

## Dance for Health: the impact of creative dance sessions on older people in an acute hospital setting

Hilary Bungay <sup>a</sup>, Suzanne Hughes <sup>b</sup>, Clare Jacobs <sup>c</sup> and Jufen Zhang <sup>d</sup>

<sup>a</sup>Reader in Health Services Research, School of Allied and Public Health, Anglia Ruskin University, Cambridge, UK; <sup>b</sup>The School of Public and Allied Health, Anglia Ruskin University, Cambridge, UK; <sup>c</sup>School of Allied and Public Health, Anglia Ruskin University, Cambridge, UK; <sup>d</sup>School of Medicine, Anglia Ruskin University, Chelmsford, UK

### ABSTRACT

**Background:** This service evaluation examined the impact of *Dance for Health*, a programme of weekly group dance sessions for older patients, which took place on wards in an acute hospital setting.

**Methods:** Qualitative and quantitative observations using the ArtsObs scale were undertaken of 64 dance sessions over a 12-week period involving seven different hospital wards encompassing 313 patient attendances.

**Results:** Statistically significant improvements were observed in the mood of the majority of patients taking part. People engaged mentally and physically with the activity were distracted from their medical condition and from what was happening on the ward. Patients appeared relaxed and were willing to express themselves creatively.

**Conclusion:** The *Dance for Health* programme had a positive impact on group participants, promoting movement and physical activity for older patients. It is a meaningful and enjoyable activity, which encourages social interaction and provides respite from the medical environment.

### ARTICLE HISTORY

Received 8 April 2019

Accepted 30 January 2020

### KEYWORDS

Dance; older people; music; movement; hospital

## Introduction

The UK population is ageing with the number of people aged over 65 increasing by 2.2 million between 2007 and 2017 (ONS, 2018). As life expectancy increases, so does the likelihood of experiencing ill health, and older people often have multiple and complex needs. The National Audit Office reported in 2014–15 that older patients (aged over 65 years) occupied 62% of hospital bed days (NAO, 2016). When people are in hospital their ability to move around may be limited or restricted due to their ill health, and lack of mobility is associated with loss of muscle mass and difficulty in daily functioning. Indeed, 5% of muscle strength may be lost by this group of older patients per day of treatment in hospital (NAO, 2016). For older people, the loss of muscle strength can result in functional decline and may be associated with admission to residential or nursing care, or even death following discharge from the acute hospital setting (NAO, 2016). Zisberg et al. developed and tested a model to investigate hospital-associated decline in older adults

**CONTACT** Hilary Bungay  [Hilary.Bungay@anglia.ac.uk](mailto:Hilary.Bungay@anglia.ac.uk)

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

aged over 70 years. The risk factors modelled included: mobility, continence care, the use of sedative medications, nutritional intake, the hospital environment and length of stay. Furthermore, it was found that mobility and nutrition intake were both important and modifiable risk factors (Zisberg, Shadmi, Gur-Yaish, Tonkikh, & Sinoff, 2015).

NICE guidelines recommend that it is good practice to target older people who are identified at most risk of decline in independence and mental wellbeing, and highlight that older people who have recently experienced or developed a health problem are a group that are most at risk (NICE, 2015). Included in these guidelines is recognition of the evidence base that group activities, such as singing and other arts forms, can reduce this risk, and that activities need to be inclusive, taking account of diverse needs and (dis)abilities. It is interesting to note that, according to Woodcock, Franco, Orsini, and Roberts (2011), being physically active reduces the risk of all-cause mortality, and, perhaps surprisingly, that the largest benefits are those found in those who go from no activity to low levels of activity. This is of particular importance when considering the risks associated with the hospitalisation of older people.

Hospitalisation is a stressful time for patients since beyond the uncertainty surrounding their conditions and diagnoses; they are also faced with unfamiliar surroundings, lack of privacy and a noisy environment with the associated difficulties in sleeping. When hospitalised, patients are often encouraged to remain in bed without getting dressed, resulting in a decline in movement and function; this is known as pyjama paralysis (Oliver, 2017). Such loss of function has been described as 'deconditioning syndrome' and during hospitalisation older people may spend 83% of their time in bed (Falvey, Mangione, & Stevens-Lapsley, 2015). In addition to the resultant physiological changes and the loss of mobility, decreased physical activity can lead to increased levels of depression (Adam, Ramli, & Shahar, 2016). Being in bed reduces opportunities for social interaction and patients can feel isolated and lonely. They may also be bored, sitting in their beds with little to do.

