



The therapeutic use of music as experienced by cardiac surgery patients of an intensive care unit

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Patients perceive the intensive care unit (ICU) as being a stressful and anxiety-provoking environment. The physiological effects of stress and anxiety are found to be harmful and therefore should be avoided in cardiac surgery patients. The aim of the study on which this article is based was to describe cardiac surgery patients' experiences of music as a therapeutic intervention in the ICU of a public hospital. The objectives of this article were to introduce and then expose the cardiac patients to music as part of their routine postoperative care and to explore and describe their experiences of the music intervention. The findings of the research are to be the basis for making recommendations for the inclusion of music as part of the routine postoperative care received by cardiac surgery patients in the ICU. A qualitative research methodology, using a contextual, explorative and descriptive research design, was adopted. The population of the study was cardiac surgery patients admitted to the ICU of a public hospital. An unstructured interview was conducted with each participant and content analysis and coding procedures were used to analyse the data. Four main themes were identified in the results, namely practical and operational aspects of the music sessions; participants' experiences; discomfort due to therapeutic apparatus and the ICU environment; and the role of music and recommendations for music as a therapeutic intervention. Participants' experiences were mainly positive. Results focused on experiences of the music and also on the participants' experiences of the operational aspects of the therapy, as well as factors within and around the participants.

Pasiënte se persepsie van die intensiewesorgeenheid (ISE) is dat dit 'n stresvolle en angswekkende omgewing is. Die fisiologiese effekte van stres en ang is skadelik en daarom moet dit vermy word in die geval van pasiënte wat hartchirurgie ondergaan. Die doel van die studie waarop hierdie artikel gebaseer is, was om hartchirurgie pasiënte se ervaring van musiek as 'n terapeutiese intervensie in die ISE van 'n openbare hospitaal te beskryf. Die doelwitte van hierdie studie was om hartchirurgie pasiënte bekend te stel aan musiek as deel van hul roetine- postoperatiewe sorg en hulle dan daaraan bloot te stel om sodoende hulle ervarings van die musiekintervensie te ondersoek en beskryf. Die bevindinge van die navorsing sal gebruik word om aanbevelings te maak vir die insluiting van musiek as deel van die roetine- postoperatiewe sorg wat hartchirurgie pasiënte in die ISE ontvang. 'n Kwalitatiewe navorsingsmetodologie, met behulp van 'n kontekstuele, verkennende en beskrywende ontwerp, is gebruik. Die populasie van die studie was hartchirurgie pasiënte in die ISE van 'n openbare hospitaal. 'n Ongestruktureerde onderhoud is met elke deelnemer gevoer en inhoud-analise en koderingprosedures is gebruik om die data te ontleed. Vier hoof temas is in die resultate geïdentifiseer, naamlik praktiese en operasionele aspekte van die musieksessies; die deelnemers se ervarings; ongemak as gevolg van terapeutiese apparaat en die ISE-omgewing; asook die rol van musiek en aanbevelings vir musiek as 'n terapeutiese intervensie. Deelnemers se ervarings was hoofsaaklik positief. Die resultate het gefokus op die deelnemers se ervaring van die musiek asook hul ervaring van die operasionele aspekte van die terapie, sowel as faktore binne en rondom die deelnemers.

Introduction

Worldwide non-communicable diseases contributed to 63% of the 57 million deaths in 2008 (WHO 2011b:1). In total 48% of these deaths were attributed to cardiovascular disease, making cardiovascular disease the leading cause of non-communicable disease deaths in 2008 (WHO 2011a:9). In South Africa too cardiovascular disease is a leading cause of non-communicable deaths, contributing to 11% of all deaths in 2008 (WHO 2011c:174).

Management of cardiac disorders and their contributing factors usually begins with lifestyle changes and medication (WHO 2011a:92). A patient's unstable condition, despite initial management, may necessitate medical or surgical interventions (WHO 2007:1).

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The critical nature of surgery such as a coronary artery bypass graft (CABG) and conditions such as acute myocardial infarction (AMI) warrant that certain patients with cardiac pathology be admitted to an intensive care unit (ICU).

