THE USE OF MUSIC AND SINGING TO HELP MANAGE ANXIETY IN OLDER ADULTS

Karen Eells reviews the growing evidence base for these relaxing and sociable activities as therapeutic nursing interventions in this patient group.

Abstract

The number of older adults in the UK is increasing, and they are vulnerable to long-term anxiety, depression, pain and dementia. These conditions can to some extent be relieved by medication, but this has variable adverse effects. Older people themselves often prefer alternatives such as relaxation and distraction, including listening to music or singing along. This review of relevant studies finds that the use of music as a valid nursing intervention can relieve anxiety and depression, help manage pain and improve quality of life.

Keywords

Anxiety, music, older adults, singing

LIFE EXPECTANCY in the UK is increasing. In 2010, 17% of the population were over the age of 65 years, but this figure is expected to rise to 23% by 2035 (Office for National Statistics 2011). Older adults are vulnerable to a wide range of mental health problems including depression, anxiety, delirium, dementia, schizophrenia, bipolar disorder and drug and alcohol misuse (Ryan and Coughlan 2011). Wolitzky-Taylor et al (2010) report that depression causes the greatest proportion of mental illness in older adults, followed by anxiety and anxiety disorders.

The symptoms of anxiety are common and disabling in older adults (Bryant et al 2007). Anxiety, which may be defined as apprehensive fear and excessive worry, exists on a spectrum from normal reactions to everyday events to functionally disabling levels that are considered to be anxiety disorders (Wetherell 1998). Symptoms of anxiety include muscle tension, headaches, irritability, sweating, nausea, shortness of breath and difficulty in concentrating, relaxing or sleeping (Smith et al 2009). Anxiety in older adults increases the risk of physical disability, memory impairment, social isolation and a reduced quality of life (Smith et al 2009). Despite the National Institute for Health and Care Excellence (NICE) advocating the use of non-pharmacological interventions as the first line of treatment (NICE 2011), pharmacological treatments for anxiety are frequently prescribed.

Wetherell et al (2005) observe that age-related changes in the metabolism of older adults may affect the efficacy of medication and increase susceptibility to side effects. Older adults themselves appear to favour alternative treatment options, and are quick to appreciate the therapeutic benefits of the arts, and of music and singing particularly, even if their hearing is impaired. This may be related to the well-established therapeutic benefits of music, with strong links between music and emotions. Consequently, interest in the therapeutic uses of the arts is growing.

Music as a therapeutic intervention

The most influential of the arts in promoting wellbeing and health is music (Clift et al 2008, Wall and Duffy 2010). Florence Nightingale described
Table 1 Search process

<table>
<thead>
<tr>
<th>Search term</th>
<th>CINAHL: number of articles</th>
<th>Medline: number of articles</th>
<th>PsyARTICLES: number of articles</th>
<th>Total with duplicates removed within and across databases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>33,659</td>
<td>124,424</td>
<td>6,138</td>
<td>167,451</td>
</tr>
<tr>
<td>Older adults</td>
<td>17,816</td>
<td>28,650</td>
<td>1,821</td>
<td>49,815</td>
</tr>
<tr>
<td>Singing</td>
<td>1,325</td>
<td>1,642</td>
<td>79</td>
<td>3,094</td>
</tr>
<tr>
<td>Music</td>
<td>7,066</td>
<td>13,299</td>
<td>806</td>
<td>22,087</td>
</tr>
<tr>
<td>Anxiety, older adults</td>
<td>548</td>
<td>872</td>
<td>63</td>
<td>1,462</td>
</tr>
<tr>
<td>Anxiety, older adults, singing</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Older adults, singing</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Older adults, music</td>
<td>59</td>
<td>76</td>
<td>11</td>
<td>116</td>
</tr>
<tr>
<td>Anxiety, older adults, music</td>
<td>14</td>
<td>11</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td>Total</td>
<td>60,488</td>
<td>168,976</td>
<td>8,919</td>
<td>244,043</td>
</tr>
</tbody>
</table>

Box 1 Criteria for inclusion of studies
- Published in English.
- Restricted to participants over the age of 65 years.
- Related to anxiety and the use of music/singing as a nursing intervention.
- Related to service user experiences of anxiety and the use of music/singing nursing interventions.

particular types of music as ‘beneficent’ to patients in her care. In cultures around the world, music is often associated with numerous life events, including religious gatherings, social occasions, concerts, graduations, weddings, christenings and funerals (McCaffrey and Locsin 2002).

