Specially designed music's (MusiCure) effect on the sound environment in Postanaesthesia Care Units (patients and staff)

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We have in this recovery patient trial evaluated the effect of the MusiCure programme played via ceiling suspended loudspeakers on patients recovering after anaesthesia in 5 wards at 3 university hospitals in Denmark. We have specifically focused on the patient opinions of the music environment related to the opinion of the staff, and we have investigated whether there were geographically related differences with respect to the opinion of staff and on the patient effect. Displayed below is some selected illustrations of the results generated by the patients' reactions to the MusiCure programme. (The complete documentation of the entire trial will later be available for downloading at the Musica Humana website: www.musicahumana.dk)

Methods

Five post anaesthesia care units (PACU) at 3 Danish University Hospitals (Aalborg [north and south], Skejby and Odense [COPA and VITA]) participated in the study. Information were collected by means of questionnaires – both in relation to patients and staff. The patients were questioned at the end of their stay at the PACU by nurses specifically trained in how and when to question the patients. The staff was asked to fill in a questionnaire at the end of the investigation. The questions were standardized according to the protocol, which were approved by the local Ethical Committee.

The questions to the patients focused on the following items:
Patient opinion on the music sound environment (pleasant/unpleasant/no opinion) and scaling of their opinion on a visual analogue scale (VAS) from 0-10.
The importance of a good sound environment graded on a VAS-scale from 0-10. Their degree of relaxation and their satisfaction with the PACU-stay – both parameters expressed in a VAS-scaling from 0-10.
The questions to the staff focused on the following items:
What is your personal opinion of the music sound environment (like/dislike/no opinion)?
How does the music affect your working conditions (increases stress/diminishes stress/no opinion)?
How does the music environment affect the total level of sounds in the room (increase/decrease/unchanged)?
Which effect do you think the music sound environment has had on the patients?

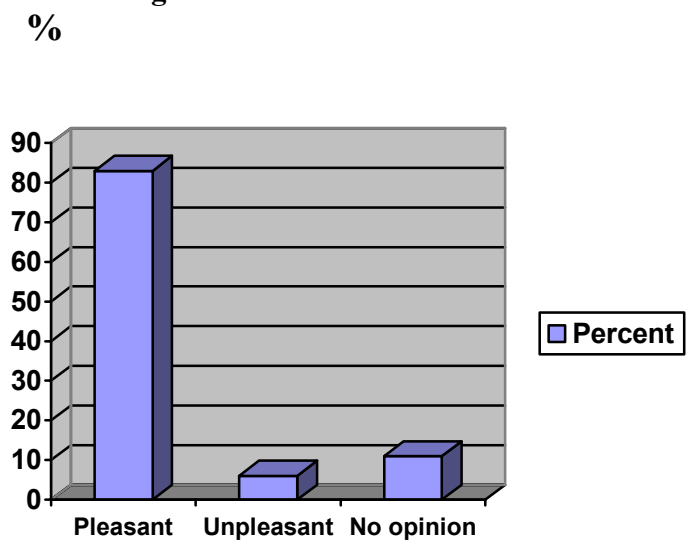
The patients were all recovering after operations performed in general anaesthesia or regional analgesia (with or without sedation). No intervention concerning the type of anaesthetic chosen was done in relation to the investigation. The patients were not asked on beforehand for permission to play music nor were they notified about the presence of music in the room. At specified days patients were consecutively included if they were over the age of 18 years, had a normal hearing and spoke Danish. Demographic data are given in Table 1.
The specially designed music was played via ceiling suspended loudspeakers "on top" of the basic sounds in the room. Thus, the usual sounds in the PACU`s were not changed in relation to the investigation and the sound level of the music was fixed at a level just hear able.

The staff consisted of nurses taking care of the patients during their stay at the PACU`s during the investigation period. Not all experienced the same number of working time with music-environment, but all experienced more than 3 working days in the music environment.

Results:

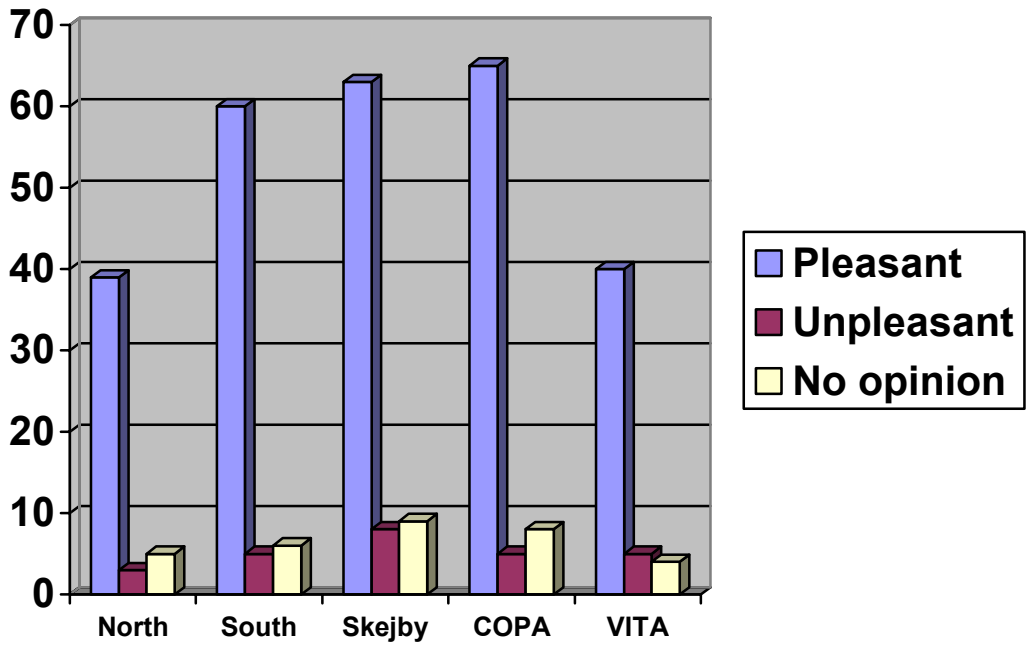
The patient group consisted of 325 patients (149 men and 176 women). Asked about their opinion on the sound environment, 267 (83%) found it pleasant, 26 (6%) found it unpleasant and 32 (11%) answered "don't know" **figure 1**.

Figure 1



The distribution of the patient opinions (absolute numbers) related to the 5 recovery wards is given in **figure 2**.

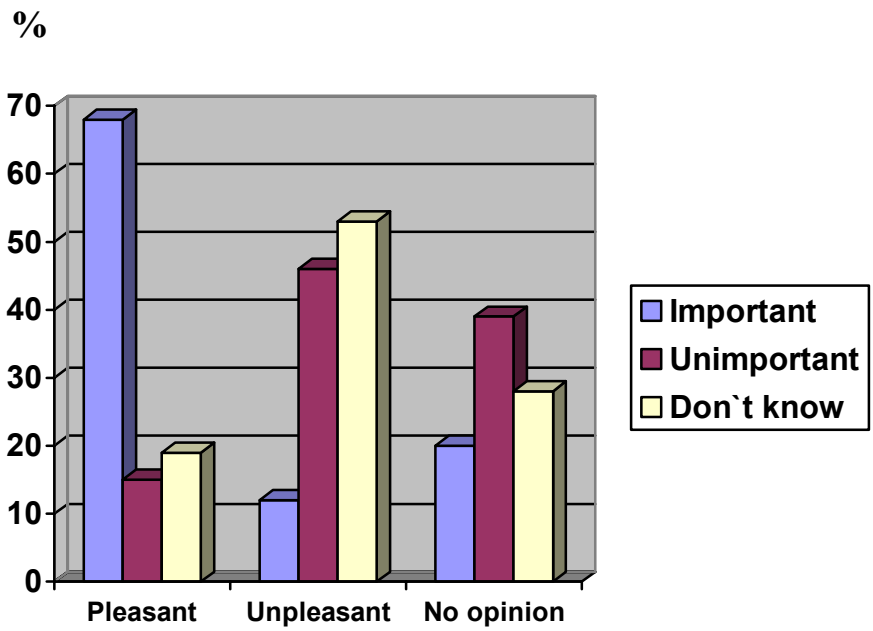
Figure 2



In patients with a pleasant experience of the sound environment 182/267 (68%) found it of "major importance" to have a good sound environment, 31/267 found it of "minor importance", whereas 54/267 (20%) had "no opinion". In patients with an unpleasant experience of the sound environment 4/26 (15%) found it of "major importance" to have a good sound environment, 12/26 (46%) found it of "minor importance", whereas 10/26 (39%) answered had "no opinion". In the group with "no opinion" in relation to the sound environment 6/32 (19%) found it of "major importance" to have a good sound environment, 9/32 (28%) found it of "minor importance", whereas 17/32 (53%) had "no opinion". There was a significantly higher fraction of patients amongst those with a pleasant opinion of the sound environment who found the sound environment of "major importance" than in the other groups. On the other hand the fraction of patients was higher in the two latter groups finding it of "minor importance" or had "no opinion" in relation to a good sound environment.

The answers of the patients are graphically represented in **figure 3**.

