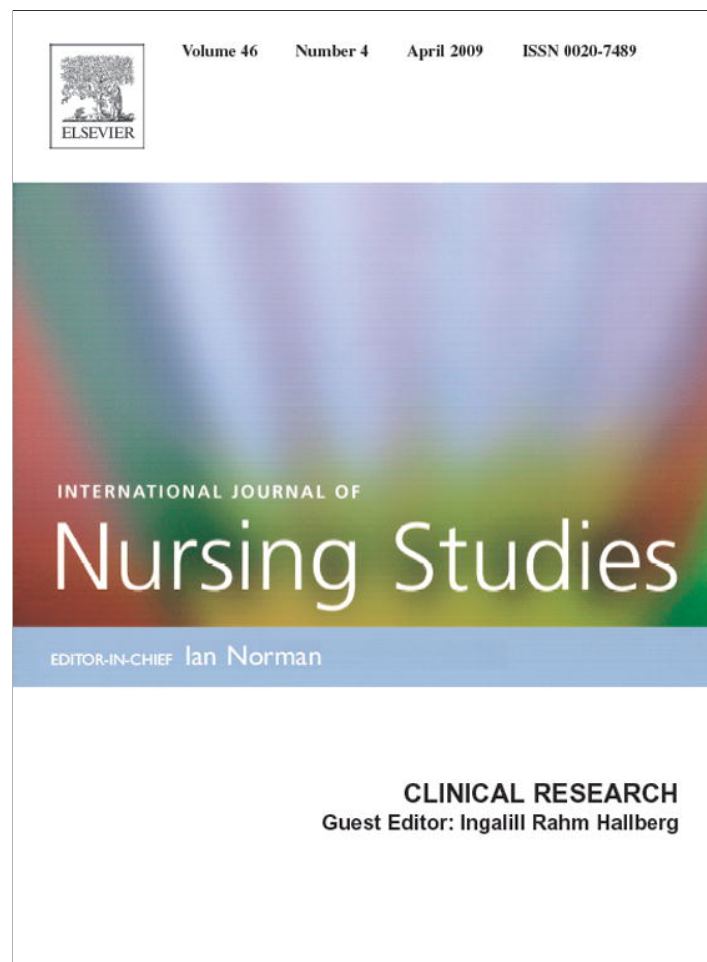


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The influence of caregiver singing and background music on vocally expressed emotions and moods in dementia care: A qualitative analysis

Eva Götell^{a,*}, Steven Brown^b, Sirkka-Liisa Ekman^c

^a School of Health, Care and Social Welfare, Mälardalen University, Västerås, Sweden

^b Department of Psychology, Simon Fraser University, Robert C. Brown Hall, 8888 University Drive, Burnaby, BC, Canada V5A 1S6

^c Department of Neurobiology, Care Sciences and Society, Karolinska Institute, Huddinge, Sweden

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Abstract

Background: Music and singing are considered to have a strong impact on human emotions. Such an effect has been demonstrated in caregiving contexts with dementia patients.

Objectives: The aim of the study was to illuminate vocally expressed emotions and moods in the communication between caregivers and persons with severe dementia during morning care sessions.

Design: Three types of caring sessions were compared: the “usual” way, with no music; with background music playing; and with the caregiver singing to and/or with the patient.

Participants and setting: Nine persons with severe dementia living in a nursing home in Sweden and five professional caregivers participated in this study.

Methods: Qualitative content analysis was used to examine videotaped recordings of morning care sessions, with a focus on vocally expressed emotions and moods during verbal communication.

Results: Compared to no music, the presence of background music and caregiver singing improved the mutuality of the communication between caregiver and patient, creating a joint sense of vitality. Positive emotions were enhanced, and aggressiveness was diminished. Whereas background music increased the sense of playfulness, caregiver singing enhanced the sense of sincerity and intimacy in the interaction.

Conclusion: Caregiver singing and background music can help the caregiver improve the patient’s ability to express positive emotions and moods, and to elicit a sense of vitality on the part of the person with severe dementia. The results further support the value of caregiver singing as a method to improve the quality of dementia care.

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Keywords: Caregivers; Dementia; Emotion; Music; Qualitative content analysis; Video recording

What is already known about the topic?

- Although persons with dementia (PWDs) have numerous behavioural and psychological problems, they show a preserved ability to express and perceive a rich variety of emotions.

* Corresponding author. Tel.: +1 4621 101615.

E-mail address: eva.gotell@mdh.se (E. Götell).

- The use of background music with PWDs in music therapy and nursing contexts has been shown to enhance positive emotional responses and reduce aggressiveness.
- Caregiver singing and background-music listening during morning care sessions with PWDs has been shown to improve verbal communication and enhance bodily awareness. It has been shown to have positive effects on caregivers as well.

What this paper adds

- This is the first study to use a qualitative methodology to describe emotions and moods expressed vocally by PWDs and their caregivers during caring situations.
- As with human communication more generally, the expression of emotions, moods and arousal between the caregivers and the PWDs occurred in an interactive fashion, with a sense of reciprocity.
- The mutuality of the emotional communication between caregiver and PWD was strongly enhanced with background music and caregiver singing. PWDs showed an improved ability to express positive emotions and experience arousal and vigilance.