Music and singing may be exciting or calming, may stir welcome or unwelcome memories and feelings, and may help us to express emotions. Music as a therapeutic nursing intervention can consist of listening to a tape/CD, singing alone or with others, or playing instruments. These methods have been used successfully in a variety of settings, and are inexpensive, non-invasive and generally safe (McCaffrey and Locsin 2002). The purpose of this review is to explore the literature on the effects of music and singing as a nursing intervention on the symptoms of anxiety in older adults.

Literature review

For the purpose of this review an online literature search was conducted on October 14 and 15 2011, with searches of the Cumulative Index of Nursing and Allied Health Literature (CINAHL), Medline and PsyARTICLES databases. The search process is shown in Table 1. The following search terms, and combinations of them, were used:
- Anxiety.
- Older adults.
- Music.
- Singing.

Box 1 lists the inclusion criteria; studies not meeting these were excluded. The abstracts of the studies identified in the searches were reviewed by the author and inclusion and exclusion criteria applied to determine eligibility. Eleven studies were eligible, and a review of their reference lists produced a further five eligible articles. The selected articles comprised 11 quantitative research studies, four qualitative studies and one systematic review, as shown in Table 2 (page, 14).

Subsequent thematic analysis of the literature established that three themes arose consistently:
- The effects of music and singing on wellbeing and quality of life in older adults.
- The effects of music on agitated behaviour and dementia in older adults.
- Music interventions for specific health conditions in older adults.

These themes were then considered, aiming to understand more about how music and singing as a nursing intervention may affect the symptoms of anxiety in older adults (Wood and Kerr 2010).

Wellbeing and quality of life
Successful ageing predominantly relates to individuals maintaining their physical health,
functional ability, social relationships, psychological wellbeing and good quality of life (Ferri et al 2009). The World Health Organization (WHO) (1997) defines quality of life as: ‘The individual’s perception of their position in life in the context of the culture and value system in which they live, and in relation to their goals, expectations, standards and concerns.’ Mok and Wong (2003) suggest that music may improve health and quality of life by soothing, relieving anxiety and distracting from unpleasant experiences. Hays and Minichiello (2005) and Lee et al (2010) conclude that engagement with music improves participants’ social interactions and ability to connect with previous life experiences, and is an appropriate and effective nursing intervention. However, the researchers also recognised that music may trigger unwanted memories, evoking upset or anger. This may result in emotional barriers to some or all music, or a reduction in enjoyment of music.

Pickles (2003) questioned members of the University of the Third Age (U3A) (2009), a self-help organisation for those no longer in employment, that provides creativity, learning and leisure opportunities. Many respondents described the value of music in overcoming the difficulties of ageing, although some reported diminished enjoyment due to auditory impairment.

Non-clinical research Clift et al (2008) reviewed the sparse non-clinical research into singing and health; overall, this section of the literature confirms that singing benefits personal and/or social wellbeing and health. The research of Skingley and Bungay (2010) into the experience of 17 Silver Song Club members supports this. Silver Song Clubs are community-based groups that provide the opportunity for older adults to gather socially and sing. Participants identified clear benefits of singing and membership, including enjoyment, social interaction, improved memory and recall, and improved physical health and wellbeing.

The use of singing was further explored by Houston et al (1998), who examined the effects of a laughter-inducing old-time sing-a-long on the psychological wellbeing of 61 older adults in residential care settings. Baseline measurements before starting the study used the General Health Questionnaire (GHQ-28) (Goldberg and Hillier 1979) and the Hospital Anxiety and Depression Scale (HADS) (Zigmond and Snaith 1983). The intervention consisted of a pre-recorded sing-a-long cassette being played for an hour each week over four weeks, participants being encouraged to sing and dance. When the GHQ-28 and HADS were repeated after the four weeks, there was a significant reduction in anxiety and depression among those residents who were included in the intervention group, compared with controls, indicating that the sing-a-long had a positive impact on their mood.

Anxiety and dementia
The prevalence of dementia is steadily rising worldwide, with more than 35 million people estimated in 2005 to have one form or other of the condition (Ferri et al 2009). It is expected that in the UK there will be over one million people with dementia by 2025 (Alzheimer’s Society 2007).