In 2011, BUPA published a report outlining the health and wellbeing effects of dance for older people. Dance is seen as being beneficial for older people since it is inclusive and allows anyone to take part. This is because it can be tailored to match the physical capabilities of participants, and can take account of cultural diversity. It is also a social activity that can promote a sense of wellbeing and social inclusion (BUPA, 2011). This report also highlighted how dance not only promotes increased confidence and physical activity levels, but that the concentration and co-ordination required also provides mental health benefits.

A number of studies have explored the use of dance with older healthy adults in the community (Fernández-Argüelles, Rodríguez-Mansilla, Antunez, Garrido-Ardila, & Munoz, 2015; Merom et al., 2016a; Stacey & Stickley, 2008), with older people with dementia in care settings (Ravelin, Korkonen, & Kylma, 2011; Vella-Burrows & Wilson, 2016), and with older people in residential care (da Silva Borges et al., 2014; Merom et al., 2016b; Vanková et al., 2014). These studies investigated different aspects and impact of dance including: balance and falls (da Silva Borges et al., 2014; Fernández-Argüelles et al., 2015; Merom et al., 2016b), cognition (Merom et al., 2016a), and depression and wellbeing (Ravelin et al., 2011; Stacey & Stickley, 2008; Vanková et al., 2014; Vella-Burrows & Wilson, 2016). However, not all studies have identified positive outcomes, and there are methodological weaknesses in some of this research, including; small sample sizes, lack of transparency regarding qualitative data analysis, and heterogeneity of scales and measures used. The

report *Keep Dancing* (BUPA 2011) reviewed the existing evidence on the impact of dance on older people and suggested there was evidence that dance could have a number of benefits for balance, strength and gait, cognition and social inclusion. Overall, there is conflicting evidence across the literature regarding the impact of dance in community and residential care settings. Overall, there is conflicting evidence across the literature regarding the impact of dance in community and residential care settings, although no studies have yet been identified that report on the provision of dance for older people in acute hospital settings.

The opportunity to join a dance session provides a bridge between therapeutic exercise and an enjoyable social activity (Demers & McKinley, 2015). Dance is a physical activity, which is safe and relatively easy to do compared to other more structured physical activity, and can be performed in a range of environments without specialised equipment. If older people are enabled to participate in regular dance sessions when they are hospitalised, there is the potential to improve levels of mobility, increase social interaction and to have a positive impact on overall wellbeing.

Cambridge University Hospitals Trust's *Dance for Health* programme aimed to improve the hospital experience for older patients admitted to the Department of Medicine for the Elderly wards, the Diabetes and Endocrinology ward, and the Stroke and Rehabilitation Unit by helping them to regain confidence, improve their overall wellbeing and physical strength, and avoid readmission to hospital. This article presents findings from an evaluation that examined the impact of a programme of dance and movement on the health and wellbeing of older patients and staff in an acute hospital setting.

Because this was an evaluation involving an ongoing intervention, and met the criteria of an evaluation as defined by the Health Research Authority (HRA, 2016), the project was registered with the Safety and Quality Support Department at the Cambridge University Hospitals Trust (PRN:6594). It was also approved by the [Anglia Ruskin University] Faculty Research Ethics Panel (FREP). All members of the evaluation team had completed the relevant ethics training provided by the University, and all had enhanced DBS clearance for working with vulnerable adults.

## Evaluation design

The evaluation was conducted using a mixed-method approach, with quantitative and qualitative data collected concurrently over the lifespan of the project. Data collection methods included a non-participant observational study to enable non-intrusive recording of the impact of the sessions on participants, and semi-structured interviews, with both patients who participated in the activity, and staff with knowledge and/or involvement in the programme.

The underpinning philosophy for the *Dance for Health* programme is that it is about dance and enabling people to be creative and expressive, rather than being a structured exercise programme or a therapeutic intervention. The sessions are introduced to patients as Music and Movement sessions, there is no choreography and no exercise regime imposed. Patients are invited to move and express themselves, and to participate in the activity to the degree they feel comfortable.

The Dance Artist who delivers the sessions trained as a Dance Movement Therapist, and has developed a dance programme appropriate for older patients in clinical settings. The

focus of the programme is on creative processes rather than being a psychotherapeutic intervention. The Project Co-ordinator is both a registered nurse, and the Trust's Falls Prevention Co-ordinator, and supports the sessions through liaising with wards where the sessions take place and helping ward staff to identify suitable patients. Furthermore, the Dance Artist and the Project Coordinator provide information and training for ward staff to raise awareness of the programme and to engage staff.