1. Introduction

Emotions can be externalized through multiple modalities of expression, including tone of voice, facial expression, and body gesture. It has long been recognized that the voice's capacity to express emotion in speech has a powerful influence on the listener, whether these be positive or negative emotions (Scherer, 1995, 2003). A well-studied communication context is that of mother–infant interaction, where particular vocal melodies and rhythms connote specific emotional meanings to infants, operating in a similar manner across cultures (Fernald, 1992; Papousek, 1996).

There is an ongoing debate among researchers as to how emotion should be defined (Jasper, 2002; Clore and Ortony, 2000). One definition was made by Planalp (1999), who described emotion as the affective aspect of consciousness, having an object and lasting for a limited time, and mood as a similar state of mind as emotion, but of extended duration and indistinct object. In a similar vein, appraisal theorists of emotion (e.g., Clore and Ortony, 2000) point out that emotion is linked to the evaluation of specific objects or events, whereas moods tend not to be.

Persons with dementia are considered to have an intact and functional emotion system, despite a host of other neurological, cognitive, and behavioural impairments (Magai et al., 1996). However, this can be double-edged sword, as PWDs can be prone to aggressive outbursts during caring situations, such as during bathing and feeding (Brotons and Pickett-Cooper, 1996; Thomas et al., 1997; Gerdner, 2000a; Graneheim et al., 2005; Nolan, 2007). Kihlgren et al. (1996) and Hansebo and Kihlgren (2002) suggested that if institutional staff can work to create a positive caring

climate, PWDs can experience a rich pattern of cognitive and emotional reactions. This can lead to episodes of lucidity and the re-expression of latent skills. The arts can contribute strongly to this kind of caring climate, through such activities as singing, background music, visual art, and dancing (e.g., Olderog Millard and Smith, 1989; Gerdner, 2000b). Without question, music has been studied most thoroughly in research studies of arts activities in caring contexts, not least because of the demonstration that dementia patients are highly responsive to music (Crystal et al., 1989; Swartz et al., 1989). While music has generally been shown to play a positive role in dementia care (Clair, 1996; Aldridge, 1995, 2000; Clair and O'Konski, 2006), some analyses have suggested that there are theoretical and methodological problems that have to be resolved before far-reaching conclusions can be made (Vink, 2001; Vink et al., 2003). For example, studies of emotional processing in response to music have been based on checklists with fixed categories rather than on more open-ended analyses of the diverse emotional responses to music. In addition, the emotional effects of active music-making versus passive listening have not been clearly investigated. Finally, there has been a lacking in the study of music's influence in everyday life.

The current study is part of a multi-pronged analysis of a single dataset which has examined the influence of caregiver singing on both PWDs and caregivers with regard to verbal communication (Götell et al., 2002), bodily movement and awareness (Götell et al., 2003), and now emotional expression. In the first analysis, Götell et al. (2002) focused on verbal communication, and showed that caregiver singing led to a paradoxical effect: whereas in the absence of music, caregivers spent much of their time verbally narrating their activities to PWDs, caregiver singing led to an increase in cooperation by the PWDs even though the caregivers were no longer narrating or instructing their activities. The act of singing led to benefits for the caregiver as well, since the PWDs were easier to care for. In a second analysis, Götell et al. (2003) looked at posture, body movement and sensory awareness. In the absence of music, the PWDs showed slumped posture, sluggish motion, listlessness, minimal awareness of both egocentric space and the physical environment, and a poor ability to perform grooming activities to completion. During caregiver singing, the PWDs showed straightened posture, stronger and more symmetric movements, and a greatly increased awareness of themselves and their environment. Additionally, they appeared to regain skills for daily living and could perform tasks with intention, purpose, and competence. Caregivers showed a more relaxed body posture during their work. With this background in mind, the aim of the current study was to place the focus on emotion, and more specifically the influence of background music and caregiver singing on the emotions vocally expressed by PWDs and caregivers during morning care situations. As with our previous studies, the goal was to look at reciprocal effects on the PWD and the caregiver. This is all the more relevant given the strong evidence for emotional

contagion during human communication (reviewed in Hatfield et al., 1994).

2. Methods

2.1. Participants

The participants are the same as those used in Götell et al. (2002, 2003). The study was implemented in a special care unit (SCU) in an urban area of Sweden for 24 residents who had severe dementia. The participants consisted of seven women and two men diagnosed with dementia. One of them was diagnosed with Alzheimer's disease and the other eight individuals suffered from dementia of the non-Alzheimer's type. Participant selection was based on recommendations from the head nurse, who suggested PWDs and caregivers with an extensive history of interaction. There were no rigid inclusion–exclusion criteria except the requirement that the residents have late-stage dementia. PWDs' next-of-kin or trustees gave written permission for participation. The first author obtained permission from the caregivers. All PWDs scored between 0 and 4 points (out of 30; $M = 1$) on the mini mental status examination, a test of cognitive function (Folstein et al., 1975). They were between the ages 80 and 90 ($M = 84$), native Swedish speakers, and had been residents of the SCU for a period of 9 months and 5 years, 9 months ($M = 3$ years and 1 month). Five female caregivers participated in the study. All were licensed practical nurses or mental health nurses, and were between the ages of 20 and 39 ($M = 29$). All except one were born in Sweden. They all spoke Swedish fluently, had worked in geriatric care between 2 and 19 years ($M = 10$ years), and had been caring for the participating PWDs for at least 1 year prior to the start of the study. The Regional Ethics Committee gave its approval for this study.