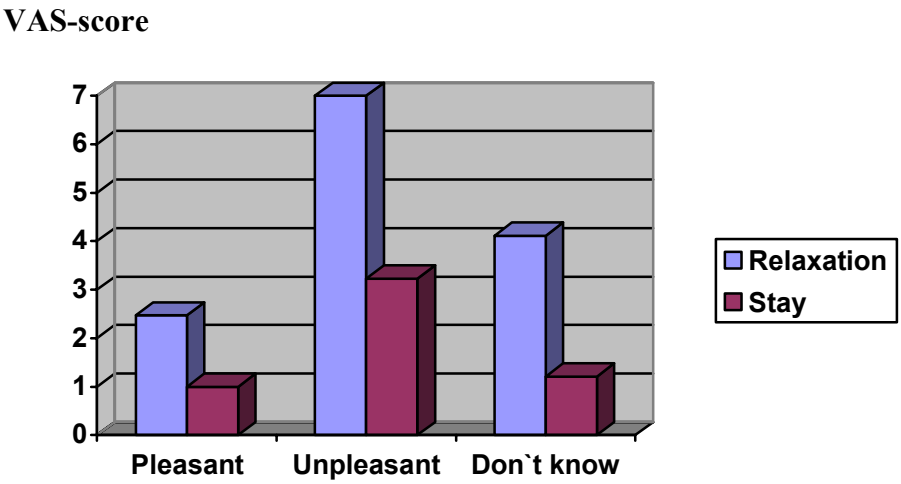
Figure 3



The patients VAS-scale rating of degree of relaxation and their overall satisfaction with the stay at the PACU was rated on a VAS-scale (0-10) 3.10 and 1.50, respectively.

When related to the patient opinion of the sound environment this relaxation and satisfaction score varied significantly. The mean score in relation to the degree of relaxation was in relation to the opinion pleasant, unpleasant; don't know respectively 2.47, 7.00 and 4.11. The mean score in relation to the overall satisfaction with the PACU-stay related to the sound environment opinion pleasant, unpleasant, don't know was respectively 1.00, 3.23 and 1.21 (**figure 4**). There was a strong and uniform correlation between the mean VAS-scores and the opinion of the patients in relation to the music sound environment expressed as pleasant/unpleasant/don`t know. The difference was statistically significant ($p<0.05$).

Figure 4



The positive effect of the MusiCure sound environment on hospitalized patients has previously been demonstrated, and the positive attitude of our patients towards music in the recovery room was thus not surprising. Nevertheless the patient-statements were important to elucidate the relation between the opinion of the patient concerning the sound environment and that of the staff.

Furthermore, we found it of interest to investigate a possible relationship between patient satisfaction with music sound environment and degree of relaxation and satisfaction with stay at the department. Our findings did indicate that there is such a relationship, as there was a significant correlation between satisfaction with music sound environment (graded as pleasant/unpleasant) and degree of relaxation and satisfaction with stay.

The patient grading of importance of a good sound environment was significantly related to the opinion of the patient in relation to the music sound environment. A high number of patients who found the music sound environment pleasant rated the sound environment important, whereas a relative low number of the patients who found the music unpleasant (or had no opinion) rated the sound environment to be of minor importance.

As our patients were unaware of the investigation with special focus on the effect of music, we find this difference important. If the patients were asked on beforehand with respect to permission to play music or that an investigation concerning the effect of music was going on, there would have been a high possibility for a biased answer in favour of the positive effects and importance of music. This was not the case in our study as the patients were unaware of an ongoing investigation of the effects of music. The ethical committee had permitted that our patients were not informed about their participation in a scientific study. Our interpretation is that the music sound environment catches the focus of a certain fraction of the patients – possibly because these patients relate positively to the music and sound environment in general.

Once the attention of these patients has been drawn to the music, they have a more clear opinion on the sound environment (positive attitude) and to the importance of a good sound environment. On the other hand the two other groups of patients have a low focus on sound environment – and a corresponding negative opinion on the sound environment and a low importance rating.

An interesting finding in our study was that the subjective opinion of staff does not have an impact on the patients. Recovery ward patients are slowly returning to consciousness and seldom have a dialog with staff during their stay. In other patient groups where the contact between staff and patients are longer and dialogue based one would expect that staff attitude dose influence the attitude of the patient. Another factor could be that music in its own nature is a very subjective phenomenon; especially in patients with distorted perception of stimuli - like recovery ward and sedated patients – the sound impressions from the environment are perceived differently in patients compared with staff. The general conclusion however from the tests we have made, shows clearly that both staff and patients benefit immensely from the highly improved sound environment that MusiCure creates in the ward.

Per Thorgaard, January 2003