The sessions are scheduled for an hour on each ward and usually take place in the ward day rooms. Patients are informed about the sessions by the ward staff, and if patients lack capacity the ward staff ask relatives, whether they would like their relatives to take part. If the individual agrees to join the session, they will be accompanied by staff to walk to the session, or assisted with a wheelchair.

The activity takes place in a circle formation meaning that participants are close to the person next to them and can see others in the group. The sessions start with the Dance Artist introducing the session by stating the day of the week, the date and the location of the activity, and inviting participants to introduce themselves. The first music track played is an instrumental piece and participants are encouraged to start some gentle movements to warm up their hands, arms and shoulders. The next piece of music is used to get people's feet and legs moving. Participants are then asked if they would like to choose a music track from the dance artist's extensive repertoire of music, and to help this process the dance artist will ask patients about the music artists they like. This means that some of the music would be familiar to those taking part, and the process of choosing music helps to stimulate conversations between participants. Generally, the middle of the session is livelier with more upbeat tempo music, encouraging more movement and singing along to tracks. Towards the end of the session, slower music is played as participants cool down. The final piece of music is a gentle, instrumental music piece when participants are invited to close their eyes whilst being given a gentle massage to their neck and shoulders by staff or volunteers.

## Methods

The *Dance for Health* programme was funded to run over a two-year period. The data collection took place over two periods covering autumn, winter, spring and early summer to capture any seasonal variations, and pressures experienced by wards in an acute hospital Trust during the winter months.

Using the Arts Observational Scale (ArtsObs) (Fancourt & Poon, 2016), qualitative and quantitative data was collected to record patients' responses during the dance sessions. ArtsObs allows unobtrusive recording of the impact on participants of the activity without interfering with the creative process (Fancourt & Poon, 2016). It consists of three set criteria to measure scores of mood, distraction, and relaxation (details of the scales and scoring are provided below), with further space to record qualitative observations. In addition to completing the set criteria scales, data was also recorded on numbers attending (patients and staff), and the gender of those attending the sessions. Throughout each session, qualitative observations were also recorded on the ArtsObs tool, such as negative and positive anecdotes from participants, and observer comments and reflections on each session. The hospital staff and dance artist informed participants that the sessions were being observed for evaluation purposes, and they were introduced to the observer at the

start of each session. Personal identifiable data about individual participants was not recorded.

Observations were undertaken by either [HB], [CJ] or [SH]. Team members initially observed six sessions together and discussed the scores awarded. Formal calculations for inter-rater reliability were not undertaken, as there was strong agreement when comparing these initial team members' scores.

The set criteria of *mood*, *distraction* and *relaxation* scales, developed and validated by Fancourt and Poon (2016), are based on a Likert scale. The *mood* scale (did activity appear to make participants happier?) was rated on a scale of 1–7 and was based on the Wong-Baker FACES Pain Rating Scale which was chosen as it has been shown to be easy to complete and administer. It gives a visual depiction of facial expressions with a number of adjectives to help the observer select the appropriate mood (angry, frustrated, sad, calm, satisfied, happy excited). The score for 'anger' is rated as one, and the scores for the other expressions increase by one until the highest score for 'excited' is rated at seven. Observations were recorded at the beginning and end of each session for each participant. For example, a participant may start the session looking calm (quiet, and passive) which would be rated at four and at the end of the session they may look excited (delighted, and enthusiastic) and be rated at seven.

The *distraction* scale (did people engage with activity or were they distracted by ward activity?) and the *relaxation* scale (did people become more relaxed as a result of taking part?) are based on a three-point Likert scale scored 1–3, that is 'not at all' scores 1, 'yes a little' scores 2 and 'very much so' scores 3. Fancourt and Poon (2016) justify the use of the three-point Likert on the basis that it is easy to use and accurate for assessment. The signs to observe for distraction included the level of engagement with activity, direction of sight line and visible expressions of discomfort or pain, and scores were recorded at the beginning and end of each session. For relaxation, the signs to observe included jaw relaxation, slow breathing and falling asleep. However, during initial data collection, it was difficult to identify specific changes in levels of relaxation in the participants across the session using the ArtsObS scale descriptors. Fancourt and Poon identified the following indices for responses: muscular relaxation of face and limbs, softening of facial expression, jaw relaxation, slow respiratory rate and shutting of eyes and falling asleep. Whilst participants did become animated during the sessions, the population in this evaluation included people with Parkinson's disease who, as a result of the disease, may have rigid facial expressions. Furthermore, there were also very elderly patients with age-related loss of facial muscle tone and changes to the soft tissues. Together, these made it difficult for the observers to reach consensus on changes in relaxation. Therefore, the maximum level of relaxation indicated by the descriptors demonstrated during the sessions for each participant was recorded as a measure of relaxation rather than attempting to assess change.