2.2. Design and data collection

Morning care sessions constituted the study's basic unit of analysis. The sessions occurred in a bathroom between 7 am and 9 am and lasted between 6 and 22 minutes. Typical morning care sessions proceeded as follows. (1) Patients were sitting on a toilet, and their nightclothes were removed. When patients were naked, only their upper bodies were recorded; when dressed, their entire bodies were recorded. (2) Their faces and upper bodies were washed, and deodorant, skin lotion, and perfume (for the women) or aftershave (for the men) were applied. (3) Clothes, socks, and shoes were put on. (4) Patients stood up, were led to the sink (one patient used a wheelchair), and were directed towards a mirror. (5) While at the sink, their teeth were brushed, hair combed, and hands washed. (6) While facing the mirror, patients were encouraged to behold their image.

The basic design of the study consisted of three situations of the morning care routine for each patient: the "usual"

caring routine (i.e., the control situation); a caring routine done with recorded music playing in the background ("background music"); a caring routine in which the caregiver sang to and/or with the patient ("caregiver singing"). Between data-collection sessions, morning care routines were carried out as in the control situation. The study consisted of 27 observations (nine patients \times three caring situations). All but one of these was video recorded; for technical reasons, one session was documented by means of note taking alone. The schedule of the three sessions varied because of the patients' state of health and ability to participate, as well as the caregivers' work schedules. The second session (i.e., background music) occurred, on average, 3 days after the first (range = 1–27 days). The third session (i.e., caregiver singing) occurred, on average, 9 days after the second (range = 1–21 days). Thus, the average observation period for a patient was 13 days but varied between 3 and 49 days. Although one sequence of sessions was used for all patients (i.e., control situation first, background music second, and caregiver singing third), we doubt that there were any "order influences" in this study, because an average of 9 days separated the second and third sessions, thus minimizing possible carry-over influences from the background-music session. Moreover, in one instance, a fourth situation was included, which consisted of another control session. Although not analyzed in this study, preliminary observation of this session showed that the communication between the patient and caregiver was the same as that seen in the first situation.

In selecting music for the second session, we used familiar, preferred music, as suggested in the literature (Clair, 2000; Gerdner, 2000a). Because none of the patients had the ability to express their musical preferences, relatives of the patients or, when patients lacked relatives, participating caregivers were interviewed about the kind of music patients preferred. The suggested music was then played on a CD player, and the patients were asked if they enjoyed the music. Based on a combination of verbal and facial responses from the patients, the senior author selected music to be played during the second session. The music typically consisted of popular songs from the 1920's to 1960's, as sung by a male vocalist and accompanied by an orchestra. The caregivers stated that prior to participation in this study they had never listened to music while performing the morning care routines.

In the third session, caregivers sang to or with the patients while performing their duties. The caregivers were not trained or required to sing particular songs for the study. All of this was up to the will and musical knowledge of each caregiver. However, children's songs or sing-along songs were suggested as possibilities. The songs that were used generally consisted of folk songs or popular songs from the early part of the 20th century, including children's songs and drinking songs. Most caregivers sang songs with words, but a few hummed the melodies alone. As with the second session, caregivers had no experience before this study of singing to

patients while carrying out morning care routines. While one caregiver had had experiences of singing in a choir, the other four had no experience at singing beyond occasional celebrations. When younger, at least five of the female patients had sung to their children. One patient had had vocal training and had played the guitar in public, and another had sung in a choir.

2.3. Data analysis

A qualitative content analysis (Berg, 2004) was carried out by the first author. The definitions of emotion and mood described in the introduction (Planalp, 1999; Clore and Ortony, 2000) served as a guide for their characterization. Additionally, the first author listened to and judged if the expressed emotions/moods were positive or negative, which was done according to Scherer (2003). The sound and the images of the videos, as well as the verbal communication, were transcribed into text and were used to analyze the emotions and moods of the PWDs and their caregivers. Confidentiality was ensured in that the Regional Ethics Committee restricted viewing of the videos to the three authors of the study and not to other colleagues or investigators. In order to ensure the reliability of the data, the last author did a co-assessment of the videos. Her analyses agreed quite strongly with those of the first author.

The analysis occurred as five stages (see Table 1 for details): (1) viewing the videos several times; (2) document-

ing the verbal communication; (3) transcribing the words related to emotion and mood; (4) categorizing these into units consisting of positive or negative emotions or/moods; (5) integrating the documents of units for the PWDs and caregivers, and generating themes for each session type. The results below characterize the findings with regard to three principal themes, one for each session type.

3. Results

For each of the three types of morning care sessions – hereafter referred as “usual”, “background music” and “caregiver singing” – a major theme was developed to characterize the emotions and moods expressed in the vocal communication between the caregiver and PWD. For the usual morning care situation, it was “disjoint vitality”; for background music, it was “mutual vitality infused with playfulness”; and for caregiver singing, it was “mutual vitality infused with sincerity”. In the descriptions that follow, the caregivers are described as “C” and the patients as “P”.