ICUs are specialised units where patients are surrounded by advanced technology which is essential to healthcare professionals' attempts to save patients' lives. This advanced technology creates an environment that is unfamiliar and intimidating to patients. Patients may even perceive the ICU environment as being life-threatening, and feelings of vulnerability and the perceived lack of control evoke anxiety (Morton & Fontaine 2009:20–22). Many nursing studies have been conducted on the use of music as a therapeutic measure and it has been found that it enhanced distraction and relaxation in the patient (Morton & Fontaine *ibid*:27), and reduced anxiety and decreased intubation time in CABG and valvular surgery patients (Twiss, Seaver & McCaffrey 2006:229). Kaplow and Hardin (2007:33) claim that the therapeutic effects of music could be extremely beneficial in an intensive care environment.

The study that informed this article was conducted in the ICU of a public hospital in Gauteng. The purpose of the study was to expose cardiac surgery patients to music as a therapeutic intervention during their routine postoperative care. In order to explore the experiences of music as a therapeutic intervention, a guided interview was conducted between the researcher and each participant. A qualitative research methodology and explorative, contextual and descriptive research design allowed for the collection of rich, descriptive data, which will be presented in this article.

Literature review

Coronary heart disease patients usually experience stress and anxiety. In cases where surgery is performed they are admitted to the ICU. Mechanical ventilation is a common form of therapy found in the ICU. Mechanical ventilation is a life support treatment where a breathing device is used to maintain breathing and oxygen delivery to the system of the body (Smeltzer *et al.* 2010:651). This dependence on machines and health care professionals who are unfamiliar can be very distressing to patients. Apart from the unfamiliar and intimidating technical environment, noise, being critically ill, altered sleep patterns and the decreased ability to communicate are some of the factors which contribute to distress in the patient (Hofhuis *et al.* 2008:310; Magnus & Turkington 2006:177). Smeltzer *et al.* (*ibid*:79) state that a change in the environment which is perceived as challenging or threatening can contribute to enhanced stress levels in the patient.

Firstly, the presence of stressors leads to the activation of the stress response by the hypothalamus. Through a cascade of events, the hormones aldosterone and cortisol are released by the hypothalamus and the pituitary gland. Both aldosterone and cortisol increase the intravascular volume, which will elevate blood pressure, causing hypertension (Lusk & Lash

2005:26–27). Hypertension increases the workload of the heart as the left ventricle increases its force of contraction in order to pump blood against high pressures in the systemic blood vessels (Smeltzer *et al.* 2010:890). In postoperative care of CABG patients, measures are taken to prevent hypertension in order to ensure that the grafts remain intact, thereby preventing cardiovascular complications (Morton & Fontaine 2009:512).

Secondly, stress can also stimulate the sympathetic nervous system (SNS) which, through the release of adrenaline and noradrenaline, will increase the heart rate, myocardial contraction and conduction, thus increasing the workload and oxygen demand of the heart (Silverthorn 2013:378, 385, 497) – factors that need to be excluded after a CABG.

The above-mentioned responses in a cardiac surgery patient will increase the workload of an already compromised cardiovascular system; therefore, specific medical and nursing interventions in the postoperative period are implemented to prevent and treat stress and anxiety. In a study conducted by Hofhuis *et al.* (2008:310–311), ICU patients experienced careful and clear explanations of procedures, the nurses' caring behaviour and continuous support as being important in preventing distress. Another intervention is the administration of intravenous sedatives and analgesics to promote relaxation and comfort. However, the use of sedatives may be associated with an increased length of stay in ICU (Lindgren & Ames 2005:54).

The use of a lower dosage of sedative combined with an alternative and complementary therapy such as music is recommended by Almerud and Petersson (2003:29) and the Joanna Briggs Institute (2011:101). Smeltzer *et al.* (2010:92–93) recognise music as a means of promoting relaxation which will lead to a decrease in the stress response and SNS activity. In their systematic review, Bradt and Dileo (2009:14) conclude that listening to music may be beneficial to coronary heart disease patients, since they found that this type of intervention resulted in reduced diastolic blood pressure, heart rate and anxiety levels.

