

Abstract

Aims

Falls and related injuries in the older population are major public health issues requiring more innovative and effective solutions. This paper reports a collaborative evaluation of the first cohorts of the 'Dance to Health' (DtH) programme which integrates evidence-based physiotherapy falls-prevention exercises (FaME [Falls Management Exercise] and Otago programmes) into a creative dance programme. The aim of this study was to draw conclusions about the effect of the programme on health and social outcomes and changes in dance interest. A longer term, follow-up evaluation is needed to assess the effect of the programme on prevention/reduction in falls.

Methods

Sixty-seven participants took part in a mixed-methods study that combined focus group discussions and one bespoke and five validated pre/post-test questionnaires with a focus on dance interest and ability, group identity, loneliness and isolation, general health and mental health. The data was coded and content analysed for themes.

Results

The findings show that the DtH programme can support and enhance physical, mental and social health and levels of interest in dance. Both the qualitative and quantitative data yielded evidence of positive change, with statistical significance in the quantitative data relating to group bonding and improved physical control and coordination.

Conclusions

The findings of this evaluation support the case for embedding the Dance to Health programme into prevention and enablement services for people at risk of falls. A longer term, tracking study would also be of benefit.

Introduction

Falls are a leading cause of unintentional injury and mortality in people aged 65 and over (World Health Organization 2007). Approximately 30% of this age group living in the community fall each year (Gillespie et al. 2012). Fall related injuries can be severe, and include hip fractures, traumatic brain injuries and upper limb injuries resulting in hospitalisation (World Health Organization 2007). Following a fall, an older person is likely to have impaired mobility and may require personal care, which can undermine self-confidence and esteem (Age UK 2013). In addition to negative consequences for older people, falls present a substantial economic cost to health and social-care systems (Age UK 2012). Moreover, as the number and proportion of older people grow, the rate of falls and related injuries are predicted to increase (World Health Organization 2007; Age UK 2017). These factors indicate an urgent need for effective interventions to prevent falls and improve the health and wellbeing of older people.

A systematic review by Gillespie et al. (2012) of interventions for preventing falls in older people living in the community, concluded that among the varied strategies that have been developed, group and home-based exercise programmes effectively reduce rates of falls and risk of falling. In addition, Kendrick et al. (2014) report that exercise interventions can reduce fear of falling without increasing the risk or frequency of falls. In the UK, the most commonly applied falls prevention exercise programmes are FaME (Falls Management Exercise, also referred to as Postural Stability Instruction (PSI)) and Otago (Royal College of Physicians 2010; Charters 2013). Both FaME and Otago have been rigorously evaluated (e.g. Skelton & Dinan 1999; Skelton et al. 2002; 2004; 2005; Thomas et al. 2010) and have supporting evidence in relation to preventing falls by 54% and 35% respectively (Charters 2013). Yet despite such evidence, providers of health care in the UK do not consistently deliver evidence-based exercise programmes, or provide follow-up classes for reducing falls in the community. Furthermore, there is some criticism from participants that existing exercise programmes are not engaging and lacking in availability (Royal College of Physicians 2012). These factors indicate that a new, patient orientated approach is required.

Interest is growing internationally in the role of the creative arts in health promotion and rehabilitation, driven by a number of publications based on a better understanding between creativity and evolving definitions of health and wellbeing (e.g. Arts Council England 2007; Stickley & Duncan 2007; White 2009; Skingley et al. 2011; Clift 2012; Burkhardt & Brennan 2012; Swindells et al. 2013, Gordon-Nesbitt, 2017).

Among the array of creative arts activities, dance has been proposed as a potentially effective and appealing falls-prevention exercise for older people, as it can be varied in movement-outcomes, sociable and enjoyable (Lima & Vieira 2007; Eyigor et al. 2009; Fernández-Argüelles et al. 2015). Studies conducted globally have linked dance to improvements in older peoples' physical stamina (Hopkins et al. 1990; Buchner et al. 1997; Uusi-Rasi et al. 1999; Eyigor et al. 2009) and overall physical functioning (Keogh et al. 2009; Dewhurst et al. 2014), including postural stability (Zhang et al. 2008), balance, strength and walking speed (McKinley et al. 2008). These improvements are associated with reduced falls risk (Buchner et al. 1997; Shigematsu et al. 2002; Jeon et al. 2005; Federici et al. 2005; Krampe et al. 2010).

Studies on the effect of dance on mental wellbeing have shown improvements in general quality of life (Jerrome 2002; Hokkanen et al. 2008; Eyigor et al. 2009); mood (Burkhardt & Brennan 2012), depression, anxiety (Eyigor et al. 2009), life satisfaction, and achievement and confidence (Osgood et al. 1990; McKinley et al. 2008). Enhanced relationships and communication between healthcare staff and caregivers are also evidenced (Palo-Bengtsson & Ekman 2000). Furthermore, participation in group activities of this type may combat social isolation and support positive health behaviours (Wakefield et al. 2013; Cruwys et al. 2013), potentially leading to reduced risk of falling (World Health Organization 2007).