3.1. The “usual” morning care session: disjoint vitality

During the “usual” morning care situation, with no music or singing, the caregiver spoke in a strong, energetic voice, conveying feelings of friendliness, warmth, interest,

Table 1
Stages of the qualitative content analysis

(1) Viewing the videos several times	Videos were viewed several times in order to get an overall understanding of the vocally expressed emotions and moods during the interactions between PWDs and caregivers
(2) Documenting the verbal communication	A column was made to transcribe the verbal texts. Every utterance was listened to and interpreted with regard to what kind of emotions and moods were expressed. The utterances were interpreted as containing several emotions. When those emotions or moods were described in texts, one descriptor was used to characterize what single emotion or mood was expressed, and another descriptor was used to characterize the way it was expressed
(3) Transcribing the words related to emotion and mood	The words of the emotions and moods were transcribed into two additional documents. One consisted of the emotions and moods of the PWDs. Every PWD was given a personal identification number (PIN) when transcribing his or her emotions and moods in alphabetical order. This was done to ensure that all words used would be included. A second document was created for the caregiver, and the same procedure was followed as with the PWD
(4) Categorizing these into units consisting of positive or negative emotions or/moods	In the two documents created in stage 3 (that is, keeping the PWDs' and caregivers' transcribed texts separated), the words for the emotions and moods were categorized into units consisting of positive or negative emotions or/moods. That is, a unit consisted of similar emotions and moods. The PWDs' document consisted of units for the emotions and moods expressed by them, and the caregivers' document consisted of units for the emotions and moods expressed by them
(5) Integrating the documents of units for the PWDs and caregivers, and generating themes for each session type	With the units from stage 4 as a basis, overall themes were formulated

engagement, and firmness. The PWDs, in contrast, responded with weak, flat, monotone voices, conveying a sense of listlessness, sluggishness, confusion, and annoyance. The expressions of the PWDs seemed fragmentary, much shorter than is typical in standard communication between people. Hence, there was an overall disparity between the energy expressed by the caregiver and the patient:

“Wash yourself a little,” C prompts in a vigorous and friendly way. “Oy, oy, oy,” P answers with a thin and weak voice.

Another PWD responded with similar weakness and confusion:

“Put a pair of socks on too. (P’s name), hold this for me,” C prompts in a brusque and irritated way. “I think they are so strange,” P answers sounding weak. “Those socks, you mean?” C answers sounding ironic and unfriendly. “Yes I do” P answers sounding weak, defensive, and resigned.

When humor was expressed, it was often initiated by the PWD:

“It is not so easy to. . .” P says. It seems as she is searching for the words, and she sounds absent-minded. “Are they small buttons?” C asks, sounding friendly and interested. “Find one,” P laughs weakly, expressing irony.

The PWDs seemed to realize their shortcomings when laughing with irony. Their laughter generally expressed uncertainty and embarrassment, as if to say that they had difficulty understanding what was taking place and how to perform the task. Caregivers generally responded to such emotions with warmth and empathy:

“Do you want to wash yourself,” C asks in a friendly voice. “Where?” P wonders and laughs with uncertainty. “My face or. . .?” she wonders, hesitatingly. “Yes,” C reassures in a friendly way.

Sometimes caregivers overreacted when PWDs acted in a contradictory manner. This often occurred when PWDs denied being able to perform tasks that the caregivers knew they could in fact perform:

“Can you dry yourself?” C asks in a friendly tone. “No,” P replies firmly. “No?” C asks, sounding surprised. She waits for the PWD’s answer, which does not occur. “Shall I help you then?” C offers, sounding friendly.

Frequently the PWDs reacted with surprise to caregivers’ questions or instructions. This seemed to occur when they had difficulties understanding what objects were to be used or what task was necessary. The caregivers would state things in a vigorous manner, probably to reassure the PWDs about what was going on:

“Yes, but it is your dress,” C explains, sounding assured and firm. “I see. Is it?” P replies, sounding surprised.

When one of the PWDs did not appear to recognize the caregiver’s good intentions, she reacted with resistance, which was expressed as aggression directed towards the caregiver. The PWD sounded confused, angry, desperate, and afraid. She reacted as if something was taking place against her will and was thus firmly rejecting it. The caregiver responded by being stern yet consoling, while struggling to curb the PWD’s reactions. The caregiver seemed to find such situations difficult to experience, as she seemed to express mixed emotions:

“(P’s name), ple, please (P’s name),” C appeals with a resolute and coaxing voice. “No, I am,” P responds with resistance, sounding stubborn and firm. “Then we will do it when you stand up instead,” C replies, sounding exhausted and irritated.

One PWD expressed loud screams, sounding firm and irritated. The caregiver responded with an engaged and resolute voice while toiling to curb the PWD’s screams. The overall meaning of this loud screaming seemed difficult for the caregiver to understand, as she continuously asked the PWD why he was screaming.

When tasks were successfully completed, caregivers expressed a sense of satisfaction and even relief, for example when the washing of the face was done. The PWDs rarely mirrored these emotions. When the morning care routine was completed, the caregivers generally told the PWDs so. While some of the PWDs did not respond verbally or emotionally to that information, others PWDs expressed satisfaction and even appreciation. For some PWDs, confusion and anger seemed to be their response to concluding the routine:

“Look there in the mirror,” C prompts, sounding friendly and firm. “Yes,” P answers sounding confused. “Is that OK?” C asks sounding interested and firm. “Yes,” P screams loudly, sounding irritated and angry.