In addition to the set criteria, Fancourt and Poon suggest users can develop and add their own criteria to the tool to meet specific organisational needs. For the purposes of this evaluation, and following discussion with the programme delivery team, measures of *creative expression* (how much independent creative expression participants exhibited) and *interactions/communication* (relationships with others in the group – did people interact with each other during the sessions) were included. These were based on measures used by Vella-Burrows and Wilson (2016) in their study looking at dance and people with dementia.

Both scales were based on a similar three-point Likert scale ('not at all', 'yes a little' and 'very much so'). For the *creative expression* scale, observers were looking at how much independent creative expression was exhibited by participants, for example, improvising movements, singing and conducting the music. For the *interactions/communication* scale, observers were looking for signs of participants communicating with others in the groups, for example, making eye contact, smiling at others and verbal exchanges. Whilst for the *mood* scale, observers were looking for smiles and other signs of positive mood or happiness, for the *interactions/communication* scale the important factor was whether participants interacted with others. So, for example, in the *mood* scale participants may smile or laugh in response to music but not engage with others in the group, but in the *interactions/communication* scale, the observers were looking for eye contact and other indicators of interaction with others.

For both the *creative expression* and *interactions/communication* scales, the observers recorded the maximum score achieved by each individual throughout the session. Following analysis of the data from the first phase of data collection, the *creative expression* and *interactions/communication* scales were amended, as it was felt that the scoring system was not reflecting the extent of activity or responses of participants. Following discussions between the evaluation and programme teams, the scales were extended to a five-point Likert scale to enable a greater range of activities to be recorded and provide a more nuanced record of people's engagement with the activities and interactions between individuals.

For the *creative expression* scale the new scores were rated as follows: 1. 'No engagement' (sits with group but no engagement with music or dance), 2. 'Not at all' (follows instructions but no improvisation), 3. 'Yes a little' (mostly follows instructions but adds one improvisation), 4. 'Yes is expressive' (follows instructions but adds more than one improvisation, e.g. movement and singing), 5. 'Very much so' (fully engaged with activity, e.g. stands up to dance and joins in with singing). For the revised *interactions/communication* scale, the scoring was rated as follows; 1. 'No interaction' (no signs of communicating with others in the group), 2. 'Yes a little' (eye contact, smiling with facilitator), 3. 'Some interaction' (eye contact, smiling with the group and staff/facilitator), 4. 'Interactive with the group' (verbal communication, mutual laughter and smiling with others in the group), 5. 'Very interactive with whole group' (verbal communication with staff other patients, instigating conversations, encouraging others). However, to permit analysis of the whole sample of participants across the two phases of data collection both versions of each scale were completed during Phase 2 of data collection and the results from both phases were analysed together. The revised scoring for creative expression and relationships was then analysed separately.

## Results

The following section reports data from the observations using the ArtsObS tool. In total 64 sessions were observed across the programme, 31 sessions were observed between October and November 2017 (Phase 1) and 33 sessions between February and June 2018 (Phase 2). Sessions were observed across seven different wards/Units. Forty-three sessions were observed on the Department of Medicine for the Elderly wards with ward A = 3 sessions, ward B = 6 sessions, ward C = 5 sessions, ward D = 10 sessions, ward E = 20

sessions (ward E had two sessions each week). Nine sessions were observed on the Diabetes and Endocrinology ward, and eleven sessions on the Stroke and Rehabilitation Unit. The number of sessions observed on each ward was affected by ward closures due to moves for cleaning, flu or MRSA outbreaks, and observer staff illness, holiday and snow. Each ward had between 25 and 27 occupied beds but it was not possible for the observers to know how many patients on each ward were fit or available to attend the sessions, meaning they were unable to calculate the participation rate of those eligible to attend on each ward.

The total number of patients observed was 313 (not all patients attended the whole session and therefore not all scores reported are out of the total 313). The numbers in the groups ranged between one and nine (mode = 6). More women than men attended the groups with 118 men and 195 women participating, a ratio of approximately 1:1.6 men to women.