Dementia is a term used to describe symptoms including memory problems, loss of communication skills and personality changes, which occur as a result of the brain being affected by specific diseases and conditions (Goodall and Etters 2005). Pharmacological interventions are ordinarily used to control the associated symptoms and behavioural problems, but potential side effects, medication interactions and the increased frequency of falls associated with taking them, mean that alternative therapeutic interventions are frequently sought. Thus there is a growing interest in the use of music and singing as therapeutic interventions in the treatment of dementia.

Listening to music and singing have been shown to be powerful tools in reducing anxiety and agitation among people with dementia (McCaffrey 2008). Guetin et al (2009) conducted a randomised controlled study to determine the effects of music therapy on anxiety and depression in nursing home residents who had mild to moderate Alzheimer’s type dementia. Results demonstrated a positive effect of music on anxiety symptoms, and this continued for up to two months after the sessions stopped. However, further research is required to explore and develop this concept.

The frequent misdiagnosis and mistreatment of anxiety in older adults with dementia was acknowledged by Sung et al (2010), who used the Rating Anxiety in Dementia Tool (RAID) (Shankar et al 1999), which was developed specifically to evaluate anxiety in people with dementia. RAID measures anxiety retrospectively in relation to the symptoms experienced in the previous two weeks; that is, before and after the actual test. It is unsuitable during an intervention because of its retrospective nature. The study by Sung et al (2010) may have been strengthened by the use of an alternative validated measurement tool that may have given the opportunity to detect changes during the course of the intervention.

However, these findings contrast with those of Cooke et al (2010), which indicated that participation in the music programme did not significantly affect
agitation and anxiety in older people with dementia. This study applied a cross-over design with a music intervention group and a reading (control) group. Forty-seven residents from two long-term care facilities were recruited and randomised to either intervention/control (24 participants) or control/intervention (23 participants). The results may point to the important fact that attending a music group or a reading group may be equally beneficial to this population. Future research should include a third group experiencing usual care and not subject to any intervention.

Music while eating Hick-Moore (2005) focused on the use of relaxing music during evening mealtimes in nursing homes, to reduce the agitation of ‘sundowning’ in 30 older adults with dementia. Sundowning is a phenomenon where people with dementia frequently experience the period of disorientation and/or agitation in the late afternoon or early evening. It is a composite of behaviours including pacing, loud vocalisation, wandering, aggression and increased anxiety (Forbes and Gresham 2011). The study was carried out

<table>
<thead>
<tr>
<th>Authors</th>
<th>Aim</th>
<th>Setting/sample</th>
<th>Method</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Houston et al (1998)</td>
<td>To study the impact of a structured humorous activity, including sing-along on the wellbeing of older people in residential care.</td>
<td>Three care homes in the intervention group (31 residents) and three in the control group (30 residents).</td>
<td>Randomised controlled trial comparing a humorous sing-a-long session with normal care over four weeks.</td>
<td>Participation in the intervention was associated with a significant reduction in levels of anxiety and depression.</td>
</tr>
<tr>
<td>Mok and Wong (2003)</td>
<td>To investigate music as a method of reducing client anxiety before, during and after minor surgery.</td>
<td>80 older adult participants.</td>
<td>Randomised controlled trial comparing music listening intervention group and controls.</td>
<td>Music listening associated with better vital signs and lower anxiety levels.</td>
</tr>
<tr>
<td>McCaffrey and Freeman (2003)</td>
<td>To examine the effects of music as a nursing intervention on osteoarthritic pain in older people.</td>
<td>66 community-dwellers from two counties.</td>
<td>Randomised controlled trial comparing music listening intervention with controls.</td>
<td>Music listening reduced osteoarthritic pain.</td>
</tr>
<tr>
<td>McCaffrey and Locsin (2006)</td>
<td>To examine the effects of music listening in older people following hip or knee surgery.</td>
<td>124 clients undergoing elective hip or knee surgery.</td>
<td>Randomised controlled trial comparing music listening with controls.</td>
<td>Music listening reduced post-operative confusion and pain.</td>
</tr>
<tr>
<td>Cooke et al (2010)</td>
<td>To study the effect of participation in a 40-minute live group music programme on agitation and anxiety in older people with dementia.</td>
<td>47 participants with mild-moderate dementia from two aged care facilities.</td>
<td>Randomised cross-over design comparing music group with reading group.</td>
<td>Intervention failed to demonstrate positive effect.</td>
</tr>
</tbody>
</table>
over a four-week period with one particular music genre (classical) played during the evening meal during weeks two and four. The study established a significant reduction in agitated behaviours during the weeks when music was played during the mealtime and, additionally, a simultaneous increase in food consumption among participants.