This collective evidence presents an argument for formally re-orientating mainstream services to include creative dance activities in health maintenance, promotion and rehabilitation.

Dance to Health intervention

Dance to Health is a falls prevention programme that integrates the remote but connected professional communities of physiotherapy and artistic dance. The theoretical and practice-based principles are taken from the FaME and Otago falls-prevention exercise programmes and embedded into creative dance programmes. These are designed to develop older people's engagement with dance whilst increasing their strength, balance, flexibility and overall wellbeing. The additional use of props, imagination, a range of music and creative improvisation makes the movement element of dance more engaging in comparison to the exercise focus in movements in FaME and Otago.

To ensure as rigorous as possible fidelity to the FaME and Otago principles, dance artists delivering the DtH programme took part in extensive training to integrate the principles into fun, sociable and creative

dance opportunities for participants. In the current evaluation, the programme consisted of 52, ninety-minute dance sessions delivered over six-months to six participant groups; two each in London, Oxford and Cheshire.

Methods

The evaluation used quantitative and qualitative methods to assess the structural and phenomenological aspects, respectively, of the DtH intervention (Daykin and Stickley, 2016). The research questions were:

- What are the benefits, positive or negative, of integrating creative elements into a falls-prevention programme?
- What are the benefits of such a programme, if any, to health and wellbeing?
- What social benefits, if any, are associated with the Dance to Health programme?

The evaluation design was directed by a steering group comprised of academics and practitioners with expertise in arts and health; community members who volunteered to assist with DtH sessions; and personnel from the project's lead organisation - Arts Enterprise with a Social Purpose (Aesop). Methodology was underpinned by established social science research methods (Broom & Willis 2007; Craig et al. 2007; Bowling 2002); the Aesop Framework for developing and researching arts and health programmes (Fancourt & Joss 2015) and similar instruments used in the context of arts and health research (Clift et al. 2010; Vella-burrows & Wilson 2016).

Quantitative methods consisted of a 39-item, self-administered questionnaire completed at base-point and end-point to record changes over six months in participants' perceptions of dance interest and ability and health and wellbeing. The questionnaire comprised five validated health and wellbeing questionnaires (below), and a bespoke section on dance interest.

- 6-item De Jong Gierveld Loneliness scale (De Jong Gierveld & Van Tilburg 2010)
- 5-item EUROQOL measurement of health outcome (EuroQol 1990)
- 12-item Short Form survey for functional health and wellbeing (Ware et al. 1996)
- 7-item Short Warwick-Edinburgh Mental Wellbeing Scale (Tennant et al. 2007)
- 4-item Group Identity Scale (Sani et al. 2014)

Qualitative methods comprised face-to-face interviews with day-centre managers where DtH sessions were held, and four DtH dance artists. Focus group discussions were conducted with six DtH participant groups using a question framework of indicators of quality of life and social wellbeing, independence and creative outcomes. These processes aimed to add a richer data set and wider perspectives to the questionnaire response findings.

Research governance and ethics

In July 2015, Canterbury Christ Church University's Research Governance Ethics Committee approved the evaluation. All procedures were conducted in accordance with the University's Research Governance Framework (2014).

Procedures

Data were collected between July 2015 and June 2016 at six DtH locations; two each in London, Oxfordshire, and Cheshire. Locations represented a range of districts including from the most and least deprived 10% in England. Recruitment was through personal verbal invitations delivered during pilot DtH sessions. The inclusion criteria were self-selected enrolment onto the DtH programme and mental capacity to consent.

Analysis

To observe confidentiality and anonymity participants were allocated unique codes. The Statistical Package for Social Science (SPSS) software was used to analyse quantitative data. Dependent variable scores were analysed for:

- Dance interest and dance ability
- Group identity
- Loneliness and social relationships
- Wellbeing, health and functioning

Responses to questionnaires were analysed by comparing mean scores at base-point and end-point. Test re-test correlations between items and paired sample t-tests assessed significant changes over time. Levels of significance for all analyses were set at $p < .05$ (One-tailed).

‘Qualitative data via focus groups were analysed by three researchers using the principles of template analysis, in which the questionnaire headings guided the main topics with the aim of expanding on the quantitative responses (Braun et al. 2006; Waring & Wainwright 2008). A deeper systematised analysis of qualitative data was not undertaken at this stage of the evaluation.’

Results

Forty-three participants completed base and end-point questionnaires, of which eight participated in the Otago dance programme and thirty-five in FaME dance programme. Thirty-three participants engaged in focus group discussions. Findings from questionnaires and focus groups are presented here in line with the dependent variables.