### Data analysis of scale data

The data generated from the ArtsObs tool was initially entered into an Excel spreadsheet and exported to SPSS (version 24.0 SPSSInc., Chicago IL) for analysis. The quantitative data included the pre- and post-activity data from the rating scales, and the demographic data relating to numbers attending the sessions. Simple descriptive statistics were used to explore percentages and frequencies relating to the data. This was followed by statistical analysis using the Wilcoxon Signed Rank Test to determine whether changes perceived between the start and end of the sessions were statistically significant.

### Mood

It was evident during the sessions that from their smiles and laughter, the majority of patients enjoyed the sessions. Patients became noticeably more cheerful with some commenting on how they much they had enjoyed themselves and how it was nice to do something different, rather than lying in bed. For instance, one woman said “I haven’t had such a laugh in a long time” and a doctor remarked at the end of the session on how much happier the patients seemed when taking part. However, it was also the case that, for some people, certain songs triggered memories, and on occasion, this did mean that people were sad and even cried as a result. When this did happen, the rest of the participants were understanding and offered support, holding each other’s hands and offering words of comfort.

From the data, for 206/306 participants (67.5%) the score on the *mood* scale increased as their mood visibly improved by the end of the session, whilst for 91 participants (29.8%) the original score remained the same, and their mood appeared unchanged. However, there were nine participants (2.95%) whose scores went down indicating their mood was adversely affected, so they may have started the session happy but became frustrated or sad during the session. The mean score at the beginning (T1) ( $M= 4.4$ ,  $SD = 1.15$ ), and the mean score at the end (T2) ( $M= 5.4$ ,  $SD = 1.26$ ) indicates the activity had a positive impact on mood for the majority of participants.

The data was normally distributed at T1 but there was a negative skew at T2 indicating a positive increase in scores following the activity. Because the differences between T2

and T1 were not normally distributed, the change in mood was evaluated using the Wilcoxon Signed Rank Test, and the effect size of significant differences was calculated using Cohen's *d*. A statistically significant improvement in mood following participation in the session was identified ( $Z = -11.79$ ,  $p < .001$ , with a large effect size 0.5). The median score on the *mood* scale increased from pre-activity T1 ( $Mdn = 4$ ) to post-activity T2 ( $Mdn = 6$ ).

### **Distraction**

At the beginning of the session, 85/310 (27.4%) of participants scored one, and appeared focussed on their medical condition or what was happening on the ward. This could be demonstrated by fiddling with lines or dressings, or by concern over a limb that was unresponsive after a stroke. For 121/310 (39.03%) of participants scoring two, attention was split between the music and movement group and their medical condition or what was happening on the ward, and the remaining 104/310 (33.5%) scored three and were focussed entirely on the arts activity. Mean score at T1 was ( $M = 2.1$ ,  $SD = 0.78$ ) and at T2 only 21/309 (6.8%) appeared concerned with their medical condition or what was happening on the ward, 83/309 (26.9%) had their attention split between the group and their medical condition or what was happening on the ward, and 205/309 (66.1%) were focussed entirely on the activity. The mean score at T2 was ( $M = 2.6$ ,  $SD = 0.62$ ). This provides an indication of the level of engagement with the activity with the majority of participants engaged fully in the session.

Because the data was not distributed normally, the change in the level of engagement with the group was evaluated using the Wilcoxon Signed Rank Test, and the effect size of significant differences was calculated using Cohen's *d*. A statistically significant increase in engagement  $Z = -10.42$ ,  $p < .001$ , with a large effect size (0.4) identified. The median score on the *distraction* scale increased from pre-activity T1 ( $Mdn = 2$ ) to post-activity T2 ( $Mdn = 3$ ).

### **Relaxation**

In terms of relaxation 135/310 (43.5%) of participants scored 2 'yes a little', 111/310 (35.8%) scored the maximum 3 'very much so', whereas 61 (20.6%) scored one 'not at all'. Therefore, 79.3%, or nearly four-fifths of the participants, were relaxed while taking part in the session. Participants often commented that they would sleep well following the session.

### **Creative expression**

Participants were observed to evaluate the degree of individual creativity they expressed during the session. People would often start the sessions by mirroring the dance artist's moves, but as the session progressed they would start to improvise their own moves, which were then picked up by the dance artist and by other participants. The creative expression ranged from simple toe-tapping and conducting by those participants who were less mobile, to ballroom dancing and tap dancing for those more physically active. When people knew the words to songs such as 'Que Sera Sera' and 'Let there be love', they would sing along and others would join in, holding hands and swaying in time to the music.