Schneck and Berger (2006:118) contend that music influences the body through synchronisation, in which two objects which are vibrating at the same frequency can interact and synchronise with one another. Mok and Wong (2003:396) provide the example of an anxious patient with a racing heart rate who listens to slow music and subsequently calms down. His heart rate synchronises with the slow music rhythm which leads to a slow heart rate.

The purpose of music for relaxation is to bring about deep relaxation. This is accomplished through music which has a slow, consistent and steady tempo and has predictable melodic, rhythmic and harmonic features (Grocke & Wigram 2007:45–46). As different kinds of music appeal to different people and familiar music is most effective, it has been recommended that patients be given the opportunity to select the music they will listen to provided that the preferred genre is suitable for relaxation (Grocke & Wigram *ibid*:47).



From the literature it is clear that the therapeutic use of music has a stress-reducing effect, thus promoting healing. The sensible use of alternative and complementary therapies, such as music, could reduce the physiological stress response and may have physiological benefits in the critically ill patient. These therapies could benefit the patients and could have the advantage of producing relaxation and satisfaction and reducing stress and anxiety (Lindquist *et al.* 2005:66).

Problem statement

The critical care setting can be intimidating and unfamiliar, which can cause stress and anxiety in a patient. This anxiety must be avoided in a cardiac surgery patient in order to prevent postoperative complications. International studies have proven that the therapeutic use of music can bring about a stress-reducing effect and therefore promote healing in a patient. However, in South Africa there is a lack of research done on the use of music interventions in a critical care setting. This implies that music interventions are not generally practiced in the critical care setting in South Africa.

Aims of the study

The aim of the research discussed in this article was to describe cardiac surgery patients' experiences of music as a therapeutic intervention in the ICU of a public hospital.

Objectives of the study

The objectives of the research were to introduce and then expose the cardiac patients to music as part of their routine postoperative care and to explore and describe their experiences of listening to the music. The findings of the research are to be the basis for making recommendations for the inclusion of music as part of the routine postoperative care received by cardiac surgery patients in ICU.

Definition of terms

1. **Cardiac surgery patient:** A patient with cardiac pathology who is carefully selected for surgery in order to manage the condition (Morton *et al.* 2005:448). The study on which this article is based included patients who underwent CABG and valvular heart surgery.
2. **ICU:** A hospital facility which provides intensive nursing and medical care to critically ill patients. The ICU is characterised by continuous nursing and medical supervision and the use of sophisticated monitoring and resuscitative equipment (MediLexicon 2014).
3. **Experience:** Something personally encountered, undergone or lived through (Merriam-Webster 2013).
4. **Music intervention:** Music interventions involve the practice of music listening and can be implemented by health care professionals as stated by Dileo (1999) in Bradt *et al.* (2011:6).

Research significance

The inexpensive nature, lack of harmful side-effects and relative ease of delivery necessitated further investigation into the benefits of music. The study evaluated the effects

of music in the ICU setting of a public hospital. The study contributes to the scientific body of knowledge of nursing and also aims to increase health professionals' awareness of the therapeutic effects of music, thus enhancing patient care, and to increase patients' awareness of the therapeutic effects of music, thus promoting self-care.

Research method and design

Design

A qualitative research approach and an explorative, descriptive, contextual research design were selected as the strategy for conducting this research. This allowed the researcher to understand and describe the participants' experiences of music which formed part of their routine postoperative care in ICU.

Population and sampling

Cardiac surgery patients to be admitted to the ICU of a public hospital were identified as the target population. A non-random sampling method, namely purposive sampling, was used to select the sample. Participants had to be selected for elective cardiothoracic surgery and had to meet the following inclusion criteria:

- oriented to person, place and time, pre- and postoperatively
- willing to participate in the study
- able to speak and read English
- 18 years of age or older
- no severe hearing disability
- in a stable condition pre- and postoperatively (for example, no cardiogenic shock or pulmonary oedema).

If the participant underwent periods of severe instability during the postoperative period, he or she was removed from the research study so as not to interfere with essential treatment.

Research procedure

During the pre-operative period, patients who complied with the inclusion criteria were identified as potential participants. They were introduced to music as a therapeutic intervention and were provided with all relevant information. Informed consent was subsequently obtained from the participants.