To summarize, during the usual morning care situation, the vitality of the caregiver and patient was highly disjoint: caregivers toiled to create a positive atmosphere by acting in an energetic and affirmational manner and expressing warmth and positive emotions, whereas the PWDs often expressed negative emotions related to anger, confusion, fear, embarrassment, and resistance. The caregivers’ energy and affirmative stance seemed unwelcome or, at the very least, misunderstood.

3.2. Background music: mutual vitality infused with playfulness

When music played in the background during the morning care session, the emotions and moods were altered compared to the usual session. The music seemed to relieve the caregiver of the responsibility of expending so much of her own energy to elicit behaviours and create pleasant moods; the music seemed to do some of that work all on

its own. In addition, the PWDs sounded much more aroused and vitalized compared to the usual caring situation. During usual morning care sessions, it was often difficult to hear if the PWDs vocally expressed emotions at all. During background-music playing, they were much more expressive vocally. Positive emotions were predominant, and no PWD expressed aggression toward a caregiver. Both caregivers and PWDs spoke with warmer and more sonorous voices. This change was especially apparent in the PWDs. The caregivers showed a deepened sense of engagement, sounding more enticing, playful, and joyous. Additionally, the caregivers seemed to have a heightened understanding of the PWDs' competence and limitations. While the caregivers usually initiated the dialogue, the communication much more resembled two equal persons conversing, and the PWDs expressed an intensified ability to talk compared to the usual morning care sessions. Furthermore, many of the PWDs sang along with the texts. Some caregivers softly hummed the melody. During extended periods, only music was heard, and the caregiver and PWD communicated wordlessly with pleasant moods. The overall effect was one of mutual vitality. Compared to the usual caring situation, there was much more of a sense of the PWD responding to and matching the mood and vitality of the caregiver.

Caregivers and PWDs seemed excited when expressing mutual warmth and playfulness. Such a situation is described here, when the waltz "Den gamla dansbanan" (The Old Dance Pavilion) played in the background:

"(P's name)," C says sounding happy and enticing. "Yes," P answers, sounding dreamy and friendly. "Step into the skirt here," C continues sounding positive and enticing. P laughs with delight.

Humor and playfulness were frequently expressed. The caregivers sounded intimate and initiated small-talk. Often times they gave compliments to the PWDs, who responded with warmth and satisfaction. Moods of fun seemed to prevail during much of the session. An example is described here, when the same waltz played in the background:

"Ok, stand up," C prompts, sounding positive and inviting. "Yes, oh my," P laughs, sounding happy. "This is going well," C says in a happy and warm way. "Oy," P answers with frolic. "Oy, oy, oy," C confirms, in a frolicking voice. "Yes," P agrees, sounding satisfied and pleased.

During background-music sessions, as in usual morning care sessions, some PWDs expressed surprise when they were confused about objects to use or activities taking place. However, such responses decreased considerably compared to usual morning care sessions. One PWD screamed loudly, sounding irritated and impatient. During such situations, the caregiver used her energy to speak in a warm and comforting way to calm the PWD. His loud screaming decreased compared to the usual morning care session. When they listened to music, the cooperation between the PWD and the caregiver lasted for extended periods in a non-verbal fashion.

When the caregiver would hum along with the music from time to time, a pleasant mood seemed to exist in the PWD.

When a task was concluded, caregivers' verbal and emotional indication of this decreased substantially compared to the usual morning care sessions. Instead, there was a greater sense of flow between tasks. When the sessions were concluded, the caregivers and the PWDs sounded satisfied. They seemed to experience a mutual appreciation, as described here, when the waltz "Hjärtats saga" (The Heart's Saga) played in the background:

"Thank you dear," P says sounding appreciative and calm. "You are welcome," C answers in a friendly and calm tone.

Not surprisingly, negative emotions still occurred and, as with the usual morning care situation, caregivers could become frustrated with the PWDs. During one session, the caregiver initiated conversation in a relaxed, warm, and calm manner. She showed interest and empathy towards the PWD. As the tasks went on, the caregiver showed irritation and sounded terse in her communication, as described here when the tango "Capri" was playing in the background:

"You should wash your hand too. You must put your two hands under here. Both of your hands," C prompts, sounding irritated.

Although the mood between the caregiver and PWD seemed on the whole to be unpleasant and non-harmonious, the PWD still showed improved concentration, and her voice sounded strong and her pronunciation clearer compared to the usual morning care session.

To summarize, during the playing of background music, the caregivers seemed to diminish their vitality so as to create a lacuna for the PWD to contribute their own vitality to the interaction. The overall result was an increase in reciprocity. The caregiver and PWD were more on the same emotional wavelength. They interacted more as two active partners.