As stated previously, the *creative expression* and *interactions/communication* scales were adapted between the first period of observations and second, but the original scales were used across both data collection periods. Using the original scale across both phases of data collection the maximum level of creativity expressed during the session was recorded for each individual and the mean score was 2.4 (range 1–3), with 162/311 (52.1%) of participants responding spontaneously to the music or activity during the session. It also demonstrated that only 35/311 (11.3%) scored one – which meant that although they sat with the group they did not engage with the music or the activity.

Using the extended scale in the second period of data collection it was found that the mean score for creative expression was 3.6 (range 1–5) with 117/181 (64.6%) scoring four or above on the revised scale. This indicates that, in addition to following movements of others in the group, 65% of participants were spontaneous and improvised their own moves or started singing along with the music independently. Overall, the majority of participants, using both scales, showed that patients were actively participating in the sessions and were willing to express themselves creatively.

### ***Interactions and communication***

Participants were observed to assess whether any of the activities in the group triggered a response to, or interaction with, other group members. When people are in hospital and limited to the area around their bed, they can be lonely and bored, as the majority of interactions they have are with staff and are related to their care and condition. One patient described to the observer at the beginning of a session, how lonely she was as none of the patients in her ward bay were able to communicate with her. Another described lying in bed as dreary and commented how the session had provided an outlet. The conversations that started through discussing the music lead to participants discovering shared histories with others. People found that they had lived in the same villages, been to the same dance halls, and even on one occasion that they had been in the same primary school. Subsequently, staff remarked on how friendships had formed during the sessions and that people had continued to converse on the ward following the sessions.

Using the original scale across both periods of data collection, overall 283/312 (90.7%) of participants interacted with others with 138/312 (44.2%) verbally communicating with others, including encouraging others or clapping. Other responses including laughter, smiling and making eye contact with others. The mean score for social responses to the activity was 2.4 ( $SD = 0.66$ ). The revised scale used in phase 2 recorded a mean score of 3.52 ( $SD = 1.28$ ) (range 1–5) with 59.7% (108/181) scoring 4 or above on the revised scale indicating that people interacted by speaking with each other laughing together and smiling in response to others.

### **Discussion**

Dance for Health sessions consists of a number of elements, dance, music, a massage, and the opportunity to interact with other patients and staff in a non-clinical intervention. As with other arts and health interventions, it is difficult to establish which of these constituents has the most impact, or whether it is the synergy of the parts, which result in the observed positive impact on participants. There is also the possibility that the overall ward

environment could have an impact on the participants' responses to the sessions, and further research would be needed to assess this. It is evident, however, that taking part in *Dance for Health* had a statistically significant impact on the mood of participants, and participants engaged with the sessions and were relaxed. They were also distracted from the ward activities going on around them in the hospital environment. Participants also expressed spontaneous creativity, and the group environment stimulated social interaction between patients.

There are a range of theories which may help to explain why these changes were observed. The dance sessions use music to accompany the movements, and music stimulates changes in emotional states because of the endorphin opioid system (EOS) (Tarr, Launey, & Dunbar, 2014). Calming music buffers the effects of stress, and exertion through music and dance activates the EOS which has an analgesic effect. This could have an impact on pain thresholds, as well as levels of relaxation (Tarr et al., 2014). It also produces an emotional mood response as demonstrated in this evaluation. It may be the case that frail older people may only be able to do seated dance, but it has been found that even dance which is limited to upper body movements can give rise to euphoric effects (Dunbar, Kaskatis, MacDonald, & Barra, 2012). Dunbar et al. (2012) found that whilst active participation in music gives rises to euphoric effects, dance and music together can raise pain thresholds and produce positive affect. Furthermore, dance with music was found to have a greater effect than music on its own, even when dance is limited to upper body movement. The physical exertion triggers endorphin activation and this produces a mild high and sense of wellbeing. It is not only physical exertion that triggers endorphin release, with laughter, synchronised sport, singing and dancing all activating endorphins (Tarr et al., 2014). Throughout the sessions, there was singing and laughter which could also heighten the positive impact of the dance participation.

There were issues with the tool chosen for the evaluation. The physical nature of the dance and the potential euphoria associated with the activity help to highlight a further reason why the *relaxation* scale developed by Fancourt and Poon was difficult to use. Fancourt and Poon validated the ArtsObs scale with an arts-in-health programme and included the performing arts in this process, but if participants are animated, facial expressions such as jaw relaxation or people closing their eyes and falling asleep are not relevant. Similarly, respiration rate may increase due to exertion so the descriptor 'slow respiration' would also not apply. Other descriptors such as body posture may need to be developed if using the tool in other performing arts intervention studies.