Patients were then given the opportunity to select the music which they would prefer listening to during their postoperative period, because different kinds of music appeal to different people and familiar music is most effective (Grocke & Wigram 2007:45–46). Allowing patients an opportunity to select the music also gives them a sense of control or involvement in their care (Chlan & Heiderscheidt 2009:46). However, as music with a slow, consistent and steady tempo and predictable melodic, rhythmic and harmonic features have been found to promote relaxation (Grocke & Wigram *ibid*:47), the researcher selected the music which was presented to the participants. The music selection consisted of a variety of music which was divided into the



following categories: Afrikaans, contemporary, instrumental, Indian classical and Western classical.

A pre-operative compact disc (CD) was compiled by the researcher. This CD contained short pieces of music from the different categories. The participants listened to this CD during the pre-operative period and selected the category of music they most enjoyed and would prefer to listen to after their surgery.

During the postoperative period, the music each participant had selected was played to that patient in the ICU. A good quality CD/MP3 player with a volume control which was easy for the participant to operate was used. Kaplow and Hardin (2007:33) state that by allowing patients control over their environment, anxiety can be reduced. This control was given to patients by allowing them to control the type and volume of music played to them. Comfortable headphones with foam around the earpieces were used to block out unpleasant environmental stimuli.

Participants listened to the music for a period of 20 minutes at a time during their stay in the ICU. This was thought to be sufficient time to achieve the desired outcome, yet short enough to prevent boredom (White 2001:89).

To prevent interference with family visits and the nursing routine, the music sessions were carried out outside of usual routine nursing care times, namely:

- 06:30 to 07:00
- 09:30 to 10:30
- 13:30 to 14:30
- 17:00 to 18:00
- 20:00 to 21:00

Music sessions were provided during participants' first three postoperative days in the ICU.

After a patient was discharged from the ICU, an unstructured interview was conducted by the researcher during the participant's recovery period in the cardiothoracic ward. The interview was no longer than 45 minutes in duration. The interview was tape-recorded.

The following central open-ended question was asked: How did you experience the music that was played to you after the operation?

Participant observation was conducted and field notes were taken throughout the research process. A checklist compiled by the researcher was used to ensure comprehensive and consistent data collection.

Data analysis

Interviews were transcribed verbatim. Content analysis and coding procedures were used to analyse the collected data in this research study. The researcher remained in the field until data saturation was reached. Data saturation occurred when the new data collected was repetitive of that which had been collected already. A co-coder ensured that the collected data was correctly interpreted and coded.

Ethical considerations

Written consent was obtained from the superintendent and the head of the cardiothoracic surgery department of the hospital at which the study was conducted, as well as from the ethics committee of the university involved in the study.

Before the cardiac surgery, the research procedure was explained to the participants and verbal and written consent obtained from them. Participants were given a copy of the participant information leaflet and consent form and adequate time was given for questions to be asked.

The participants were informed of their right to withdraw at any time during the study and were not exposed to any harm during the study or afterwards. Confidentiality was ensured throughout the study and during publication of the results. Participants voluntarily participated and were not offered any incentives for participating in the study.

The inclusion criteria selected for the study ensured that vulnerable patients, such as the disoriented, those who could not read or speak English, minors and those who were not stable, were not selected for the study. The researcher reserved the right to withdraw participants from the study if it was in their best interest.

Trustworthiness

Trustworthiness is a term used to assess the data quality of a qualitative study and is equivalent to validity and reliability in quantitative research studies (De Vos 2003:349). The criteria of credibility, transferability, dependability and confirmability as described by Lincoln and Guba (cited in ed. De Vos 2003:351) were used to ensure trustworthiness. These criteria and their application to this study are presented in Table 1.

Discussion

Outline of the results

The themes, categories and subcategories that emerged from the data collected through the in-depth interviews, field notes and participant observation are summarised in Table 2.

Practical implications

Nine participants between the ages of 30 and 70 years participated in the study. Each participant received between one and six music sessions.