3.3. Caregiver singing: mutual vitality infused with sincerity

Caregiver singing seemed to alter the characteristics of the emotions and moods of the interaction between caregivers and PWDs compared to the two previous sessions. There was a sense of mutual vitality, but compared to the light-heartedness of the interaction with background music playing, the dynamic with singing was characterized by a sense of sincerity, openness, intimacy, and even vulnerability. The prevailing moods were solemn, serious, and sincere. The PWDs seemed to listen attentively and express delight, sincerity, and wonder. They did not scream or express aggressiveness. When they spoke, their voices sounded relaxed and calm. Caregiver singing seemed to enhance their awareness of what was going on, and the cooperation flowed. Neither the caregivers nor the PWDs

gave emotional or verbal indications when a task was concluded. While the acts continued, PWDs noted attentively when the caregivers had been singing a line of text or a verse to the end.

When one of the caregivers sang the waltz “Kosterval-sen” (The Koster Waltz), whose last line is a proposal of marriage, the PWD responded in a playful manner:

“Maja, sweetheart, hey, do you want to marry me?” C sings the words to the song, sounding open, playful, and rhythmic. P laughs in a delighted manner, and then happily replies “OK. I’ll do that”.

PWDs like this one seemed to be aware of the meaning of the texts and responded as though they knew and understood the content. Some of them sang along with the text. They would start singing after the caregiver had been singing for a while. During such situations, the PWDs concentrated both physically and emotionally on the caregiver. Some PWDs seemed to experience and share a remarkable time with the caregivers. One situation, in which the caregiver sang the same waltz as mentioned above, is described here:

“Oy, imagine,” P says sounding calm and relaxed. “What?” C asks, sounding warm and sincere. “Can one have such good time,” P reflects with wonder. [NOTE: the grammatical error was present in the patient’s speech].

When the whole morning routine was concluded, some PWDs thanked the caregiver.

An example in which the PWD and caregiver expressed mutual appreciation, and in which the caregiver sang the children’s song “Twinkle, Twinkle, Little Star”, was:

“Oh, thanks dearest,” P says with appreciation, friendliness, and calmness. “You’re welcome. It was nothing,” C replies with warmth and energy. “It was a lot for me,” P says with satisfaction.

As with background music, there were occasions in which negative emotions were expressed during caregiver singing. In one situation, a caregiver sounded irritated and resolute while singing. The caregiver singing seemed to influence the PWD. She seemed vitalized and sounded angry. The two of them seemed to be mutually vitalized while experiencing moods of disharmony and irritation. This interaction occurred during the singing of the children’s song “Blåsippan” (The Hepatica):

“How can I use these?” P wonders sounding resolute. C continues to sing. “Answer then,” P says, sounding resolute and irritated.

To summarize, the mutuality of the interaction between caregiver and PWD increased with caregiver singing compared to both background music and no music at all. However, beyond the mere playfulness seen with background music, a sense of sincerity and calm seemed to permeate the interaction with singing. There was an overwhelming emphasis on positive emotions and moods.

4. Discussion

In a series of publications, we have analyzed the influence of caregiver singing on various complementary facets of the communication between persons with severe dementia and their caregivers. The combination of the results presents a highly consistent picture between various aspects of communication and cognitive functioning, including verbal ability, body awareness, and emotion. The aim of the current analysis was to illuminate vocally expressed emotions and moods in the communication between caregivers and persons with severe dementia when caring for them either during usual morning care sessions, with background music playing, or with the caregiver singing to and/or with the PWD. The results showed that in the absence of background music or singing, the communication was very disjoint: the caregiver used energy and good spirit in order to narrate to and instruct the PWD regarding the grooming activities to be performed, and yet the PWD responded with listlessness, confusion, fear, and even aggression. Music greatly improved the communication process, making it more mutual. In addition, the PWD seemed more energized, more cognitively aware, and more responsive to the caregiver. With background music playing, the PWD could show a lightness of spirit that was not generally seen in the absence of music. Positive emotions predominated and aggressiveness was strongly diminished. With caregiver singing, the sense of reciprocity reached yet another stratum, one in which a deeper personal connection was achieved. A feeling of mutual appreciation seemed to be reached. The PWD was not only more cooperative but seemed to have an awareness of the person who was working to help her/him. These overall results mirror our previous findings regarding verbal communication and body awareness, and therefore demonstrate a parallelism between words, body, and emotion.

These results are consistent with the findings of Hansebo and Kihlgren (2002) and Snyder et al. (2001), which showed that PWDs, even those with severe dementia, continue to express a rich repertoire of emotions. Background music and caregiver singing seemed to facilitate this process. Brown and Theorell (2006) argued that music has a paradoxical “arousing/soothing” effect on people, in that it can increase vigilance and yet provide positive emotions of comfort and calm at the same time. This seems like a reasonable characterization of what music might be doing in the caregiving contexts described in this study: music increases the attentional capacity of the patient (i.e., their arousal and vigilance) yet does so in a way that is pleasurable and not agitating. Ruud (2002) suggested that music has the ability to evoke vitality, which gives human beings the capacity to open up to the world and people around them, which is regarded as a prerequisite for human development.