1. Dance interest and ability

Data in Table 1 show reasonable consistency over time with the highest value found for ‘I enjoy being creative’ $r=0.52$ ($p<0.000$). Mean scores remained the same or lower, indicating increased agreement with questionnaire statements. Statistical significance was found for one statement ‘I can control/coordinate my body’ ($p=0.028$), indicating that participants felt enhanced feelings of control over their movements at end-point.

Further analysis of results showed strong correlations between ‘I can dance’ and ‘I enjoy being creative’, which rose from significant at 0.05 level [2-tailed] at T1 ($r=.325$ $p<.034$), to significant at 0.01 level at T2 ($r=.401$ $p<.008$). A similar pattern occurred between ‘I enjoy being creative’ and ‘I can control/coordinate my body’ (T1: $r=.374$ $p<.014$; T2 $r=.425$ $p<.005$). The correlation between ‘I like dancing’ and ‘I can control/coordinate my body’ rose from not significant at T1 ($r=.157$ $p=ns$) to strongly significant at T2 ($r=.436$ $p<.002$).

Body control, coordination and a sense of achievement were key themes discussed by participants during focus groups:

“I think the exercising has been the main benefit, because I have certainly improved my mobility and balance since I have been coming.” (P23A)

“I couldn’t stand on one leg and hold that leg out... when I first came. So the muscles must have improved as well as the core strength.” (P26B)

“She (dance artist) has got us doing more energetic things now than when we first started. We have gradually progressed. We are standing more and doing more energetic things.” (P28B)

These comments from participants suggest that they were surprised at their achievements in relation to increased body control, coordination, increased mobility and balance. Both the participants and dance artists cited expression and creativity as positive aspects to the intervention: This is a key aspect of using creative dance to integrate the physiotherapy activities. The opportunities to express and create have been made possible because of the Dance to Health project.

“It’s nice to express yourself.” (Participant 40D)

“The participants were challenged to think, create and take ownership of the work they did, gaining a sense of authority over their movement potential.” (Dance Artist 03)

Table 1. Dance interest and ability (n=42/43)						
	mean	std. deviation	R (T1,T2)	P (1-tailed)	t (df) (T1 vsT2)	P (1-tailed)
T1 Interested in dance	1.62	.582	0.30	0.025	0.00	ns

T2	1.62	.539				
T1 Like dancing	1.65	.650	0.51	0.0005	0.50	ns
T2	1.60	.583				
T1 Can dance	2.35	.948	0.46	0.001	0.00	ns
T2	2.21	.804				
T1 Enjoy being creative	2.12	.793	0.52	<0.000	1.00	ns
T2	2.12	.662				
T1 Control/coordinate	2.49	1.009	0.42	0.0025	1.96 (42)	0.028
T2	2.19	.852				

(T1 = base-point; T2 = end-point; ns = not statistically significant)

2. Group identification

Data in Table 2 show significant changes between T1 and T2 for each item, with the strongest for the statements ‘I’ve a sense of belonging in my group’ (p.0005); ‘I’ve a lot in common with my group’ (p.002) and ‘I feel a bond with my dance group’ (p.003). Mean scores across participants were lower at T2 than T1 indicating increased agreement with statements.

Further analysis showed strengthened correlations from T1 to T2 between the statements on ‘bonding’ and ‘sense of belonging’ ($r=.596$ $p<.000$ at T1 to $r=.711$ $p<.000$ at T2). This was also the case between feeling ‘similar to others in the group’ and ‘having a lot in common’ (T1: $r=.557$ $p<.000$; T2: $r=.756$ $p<.000$).

Qualitative findings from focus groups supported the perceived value among participants of meeting new people and being part of a group:

“I come here to meet a wider circle of friends.” (P05A)

“Everyone gives you a bit of confidence.” (P07CC)

“Coming somewhere like this makes your confidence grow in general because you are meeting new people and conversing.” (P27B)

“The teachers treat us well. They’re friendly. They’re very inclusive.” (P42D)

Confidence is important because, although many cited that they had an interest in dance in the baseline questionnaire, not everyone had danced before in a creative way. This builds on the development of a shared interest and support of others in a community.