Participants described the music selection as 'familiar', 'very good', 'nice and calming', 'relaxing' and 'satisfactory'. One participant made the following remark:

'There was a special music I listened; I listened to it about three times. I will remember if you play the tape ... Classical one, what was the name of that? That was a very nice piece of work ... but I don't know the names, even if you tell me the names I won't know. But if I listen to it then I'll tell you that was it. Because I don't remember the name of anything but that's an old song that you played for me.' (H, female, 60 years)

**TABLE 1:** Strategies to ensure trustworthiness.

Strategy	Criteria	Application
Credibility	Prolonged engagement	Participants received more than one music session. The researcher remained in the field until data saturation was reached.
	Persistent observation	Participant observation and field notes were utilised throughout the research. Findings were recorded which allowed for in-depth and consistent data collection. The guided interview allowed for consistency in data collection.
	Triangulation of measures	Field notes, participant observation, an in-depth guided interview and literature control were used in data collection and analysis.
Transferability	Thick description	Narrative description was used to describe the research process and to present the findings. Literature control ensured that the most current knowledge was reflected.
	Purposive sampling	This allowed for participants to be selected according to the purpose of the research.
Dependability	Inquiry audit	The final research product was audited and all transcripts and tape recordings were kept safe.
Confirmability	Audit trail	All transcripts and tape recordings were kept safe and consensus meetings were held with the co-coder. Bracketing was ensured by recording personal notes during data collection; thus the researcher was able to distinguish between own beliefs and those observed.

TABLE 2: Identified themes, categories and subcategories.

Themes	Categories	Subcategories
Practical and operational aspects of the music sessions.	Music selection	<ul style="list-style-type: none"> • Familiar music • Very good • Nice and calming, relaxing • Satisfaction • Pre-selection of music • Variety
	Length of the music session	<ul style="list-style-type: none"> • Long enough • Not long enough
	Frequency of the music session	<ul style="list-style-type: none"> • More often • Not at that time • Request for the music over and above the routine offered
	Operation of the equipment	<ul style="list-style-type: none"> • Just right • Request for better control • Experienced difficulty
	Comfort of the equipment	<ul style="list-style-type: none"> • Comfortable • Uncomfortable / struggled
	Overall presentation	<ul style="list-style-type: none"> • Well done • Better co-ordination with other nursing care
Participants' experiences.	Positive experiences	<ul style="list-style-type: none"> • Calming / restful • Relaxing • Wonderful, nice • Enjoyed • Helpful • Motivation • Happy • Well-being
Discomfort due to therapeutic apparatus and ICU environment: Role of music.	Discomfort due to therapeutic apparatus	<ul style="list-style-type: none"> • Endotracheal tube • Chest tubes
	ICU environment	<ul style="list-style-type: none"> • Noise • Light • Activity
	Endogenous distractions	<ul style="list-style-type: none"> • Pain • Disturbed sleep • Nausea • Mood, feelings and thoughts
Recommendations for music as a therapeutic intervention.	Quiet environment	
	Music selection	<ul style="list-style-type: none"> • Nature sounds • Gospel music • Other
	Using music in future	<ul style="list-style-type: none"> • For others • For themselves

ICU, intensive care unit.

Familiar music has been reported to help patients gain control of an unfamiliar environment (Chlan & Heiderscheidt 2009:46; Mok & Wong 2003:409). It also helps to focus the patients' attention on preferred stimuli rather than on the noises of the ICU (Twiss *et al.* 2006:228). Lee *et al.* (2005:616) found that music which the participants were familiar with and liked may result in a greater degree of relaxation. The point that is illustrated here is that if patients could be involved in choosing the music that will be played to them, they will feel satisfied with it because they would have chosen their favourite music.

Wigram, Pedersen and Bonde (2002:110) identify two principles to be followed when selecting music for mood

transformation. The first principle involves selecting music which matches the initial mood of the client and then changes in order to induce an intended mood. The second principle is where music which contrasts the mood of the client is selected in order to attune the mood of the client. In this study a client verbalised that:

'I didn't quite make the right selection. I think I did, when I told you to choose something else for me. At some point when you feel well, certain music applies to you, when you not feel that well, then it's irritating.' (D, female, 42 years)

This was experienced by the participant where the principles of music selection were perhaps not correctly adopted. This finding is also supported by a study conducted by



Losiuk (2010:148), in which a participant commented on the importance of selecting the right type of music in order to have a positive effect.