These findings are similar to those of Chang et al (2008) who conducted a study to establish the effect of a music programme during lunchtime on problem behaviour among institutionalised older residents with dementia. This took place over an eight-week period, with music played during lunchtimes in weeks two, four, six and eight. Baseline measurements were taken with Barthel’s Index of Activities of Daily Living (Mahoney and Barthel 1965), the Mini-mental State Examination (MMSE) (Folstein et al 1975) and the Cohen-Mansfield Agitation Inventory (CMAI) (Cohen-Mansfield et al 1989). CMAI data were collected over the eight-week period of the study.

It is of particular interest to note that the results showed that the weekly CMAI scores appear to rise

<table>
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<th>Method</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sung et al (2010)</td>
<td>To evaluate a music intervention for anxious older adults with dementia in nursing homes.</td>
<td>52 residents in a long-term care facility.</td>
<td>Quasi-experimental design comparing music listening with usual standard care.</td>
<td>Preferred music listening reduced anxiety levels.</td>
</tr>
<tr>
<td>Hicks-Moore (2005)</td>
<td>To study the effectiveness of music in reducing evening agitation among nursing home residents with significant dementia.</td>
<td>33 residents of a specialised care unit.</td>
<td>Quasi-experimental design comparing music listening with non-music listening.</td>
<td>Music reduced agitated behaviour.</td>
</tr>
<tr>
<td>Pickles (2003)</td>
<td>To study factors improving/imparing the enjoyment of music in the 'third age'.</td>
<td>119 responses from members of University of the Third Age groups.</td>
<td>Questionnaires comparing past enjoyment of music with present enjoyment, also inviting free comment.</td>
<td>Music of great value in overcoming difficulties experienced during the later stages of life.</td>
</tr>
<tr>
<td>Hays and Minichiello (2005)</td>
<td>To explore the meaning/importance of music for older people and how it may contribute to quality of life.</td>
<td>38 older adults from urban and rural areas.</td>
<td>In-depth interviews with older adults.</td>
<td>Music promoted self-esteem and independence, limiting isolation and loneliness.</td>
</tr>
<tr>
<td>Skingley and Bungay (2010)</td>
<td>To collect older adult perceptions of participating in Silver Song Clubs, with particular interest in health and wellbeing.</td>
<td>17 members of Silver Song Clubs.</td>
<td>Semi-structured interviews and focus groups.</td>
<td>Community singing benefited health and wellbeing.</td>
</tr>
<tr>
<td>Clift et al (2008)</td>
<td>To systematically map/review existing non-clinical research on singing, wellbeing and health.</td>
<td>54 non-clinical reports identified, 19 excluded as duplicates or with limited attention to singing or health.</td>
<td>Systematic review: studies categorised according to design/method and thematic analysis applied.</td>
<td>Research conducted thus far is limited and variable in design, method and sample.</td>
</tr>
</tbody>
</table>
and fall in accordance with whether music was played during that particular week. The data imply that the lower scores were influenced by the experience of the music playing during the previous week, suggesting that the music programme had a delayed effect on the participants. However, the researchers failed to consider whether the results demonstrated that the music caused greater agitation at the time and a delayed beneficial reaction. Nonetheless, the study concluded that the music programme improved problem behaviour in older people with dementia, which may be attributable to the calmer environment and the music aiming to evoke feelings of happiness and relaxation that reduce symptoms of anxiety and agitation. Lesta and Petocz (2006) investigated structured familiar group singing as a technique to alleviate the symptoms of sundowning, but with only four participants over four days. The authors record a marked improvement in mood and social behaviour as a result of the group singing, but further research with a larger sample size and over an extended period would be required for the results to be generalised.

Physiological changes that occur when listening to music include a reduction in blood pressure, pulse and heart rate, and an increase in oxygen saturation levels (Chan 2007). Mok and Wong (2003) completed a randomised control trial studying the effects of music on anxiety in peri-operative and post-operative environments. Eighty older adult participants were included in the study. Members of the intervention group listened to music during surgery and immediately post-operatively, whereas the control group did not. The findings show that the intervention group had lower blood pressure and pulse rates, and significantly lower anxiety levels during and after the surgery compared with the control group. The intervention group also reported that listening to music had proved helpful to them during recovery.

