhythm. The patient has full control over the genre of music which may include rock, classical, pop and acoustic.

Antecedents

Most adult patients will have previously experienced a blood draw and therefore will know what to expect. This knowledge may range from a feeling of impending doom and anxiety over the pain and discomfort they may

experience. Though blood draws may not always be painful, previous experiences influence a patient's expectations and can translate into higher anxiety and stress when the previous experience was negative (Reichert, Gerdes, Pauli & Wieser, 2016). The travel to the medical facility and the identification of music to be played are also antecedents to the impending procedure.

Consequences

Consequences of the attempt to relieve anxiety during a blood draw can include a positive experience due to relieved anxiety as well as improved rapport with the nurse or other health care professional which will result in return of the patient for future screenings and preventative care (Detz, Lopez, Sarkar, 2013) . This in turn will result in the patient seeking out healthier long term behavior as well as a decrease in emergency service use (Weiss & Blustein, 1996). Additionally, the patient may feel more relaxed and not tense up as much making the nurses' job to perform the blood draw much easier. As illustrated in a study by Hartling, Newton, Liang, Jou, Hewson, Klassen and Curtis (2013) a significant amount of health care providers reported that it was easier to perform IV placement on children admitted into the Emergency Department who listened to music than those who were not listening to music. It was also noted that the health care providers were happier with the placement when patients were listening to music than if they were not (Hartling et al., 2013)

The opposite experience may also occur, creating a negative consequence. The patient may not have found the music they wanted to listen to and may

have not experienced anxiety relief during the blood draw. If the nurse was unsuccessful in performing the blood draw by having to start over, puncturing or fishing for the vein resulting in pain, the patient may reflect on this being a bad experience and will not want to return and may even feel the relationship with the nurse has been damaged which may result in the patient not seeking out medical care in the future.

Empirical Referents

The attribute of anxiety can be measured through a number of Anxiety scales such as the Generalized Anxiety Disorder seven-item scale (GAD-7) or The Hospital Anxiety and Depression Scale (HADS) (Baldwin, 2016). These measurements can be done before and after the procedure, as well as across a population of patients who did listen to music as well as those that did not. A similar comparison between heart rate, blood pressure and respiration rate should be done for everyone involved in the study. A general Patient Satisfaction Survey may also be done for all patients to get an overall sense of the experience and to ask specifics on the patient-nurse relationship after the procedure.

A study that may be emulated can include the study performed by Hartling et al. (2013) which looked at pediatric patient's response to having music played while having an IV placed in an Emergency Department setting. Within the study an Observational Scale of Behavioral Distress-Revised was used to measure behavioral distress, as well as child-reported pain, heart rate and parent and health care provider satisfaction, ease of performing procedure and parental anxiety were measured. This takes into account a

variety of different types of data (qualitative vs. quantitative) while measuring success from more than 1 angle.

Nursing Application

The following two cases will outline how anxiety can lead to a positive and negative experience while experiencing a blood draw. The model case will show a positive experience of how music is able to reduce anxiety while the contrary case will portray a case in which anxiety is high for the patient.

Model Case

Jane Doe is coming in for a routine physical with the instruction of fasting as she will have blood drawn for a routine blood panel. Jane has an established rapport with the doctor's office she is attending including the nurse who will be performing the blood draw today. Since Jane has had good experiences with this nurse before she is feeling calm prior to her appointment; she knows what to expect. When the nurse arrives she explains that they have added a new feature of having music played while the blood is being drawn. She is given a tablet with a music app where Jane is able to choose what music she would like to listen to. This gives Jane a sense of control and involvement in the situation and feels she can relax while the nurse is drawing her blood. As Jane relaxes the nurse is able to easily insert the needle and draw the blood quickly on her first attempt. Jane's ability to relax her muscles and lowered anxiety ensured that she would not flinch and potentially disrupt the blood drawing process. After the appointment Jane leaves happy with the interaction with the nurse and feels the music helped in keeping her anxiety at bay in a natural way reinforcing her positive view of this doctor's office.

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Contrary Case

Jane Doe is coming in for a routine physical with the instruction of fasting as she will have blood drawn for a routine blood panel. Jane has never been to this doctor's office before and is feeling some anxiety about this new environment. As the nurse gets ready to perform the blood draw, Jane's anxiety intensifies as she recalls previous needle sticks. She feels as though she has no control over the situation and is starting to tense up as the nurse begins prepping her arm. The nurse is unable to accurately place the needle into the vein and has to start over. Jane is now feeling more anxious than ever as the first attempt was very painful and now the nurse will attempt to reinsert the needle again. After the appointment, Jane leaves the office not being confident in the ability of the nurse nor her desire to want to continue making appointments with this doctor's office.

Discussion and Conclusion

The purpose of this concept analysis was to analyze the effects of music on patient anxiety during blood draws. Through the lens of music therapy, psychology and biology it is concluded that music may act as a cost effective and non pharmacological solution to anxiety reduction while also improving patient-nurse relationships and encouraging patients to further seek medical intervention and preventative care in the future. Musical intervention may even encourage patients to seek a more long-term relationship with their nurse or other Healthcare provider which will ensure better health outcomes in their lifetimes.

A practical application of this concept would be a very real possibility at the Japanese American Service Committee. Here, older adults are provided with a place to go while their families are at work to provide a stimulating environment as well as ensuring they are safe. Most of the clients suffer from some type of age related difficulties in performing activities of daily living effectively and on their own. Some may have dementia while others are no longer able to ambulate safely on their own without an assistive ambulation device. Though JASC does have a nurse on staff, they do not have a need to perform blood draws, though the use of music may come in handy while giving vaccines or administering other types of injection medications.

Often clients become anxious towards the end of the day as they worry they will not make it home or that their families have forgotten them. The use of music may be a simple and cost effective way for JASC to engage the clients while reducing their worry. The care takers may also teach the clients about the use of music during stressful medical procedures as many of the clients do see their doctors quite often. The education may also be given to the client's families who may be able to put the concept into use and therefore assist in making these doctors visits less stressful for everyone.

Implications for further research include a more comprehensive study across all ages, genders, settings, socioeconomic and insurance status, various procedures and patients who are predisposed to anxiety disorders. There are many factors that can influence a patient's anxiety level and it is important to distinguish between music's effectiveness versus a person's inability to effectively deal with anxiety.

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