Many of the participants found that the music sessions were long enough. Two participants stated that they would have enjoyed listening to the music for longer. If patients are allowed to choose how long they want to listen to the music, their sense of taking back control over their lives will be enhanced. This emphasises the difficulty in selecting an optimal duration of a session as it is dependent on the preferences of the individual patient. Grocke and Wigram (2007:55) concur that the length of the music is dependent on many factors, including the environment, the amount of time it takes the client to settle down and the concentration or tolerance span of the client.

A participant who found the music sessions long enough responded as follows: 'Yes, it was just right. I fell off to sleep very quickly' (G, female, 49 years). Another found that the sessions were not long enough: '... But to me it's short' (I, female, 40 years).

The frequency of the music sessions also depended on the preferences of the individual patients. Some participants said that they would have preferred and appreciated more music sessions: 'Yes, it could have been played more often' (G, female, 49 years).

The researcher observed that the patients who experienced much stress and pain chose to listen to music for shorter periods of time, or preferred not to listen to music at that time.

Many of the participants did not raise any complaints regarding the volume of the music and therefore did not have to make adjustments on the equipment during the music sessions. Three participants wanted to have better control over the volume and talked about the difficulty experienced in operating the equipment because of the drip restricting their hand movements. One of the participants made the following comment:

'You know what, that was my problem. All the needles, my hands felt stupid; if I take something I just drop it, that's why I couldn't really operate the machine. But it was done; thank you, you've done it for me.' (H, female, 60 years)

Most of the participants found the headphones comfortable: 'You don't even feel that you wear them. It's just that you know that the music is just here with you' (D, female, 42 years). However, one participant experienced discomfort as the headphones caused the oxygen mask to slip off during the music session. This was bothersome to the patient and interfered with his concentration on the music. This illustrates the importance of ensuring that the patients are comfortable both before and during the music session and that the music apparatus does not interfere with the patient's care.

Participants found the overall presentation of the music sessions to be done well. However, the need for better co-ordination with other nursing care was also identified.

'But it was so busy in ICU, that I think that the sisters was very irritated with everything. ... So I think if there's some other way to do it that they don't feel that they get interrupted in what they do then it will make life easier for them because they feel while you there they can't do what they have to do, they have so many things to do they can't cope with everything. So I don't know if there's maybe another way of doing things.' (D, female, 42 years)

Improved co-ordination with nursing staff and other health care professionals can be accomplished, as illustrated in a study conducted by Hunter *et al.* (2010:212) on music therapy as an adjunctive treatment in the management of stress for patients being weaned from mechanical ventilation. In this study music therapy was effectively integrated and positive co-operation between interdisciplinary team members was found.

The patients' positive experiences of the music sessions were expressed with words such as: 'It is wonderful', 'calming', 'helpful' and 'restful'. Participants also said that listening to the music had motivated them to participate in activities that would contribute to their recovery. For example, one participant stated:

'Well, the part that I was awakened to and to hear the music it just calms you down, calms your nerve system, everything, so I'm much relaxed. So, *ja*, I think it's wonderful, I think it would have been much more traumatic if the music wasn't there.' (D, female, 42 years)

Grocke and Wigram (2007:216) describe low frequency, slow tempo and soft music which can pacify, calm and relax a person. In a study Grocke and Wigram (2007:216) describe low frequency conducted by Hunter *et al.* (2010:211) participants found the music intervention to be helpful.