In this study, background music and caregiver singing led to an enhancement of positive emotions and moods and increased the mutuality of communication in the majority of the subjects. Such a response is consistent with Olderog

Millard and Smith (1989) and Götell et al. (2000), who showed that after music sessions, PWDs became calmer, less agitated, more cooperative, and easier to care for. Additionally, Ragneskog et al. (1996) suggested that background music during mealtime influenced the PWDs to become less irritable, anxious and depressed. However, music is not a cure-all, and this was shown by one of the PWD/caregiver combinations in this study, who showed a predominance of negative emotions in their interactions in all three sessions. As Jansson et al. (1993) have pointed out, some PWDs might not like music and may find it irritating. The same may apply to the caregivers. In addition, the caregivers were not trained to sing during caring, and so they might have felt uncomfortable singing. Alternatively, whatever positive effect music may have had might have been masked by the sense of frustration and strain that the caregiver might have felt working with a PWD who did not understand what she was doing and trying to achieve.

This is to our knowledge the first study focusing on vocally expressed emotions and moods between caregivers and PWDs in dementia care. The present article is the third analysis of the same data set. Methodologically, this was made possible thanks to the rich information found in the videos. According to Latvala et al. (2000), when using video recordings where sound is included to document interactions during patient care, the videos contain rich information that often exceeds other kinds of data-collection methods, such as interviews and written observations. The advantage of videotaping is that it can capture interaction and behaviour. Latvala et al. suggest that researchers who use this data-collection method should keep in mind that the participants being recorded might change their behaviour when knowing that they are being observed. The experience of most researchers using the method is that the participants being filmed acclimate to the presence of the video camera after a while, and start to behave as if they were not being filmed (*ibid.*).

Based on our previous studies (Götell et al., 2002, 2003) and the present one, we have proposed the concept of “music therapeutic caregiving” (MTC; Brown et al., 2001) as a general approach to the inclusion of music-making during caring activities. We have suggested that singing education should be incorporated into the professional training of caregivers and nursing students. The first such course was offered at the first author’s University in Sweden. However, further intervention studies with MTC are needed in order to validate the method as well as the results we have reported in our publications. We have received a large number of anecdotal reports from caregivers in many countries regarding the beneficial effects of caregiver singing. However, systematic intervention studies are clearly needed.

The results of our three analyses present evidence for parallel effects of music or caregiver singing on language, bodily awareness, and emotion, reflecting the multi-modal nature of human communication. In other words, caregiver singing not only leads to increased vocal lucidity and

expression but to improved body posture and body awareness and an overall reduction in aggressiveness towards caregivers. This is consistent with “network” theories of emotion such as Bower’s (1981), which argue that various aspects of expressive behaviour may be linked to one another in the form of networks, in which activation can spread to related emotional states or to other modalities of expression. To conclude, caregiver singing and background music during dementia caring can in most situations influence caregivers and persons with severe dementia to vocally express positive emotions and moods and reduce patient aggressiveness. The effects of caregiver singing on vitality and mutuality lead to a situation in which the caregiver and patient communicate as whole human beings, which is fundamental to nursing practice.

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References

- Aldridge, D., 1995. Music therapy and the treatment of Alzheimer’s disease. *Clin. Gerontol.* 16, 41–57.
- Aldridge, D. (Ed.), 2000. *Music Therapy in Dementia Care*. Jessica Kingsley Publishers, London.
- Berg, B.L., 2004. *Qualitative Research Methods for the Social Sciences*, 5th ed. Allyn and Bacon, Boston.
- Bower, G.H., 1981. Mood and memory. *Am. Psychol.* 36, 129–148.
- Brotons, M., Pickett-Cooper, P.K., 1996. The effects of music therapy intervention on agitation behaviors of Alzheimer’s disease patients. *J. Music Ther.* 33, 2–18.
- Brown, S., Götell, E., Ekman, S.-L., 2001. Music-therapeutic caregiving: the necessity of active-music-making in clinical care. *Arts Psychother.* 28, 125–135.
- Brown, S., Theorell, T., 2006. The social uses of background music for personal enhancement. In: Brown, S., Volgsten, U. (Eds.), *Music and Manipulation: On the Social Uses and Social Control of Music*. Berghahn Books, New York, pp. 126–160.
- Clair, A.A., 1996. *Therapeutic Uses of Music with Older Adults*. Health Professions Press, Baltimore.
- Clair, A.A., 2000. The importance of singing with elderly patients. In: Aldridge, D. (Ed.), *Music Therapy in Dementia Care*. Jessica Kingsley Publishers, London, pp. 81–101.
- Clair, A.A., ÓKonski, M., 2006. The effect of rhythmic auditory stimulation (RAS) on gait characteristics of cadence, velocity, and stride length in persons with late stage dementia. *J. Music Ther.* 43, 154–163.
- Clore, G.L., Ortony, A., 2000. Cognition in emotion: always, sometimes, or never? In: Nadel, L., Lane, R., Ahern, G.L. (Eds.), *The Cognitive Neuroscience of Emotion*. Oxford University Press, New York, pp. 24–61.
- Crystal, H.A., Grober, E., Masur, D., 1989. Preservation of musical memory in Alzheimer’s disease. *J. Neurol. Neurosurg. Psychiatry* 52, 1415–1416.