Similarly, Twiss et al (2006) studied a convenience sample of 34 older adults undergoing coronary artery bypass surgery, to determine the effects of listening to music on post-operative anxiety and intubation time. The study showed that individuals who listened to music during and after surgery had lower scores on anxiety measures than those in the control group. The time of intubation for those who had listened to music was also considerably reduced. The findings indicate that listening to music may decrease anxiety and stress, which are known to impede healing and overall wellbeing.

**Age-related health conditions**
The therapeutic use of music is also being explored in relation to pain management. Finnerty (2011) proposes that the prevalence of pain increases with age, with chronic pain a common problem for older adults. McCaffrey and Freeman (2003) examined the effect of listening to music on chronic osteoarthritis pain in older people.

Osteoarthritis is the most common disabling disease in older adults, limiting mobility and causing long-term pain (Walker 2011). In this study, 66 participants were divided equally between intervention and control groups. The intervention group listened daily for 14 days to a pre-recorded cassette tape of light classical music lasting 20 minutes. The control group were invited to sit quietly for 20 minutes daily for 14 days. The short form of the McGill Pain Questionnaire (Melzack 1975) was used to evaluate pain levels before and after listening to music, and before and after sitting, on days one, seven and 14 of the trial, in the intervention and control groups, respectively.

Despite the small sample size and the limited study period, the authors concluded that music decreased the pain experienced by community-dwelling older adults with osteoarthritis and is therefore an effective intervention for the reduction of pain in this group of older adults.

McCaffrey and Locsin (2006) recorded similar findings when studying the effect of music on pain and acute confusion in older adults after elective hip or knee surgery. The researchers found that those who listened to music post-operatively demonstrated decreased pain levels with fewer requests for pain relief and with fewer episodes of post-operative confusion compared with the control group. This is equally suggestive that the use of music is an appropriate nursing intervention for this client group.

**Discussion**
The studies described here suggest that music and singing have a positive influence on wellbeing and quality of life by providing enjoyment, social interaction, improved memory and social inclusion. Furthermore, music and singing have been shown to be able to reduce anxiety levels in older adults, and to decrease anxiety and confusion in those with dementia, thereby improving their quality of life (Houston et al 1998, Guetin et al 2009). Likewise, the use of music in clinical situations has proved beneficial psychologically and physiologically, although conclusions are limited owing to the small number of studies. To date, few adverse effects of using music and singing as therapeutic nursing interventions have been observed, although Hays and Minichiello (2005) suggest that negative effects may be experienced by some individuals when music evokes particular emotions.
It is evidently easy to incorporate music and singing into nursing practice. Music is widely available and accepted; it is inexpensive and non-controversial, and has minimal ethical, legal and cultural concerns. Listening to music and/or singing represent a safe, evidence-based nursing intervention, and staff should be encouraged to study and use it.

Nonetheless, there remains considerable scope for further research in this field. These and similar group activities may be beneficial for other client groups, diagnoses and conditions, and the duration of the positive effects in different situations also needs investigating. Publications thus far have focused on the long-term use and benefits of music and singing, and the subsequent reduction in anxiety. Any reference to nurses using music and singing in acute anxiety situations, other than those discussed in this work, is largely absent from the literature. Testimonies from either staff or older adults would help elucidate this and would add to the existing knowledge base.

Conclusion
The literature reviewed in this article provides evidence that music and singing are effective in reducing anxiety levels in older adults, in a variety of settings, and are generally beneficial to their health, wellbeing and quality of life.

Furthermore, music and singing can be used easily and effectively as a therapeutic nursing intervention. However, as the evidence is based on small studies conducted over limited timescales and with diverse methods of music and singing use, it is difficult to synthesise or generalise these findings. Nonetheless, the evidence base for the use of music listening and singing as therapeutic nursing interventions is growing.

References
Ryan P, Coughlan J (2011) Anxiety and Older Adult Mental Health: Issues and Implications for Practice. Routledge, Abingdon, UK.
University of the Third Age (U3A) (2009) U3A Movement. www.u3a.org.uk/u3a-movement (Last accessed: November 18.)