Following the cardiac surgery, patients are taken directly to ICU. They have numerous invasive devices (for example, an endotracheal tube, chest tubes and haemodynamic invasive monitoring) *in situ* which are required for postoperative medical and nursing management (Morton *et al.* 2005:458), as indicated below:

'Ek onthou die buis in die mond, dit was iets wat my baie geïrriteer het. En ek kan nie eintlik rustig na musiek luister as ek geïrriteer word nie. Toe ek aan die musiek begin gewoon raak toe hou ek daarvan, toe bring dit vir my 'n effek, 'n kalmerende effek.' [*I remember the tube in the mouth; it was something that irritated me very much. And I can't really listen to music calmly if I am being irritated. When I began to get used to the music I liked it; then it had some effect on me, a calming effect.*] (A, male, 62 years, [author's own translation])

'... it really distracted me a little bit from other things and I think even with all things around me and in me, especially the drainage pipes which was hell ... *Ja*, it's uncomfortable, had them in until Thursday, but it helped me a lot.' (B, male, 31 years)

Participants in this study commented that listening to music whilst they were intubated had a positive effect on them because it provided some form of distraction from the pain caused by the chest tubes and endotracheal tube. In a study in which cardiovascular surgery patients awoke to music, it was concluded that the music reduced patient anxiety and thus decreased the intubation time of these patients. These



patients awoke in a calm and co-operative manner as they awoke to the soothing and calming stimuli of music instead of the strange noises of the ICU (Twiss *et al.* 2006:229).

The data collected through field notes and participant observation indicated that noise, activity and light were present during many of these sessions, even though the researcher had selected less busy times to implement the music sessions. Noises such as the ringing of the ICU telephone or the nurses' cell phones, the continuous noise of the infusion pump, the ventilator and humidifier alarms and staff talking were identified. Participants articulated the effect of the distractions as follows:

'It was really nice, mmm, it was just at a later stage there were too many things going on that's why I gave it back to you, cause I can't concentrate on it but it helped me a lot.' (B, male, 31 years)

'Well, it has a certain extent of blocking out pain and the noises which you have so it helps but again it will not make it completely go away. I would say it stays in the background.' (C, male, 67 years)

Participants also reported that despite the noise, activity and light in the ICU, which they found distracting, they were still able to enjoy the benefits of the music session:

'Yes it did, that's why I called you and said can I have the music. Because I was a bit tense ... It just calmed me down. I don't look around and see all that machines and people walking up and down ...' (H, female, 60 years)

'I don't think it's about enjoy or appreciation. Just about that it calms you down so it makes it easier to go through all this horrible things that goes in your mind, what can go wrong and what can go right and all that things. Music just makes it easier to accept the result.' (D, female, 42 years)

With regards to endogenous distractions, one participant reported that a lack of rest prevented him from enjoying the full benefits of the music sessions. Nausea, 'not being in the mood' or 'not feeling for the music' prevented participants from listening to the music. One respondent said: 'I didn't sleep for a couple of days and it's not the best way of listening to music ...' (C, male, 67 years).

A participant reported the following on the perception of pain:

'Well it has a certain extent of blocking out pain and the noises which you have so it helps but again it will not make it completely go away... I would say it stays in the background.' (C, male, 67 years)

'The time when you came and told me about the music therapy I was not too sure, about the music. But when you put that sweet sound it sort of relaxed me. But it's between the music and the pain I was going through, but it really helped, the music really helps you.' (E, male, 55 years)

Mitchell and MacDonald (2006:311) found that participants who listened to preferred music perceived lower levels of pain than participants who listened to relaxing music or to white noise and therefore concluded that preferred music has the ability to distract from unpleasant stimuli.

Data was also collected on recommendations for music as a therapeutic intervention. These will be discussed under 'Recommendations'.

Limitations of the study

The contextual research design, purposive sampling method and focus on the experiences of the participants reduces the possibility of making generalisations about the results of the study. Experiences are unique to each participant and selecting a specific sample of cardiac surgery patients also limits the possibility of generalising the research findings to a cardiac surgery population.

Recommendations

The participants of this study had positive experiences with regard to the music sessions. The researcher concluded that the therapeutic use of music can be beneficial to the recovery of patients and therefore recommends that ICU nurses use music sessions in the postoperative care of cardiac surgery patients. Participants themselves recommended that music sessions be implemented for other patients.

Participants in this study have found music with slow, harmonious rhythm and low pitch to have a positive effect. It therefore seems to be the appropriate music for these patients and should form part of the music that can be selected by the patients. The findings indicate that participants enjoyed listening to music that was familiar to them. Therefore, it is recommended that various genres of music be offered to patients and that the nurse who is interested in using music sessions should begin creating a library with different genres of music.