- Fernald, A., 1992. Human maternal vocalizations to infants as biologically relevant signals: an evolutionary perspective. In: Barkow, J.H., Cosmides, L., Tooby, J. (Eds.), *The Adapted Mind*. Oxford University Press, New York, pp. 391–428.
- Folstein, M., Folstein, S., McHugh, P., 1975. Mini mental state: a practical method for grading the cognitive state of patients for the clinician. *J. Psychiatr. Res.* 12, 189–198.
- Gerdner, L.A., 2000a. Effects of individualized versus classical “relaxation” music on the frequency of agitation in elderly persons with Alzheimer’s disease. *Int. Psychogeriatr.* 12, 49–65.
- Gerdner, L.A., 2000b. Music, art, and recreational therapies in the treatment of behavioral and psychological symptoms of dementia. *Int. Psychogeriatr.* 12, 359–366.
- Götell, E., Brown, S., Ekman, S.-L., 2000. Caregiver-assisted music events in psychogeriatric care. *J. Psychiatr. Ment. Health Nurs.* 7, 119–125.
- Götell, E., Brown, S., Ekman, S.-L., 2002. Caregiver singing and background music in dementia care. *West. J. Nurs. Res.* 24, 195–216.
- Götell, E., Brown, S., Ekman, S.-L., 2003. The influence of caregiver singing and background music on posture, movement, and sensory awareness in dementia care. *Int. Psychogeriatr.* 15, 411–430.
- Graneheim, U.H., Isaksson, U., Ljung, I.M., Jansson, L., 2005. Balancing between contradictions: the meaning of interaction with people suffering from dementia and “behavioral disturbances”. *Int. J. Aging Hum. Dev.* 60, 145–157.
- Hansebo, G., Kihlgren, M., 2002. Carers’ interactions with patients suffering from severe dementia: a difficult balance to facilitate mutual togetherness. *J. Clin. Nurs.* 11, 225–236.
- Hatfield, E., Cacioppo, J.T., Rapson, R.L., 1994. *Emotional Contagion*. Cambridge University Press, Cambridge.
- Jansson, L., Norberg, A., Sandman, P.O., Athlin, E., Asplund, K., 1993. Interpreting facial expressions in patients in the terminal stage of the Alzheimer disease. *Omega* 26, 319–334.
- Jasper, J., 2002. What the devil are emotions? *Qual. Sociol.* 25, 145–148.
- Kihlgren, M., Hallgren, A., Norberg, A., Karlsson, I., 1996. Disclosure of basic strengths and basic weaknesses in demented patients during morning care, before and after training in integrity promoting care: analysis of video-recordings by means of the Erikson theory of “eight stages of man”. *Int. J. Aging Hum. Dev.* 43, 219–233.
- Latvala, E., Voukila-Oikkonen, P., Janhonen, S., 2000. Videotaped recording as a method of participant observation in psychiatric nursing research. *J. Adv. Nurs.* 31, 1252–1257.
- Magai, C., Cohen, C., Gomberg, D., Malatesta, C., Culver, C., 1996. Emotional expression during mid- to late-stage dementia. *Int. Psychogeriatr.* 8, 383–395.
- Nolan, L., 2007. Caring for people with dementia in the acute setting: a study of nurses’ views. *Br. J. Nurs.* 16, 419–422.
- Olderog Millard, K., Smith, J., 1989. The influence of group singing therapy on the behavior of Alzheimer’s disease patient. *J. Music Ther.* 26, 58–70.
- Papousek, M., 1996. Intuitive parenting: a hidden source of musical stimulation in infancy. In: Deliege, I., Sloboda, J. (Eds.), *Musical Beginnings: Origins and Development of Musical Competence*. Oxford University Press, Oxford, pp. 88–112.
- Planalp, S., 1999. *Communicating Emotion: Social, Moral and Cultural Processes*. Cambridge University Press, Cambridge.
- Ragneskoog, H., Bråne, G., Karlsson, I., Kihlgren, M., 1996. Influence of dinner music on food intake and symptoms common to dementia. *Scand. J. Caring Sci.* 10, 11–17.
- Ruud, E., 2002. *Varme øyeblikk. Om musikk, helse og livskvalitet (Warm moments: about music, health and life quality)*. Unipub Akademika, Oslo.
- Scherer, K., 1995. Expression of emotion in voice and music. *J. Voice* 9, 235–248.
- Scherer, K., 2003. Vocal communication of emotion: a review of research paradigms. *Speech Commun.* 40, 227–256.
- Snyder, M., Tseng, Y., Brandt, C., Croghan, C., Hanson, S., Constantine, R., Kirby, L., 2001. A glider swing intervention for people with dementia. *Geriatr. Nurs.* 22, 86–90.
- Swartz, K.P., Hantz, E.C., Crummer, G.C., Walton, J.P., Frisina, R.D., 1989. Does the melody linger on? music cognition in Alzheimer’s disease. *Sem. Neurol.* 9, 152–158.
- Thomas, D.W., Heitman, R.J., Alexander, T., 1997. The effects of music on bathing cooperation for residents with dementia. *J. Music Ther.* 34, 246–259.
- Vink, A.C., 2001. Music and emotion. Living apart together: a relationship between music psychology and music therapy. *Nord. J. Music Ther.* 10, 144–158.
- Vink, A.C., Birks, J.S., Bruinsma, M.S., Scholten, R.J.P.M., 2003. Music therapy for people of dementia. *Cochrane Database of Systematic Reviews* 2003, Issue 4. Art. no.: CD003477. doi:10.1002/14651858.CD003477.pub2.