Dance has been described as a complex intervention which involves rhythmic mirroring, non-verbal communication, and moments of spontaneous rapport (Froggett & Little, 2012). Social bonding can occur through 'synchronisation', when people mimic or mirror dance moves, which can help to build rapport between participants. A positive feedback loop can also develop so that people become socially close through making the same moves, and they are more likely to continue the movements once social closeness is established (Tarr et al., 2014). Synchronisation, combined with the release of endorphins, will help social bonding. The observers recorded instances of such bonding, with patients holding hands, clapping together, and comforting and encouraging each other. These actions were recorded using the *interactions/communication* scale, and although the scale used the descriptors of smiling and laughter, which were the same descriptors used in the *mood* scale, the observers in this case were specifically looking for smiling and laughter in

response to others. A participant could appear happy and be enjoying the session without making eye contact or communicating or interacting with others in the group.

According to Pressman and Cohen (2005) positive affect, that is positive emotions, such as happiness joy and excitement, generates psychological resources by promoting resilience, endurance and optimism. Even though the positive emotions may only last a short time, they may have a long-lasting effect, which may be drawn on when faced with a challenging event. It has also been found that inducing amusement, spontaneous smiling or contentment, following a stressful event can result in faster return to baseline levels of cardiovascular activity. Together, music and movement can therefore have positive emotional, psychological and physical impacts on older hospitalised adults. These findings have significant implications for the care of older people in acute hospital settings.

### **Strengths and limitations**

Whilst the findings of this evaluation resonate with the potential outcomes of the intervention that were identified in the existing literature, the potential longer-term impacts could not be established. The sessions take place in an acute hospital setting and some patients may attend only one session, whilst some may come for a number of weeks. But even if patients are 'long stay' they may not attend every week because they may be unwell or undergoing medical intervention. This means that it is difficult to create a profile of patients attending the sessions and to assess whether sessions have a sustained impact. To demonstrate impact, such as effect on number of falls, pain medication and muscle mass, further research should be considered. This could include measures of physical activity pre- and post-session(s) with a 'prescribed dose', a comparator group, and pre-/post-intervention measures recorded.

### **Conclusion**

The *Dance for Health* programme had a positive impact on group participants, promoting movement and physical activity for older patients. It is a meaningful and enjoyable activity which encourages social interaction and provides respite from the medical environment.

### **Acknowledgments**

With thanks to Damian Hebron (Head of Arts), Filipa Pereira-Stubbs (Dance Artist), Debra Quartermaine (Project Co-ordinator) at Cambridge University Hospital Trust who were responsible for the delivery of the dance programme, and assisted the evaluation team throughout the evaluation process.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

## Funding

The Dance for Health programme delivery and evaluation were funded by a grant from the Dunhill Medical Trust.

## ORCID

Hilary Bungay  <http://orcid.org/0000-0001-8202-4521>  
 Suzanne Hughes  <http://orcid.org/0000-0003-3639-2109>  
 Jufen Zhang  <http://orcid.org/0000-0003-2704-6212>