It is further recommended that patients be offered the music sessions before their surgery and admission to the ICU, thus allowing them to become familiar with the music and then being exposed to that familiar stimulus in the ICU.

It is suggested, as a guideline, that music sessions should be 20 minutes long, but that patients should be given control over the duration by allowing them to listen for more or less than 20 minutes, according to their preference. Each patient should also be given the opportunity to decide when and how often to listen to the music. The music sessions should be offered to the patient as often as possible, but the decision whether or not to listen to the music should be left to the patient. This will give the patient control over the music sessions. Patients should also be made aware of the fact that they can request the music at any time.

The equipment used to play the music during the sessions should be easy to operate, thus allowing the patient to control the volume of the music. However, since the patient will experience decreased mobility as a result of invasive devices, it is essential for the nurse to control the volume initially on behalf of the patient. The nurse who is implementing the music sessions should select the appropriate volume. The



patient will take more control of the music volume as his or her condition improves.

It is recommended that the patient should be made comfortable and that he or she should be prepared for the music session before it commences. This includes mobilising the patient to the restroom to urinate first if necessary, ensuring a comfortable position, securing the mask, ensuring that comfortable earphones are used and that they are properly positioned. This will ensure patient comfort and an optimal therapeutic effect.

Nurses should be made aware that they should create a favourable therapeutic environment by decreasing noise levels and having distinct times for rest with fewer activities around the patient. Lights should be dimmed. Furthermore, better co-ordination between routine nursing care and the music sessions is required. A low stimuli environment and co-ordination between routine nursing care and music sessions will result in a greater opportunity for rest and greater enjoyment of the music sessions when they are implemented. Patients would benefit from the low-stimuli environment, even in the absence of music sessions. The music sessions should be implemented during the day when the nurse is available and able to conduct the music session, when the activity around the patient is reduced, when there are no visitors and when the patient wants to listen to the music.

Since the participants found the music sessions to have a calming effect in that it provided some distraction from the pain caused by the chest tubes, it is recommended that the music sessions be used during periods of intubation and whilst invasive devices are still in place.

Further research on the therapeutic use of music in a South African setting should be conducted as this will increase knowledge and will generate awareness and interest in this form of therapy. Research in collaboration with a qualified and registered music therapist and research involving nurses in the research procedure will allow the nurses a better understanding of the therapeutic use of music and therefore encourage the use of music sessions in patient care. Quantitative research methods involving a larger population should be used in future research.

Nursing education and administration strongly influence and form the foundation of that which is learnt and practised by nurse practitioners. Nurse educators in educational institutions and hospitals should be made aware of the beneficial effects of music and the means of using this alternative and complementary therapy together with routine nursing care. Increasing nurse administrators' awareness of music and its benefits will lead to the promotion and greater acceptance of the therapeutic use of music in hospitals. This can be accomplished through in-service training sessions for hospital personnel, which will increase their knowledge of this alternative and complementary therapy and promote patient care.

Conclusion

'If it wasn't for the music I would have gone crazy there because everyone seems so sick, and you feel I'm not as sick as these people, maybe you are a bit maybe not quite as sick, I'm not so sick as these people why am I here? Then the music takes your mind off it a bit.' (D, female, 42 years)

These words of a participant in this article clearly demonstrate the therapeutic benefit of music when used in conjunction with routine postoperative care. It shows that listening to carefully selected music under specific conditions can be highly beneficial to the overall well-being of the cardiac surgery patient.

The findings and recommendations illustrate that aspects such as the type of music, the time the music sessions are played to the patient, how frequently it is played, the duration of the music sessions and the therapeutic environment are important aspects to consider in planning this kind of intervention.

It is evident that the sensible and therapeutic use of music is highly beneficial to ICU patients who have had cardiac surgery and that together with routine postoperative care it can promote holistic patient care.

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Competing interests

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Authors' contributions

V.M.B. (University of Pretoria) conducted the article and wrote the manuscript. A.D.H.B. (University of Pretoria and UNISA) supervised the article was co-author of the manuscript.

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