## References

- Adam, D., Ramli, A., & Shahar, S. (2016). Effectiveness of a combined dance and relaxation intervention on reducing anxiety and depression and improving quality of life among the cognitively impaired elderly. *Sultan Qaboos University Medical Journal*, 16, e47–53.
- BUPA. (2011). *Keep dancing the health and wellbeing benefits of dance for older people*. Retrieved from <http://www.cpa.org.uk/information/reviews/shall-we-dance-report.pdf>
- da Silva Borges, E. G., de Souza Vale, R. G., Cader, S. A., Leal, S., Miguel, F., Pernambuco, C. S., & Dantas, E. H. M. (2014). Postural balance and falls in elderly nursing home residents enrolled in a ballroom dancing program. *Archives of Gerontology and Geriatrics*, 59, 312–316.
- Demers, M., & McKinley, P. (2015). Feasibility of delivering a dance intervention for subacute stroke in a rehabilitation hospital setting. *International Journal of Environmental Research and Public Health*, 12, 3120–3132.
- Dunbar, R., Kaskatis, K., MacDonald, I., & Barra, V. (2012). Performance of music elevates pain threshold and positive affect: Implications for the evolutionary function of music. *Evolutionary Psychology*, 10(4), 688–702.
- Falvey, J. R., Mangione, K. K., & Stevens-Lapsley, J. E. (2015). Rethinking hospital-associated deconditioning: Proposed paradigm shift. *Physical Therapy*, 95, 1307–1315.
- Fancourt, D., & Poon, M. (2016). Validation of the arts observational scale (ArtsObs) for the evaluation of performing arts activities in health care settings. *Arts and Health*, 8(2), 140–153.
- Fernández-Argüelles, E. L., Rodríguez-Mansilla, J., Antunez, L. E., Garrido-Ardila, E. M., & Muñoz, R. P. (2015). Effects of dancing on the risk of falling related factors of healthy older adults: A systematic review. *Archives of Gerontology and Geriatrics*, 60, 1–8.
- Froggett, L., & Little, R. (2012). Dance as a complex intervention in an acute mental health setting: A place ‘in-between’. *British Journal of Occupational Therapy*, 75(2), 93–99.
- Health Research Authority. (2016). *Defining Research available at: [http://www.hra-decisiontools.org.uk/research/docs/DefiningResearchTable\\_Oct2017-1.pdf](http://www.hra-decisiontools.org.uk/research/docs/DefiningResearchTable_Oct2017-1.pdf)*
- Merom, D., Grunseit, A., Eramudugolla, R., Jefferis, B., Mcneil, J., & Anstey, K. J. (2016a). Cognitive benefits of social dancing and walking in old age: The dancing mind randomised controlled trial. *Frontiers in Aging Neuroscience*, 8. doi:10.3389/fnagi.2016.00026
- Merom, D., Mathieu, E., Cerin, R., Morton, R. L., Simpson, J. M., Rissel, C., ... Cumming, R. (2016b). Social dancing and incidence of falls in older adults: A cluster randomised controlled trial. *PLoS Medicine*, 13, e1002112.
- NAO. (2016). *Discharging older patients from hospital*. Retrieved from National Audit Office, <https://www.nao.org.uk/report/discharging-older-patients-from-hospital/>
- NICE. (2015). *Older people: Independence and mental wellbeing*. Retrieved from <http://www.nice.org.uk/guidance/ng32/resources/older-people-independence-and-mental-wellbeing-1837389003973>
- Oliver, D. (2017). Fighting pyjama paralysis in hospital wards. *BMJ*, 357, j2096.
- ONS. (2018). *Population estimates for the UK, England and Wales, Scotland and Northern Ireland Mid-2017* Retrieved from <https://www.ons.gov.uk/peoplepopulationandcommunity/populationand>

[migration/populationestimates/bulletins/annualmidyearpopulationestimates/mid2017#nearly-12-million-uk-residents-aged-65-years-and-over](#)

- Pressman, S. D., & Cohen, S. (2005). Does positive affect influence health. *Psychological Bulletin*, 131(6), 925–971.
- Ravelin, T., Korkonen, T., & Kylma, T. (2011). Dance in mental health: A hybrid concept analysis. *Issues in Mental Health Nursing*, 27(3), 307–317.
- Stacey, G., & Stickley, T. (2008). Dancing to keep young @ heart. *Mental Health Practice*, 11(6), 34–38.
- Tarr, B., Launey, J., & Dunbar, I. M. (2014). Music and social bonding: “self-other” merging and neurohormonal mechanisms. *Frontiers in Psychology*, 5. doi:10.3389/fpsyg.2014.0196
- Vanková, H., Holmerova, I., Machacova, K., Volicer, L., Veleta, P., & Celko, A. M. (2014). The effect of dance on depressive symptoms in nursing home residents. *Journal of the American Medical Directors Association*, 15(8), 582–587.
- Vella-Burrows, T., & Wilson, L. (2016). *Remember to dance: Evaluating the impact of dance activities for people in different stages of dementia*. Sidney De Haan Research Centre for Arts and Health, Canterbury Christ Church University.
- Woodcock, J., Franco, O. H., Orsini, N., & Roberts, I. (2011). Non-vigorous physical activity and all-cause mortality: Systematic review and meta-analysis of cohort studies. *International Journal of Epidemiology*, 40(1), 121–138.
- Zisberg, A., Shadmi, E., Gur-Yaish, N., Tonkikh, O., & Sinoff, G. (2015). Hospital-associated functional decline: The role of hospitalization processes beyond individual risk factors. *Journal of American Geriatrics Society*, 63, 55–62.