Table 2. Group Identity Scale (n=42/43)						
	mean	std. deviation	<i>r</i> (T1,T2)	P (1-tailed)	t (df) (T1vsT2)	P (1-tailed)
T1 Bond with group	1.86	.783	0.36	.008	2.92 (41)	.003
T2	1.49	.592				
T1 Similar to others	2.12	.803	0.20	.100	1.9 (41)	.031
T2	1.84	.721				
T1	2.02	.880	0.58	<.0000	3.58 (40)	.0005

Sense of belonging T2	1.60	.695				
T1 A lot in common T2	2.45 2.05	.968 .844	0.56	<.000	3.06 (41)	.002

(T1 = base point; T2 = end-point)

3. Loneliness and social relationships

Data in Table 3 shows, with the exception of ‘I often have a feeling of emptiness’, all mean scores lowered indicating a minor reduction in loneliness over time. Whilst no scores were statistically significant, focus group participants frequently expressed as a key motivator for attendance, the social benefits of the groups:

“It’s getting out of the house, meeting new people, new faces... It’s something I always look forward to. You’re motivated by the people around you or the artist. And you just keep going back for more.” (P05B)

“You have a laugh and I think that is a great help to health if you can chat and laugh.” (P22A)

“My son says he sees a difference in me, because I was fast becoming “the woman in the dressing gown”. I didn’t go out or do very much.” (P06A)

An opportunity to regularly meet with others and laugh should not be underestimated. This bonding activity links to the community building. Social benefits were also corroborated by the dance artists:

“Social groups and relationships were formed at both centres and between dance to health participants and peer motivators.” (DA01)

“[P16R] came to the session reserved but after several sessions his confidence increased becoming social with the rest of the participants and being open to everyone.” (DA01)

Table 3. De Jong Gierveld Loneliness scale (n=42/43)

	mean	std. deviation	<i>r</i> (T1,T2)	P (1-tailed)	t (df) (T1vsT2)	P (1-tailed)
T1 Enough people close T2	2.10 1.86	1.031 .814	.24	.006	1.34	ns
T1 I often feel rejected * T2	1.79 1.64	.951 .932	.53	<.001	1.06	ns
T1 People I can lean on T2	2.24 2.17	1.358 1.057	.36	.009	.34	ns
T1 Feeling of emptiness * T2	2.00 2.18	1.192 1.211	.58	<.001	-1.02	ns
T1 Miss people T2	2.28 2.77	1.097 1.245	.45	.001	.26	ns
T1 People to rely on completely T2	2.45 2.38	1.234 1.103	.49	.0005	.393	ns

(T1 = base-point; T2 = end-point; ns = not significant) * reversed scoring applied to negatively worded items

4. Wellbeing, health and functioning

The findings on health, wellbeing and functioning are reported together due to cross referencing on the collective questionnaires (Tables 4, 5, 6).

Table 4 presents test-retest correlations between items on the EQ5-D questionnaire that assesses generic health. Results show that except for the 'ability to perform usual family/housework activities', correlations at T1 and T2 were significant. The highest value was for reported levels of pain/discomfort ($r = .84$ $p < .0001$). Scores for overall health, rated on a visual analogue scale from 0 -100 ('worst/best health you can imagine' respectively), rose from 73.37 to 75.93 between T1 and T2. Whilst this is not statistically significant, it indicates the maintenance of reasonable health over the duration of the intervention among participants, most with co-morbid and chronic conditions

Table 5 presents test-retest correlations between items on the Short Form survey (SF-12) for functional health and wellbeing. Results show a degree of consistency over time with the highest value found in the items 'During a typical day does your health limit you in climbing several flights of stairs?' ($r = .73$ $p < .0001$), and 'During the last four weeks how often did you have a lot of energy?' ($r = .73$ $p < .0001$). Overall there were no significant changes in responses between T1 and T2 with the exception of the question, 'During the last four weeks, how much time have you been limited in performing any kind of work or other regular activities as a result of your physical health?' ($r = .064$ $p < .0001$). This result indicated perceived improvement in physical activity/energy. A slight improvement was also noted in 'peace of mind' over the duration of the intervention.

Items on the Short Warwick Edinburgh Mental Wellbeing Scale showed correlations with a high degree of consistency over time and each was statistically significant (Table 6). Highest values were found for 'I've been feeling useful' ($r = .50$ $p < .0005$), and 'I've been able to make up my own mind about things' ($r = .48$ $p < .0005$). With the exception of 'feeling relaxed' all means between T1 and T2 changed minimally in a positive direction but were not statistically significant.

Whilst little statistical change was evident on EQ5D, SF-12 and SWEMWBS between T1 and T2, with only one item on physical health showing a significant improvement, the qualitative data provided a different picture. Most of the focus group participants reported strongly enhanced feelings of physical and mental health and wellbeing as a result of the DtH intervention:

“You feel better. Once you’ve been here, you feel better, you go home feeling better.” (P15R)

“Dance is very good for your memory coordination, stimulates you, makes you happy, more flexible.” (P01V)

“I feel it has improved my hip and balance generally!” (P40D)

“I found that occasionally if I was to stand up and walk around I would not be wholly steady. I don’t feel that way now.” (P24A)

These are key aspects related to the benefits of physical activity. The DtH project showed some evidence of opportunities to build memory, co-ordination and flexibility.

Table 4. EUROQOL measurement of health (n=42/43)						
	mean	std. deviation	<i>r</i> (T1,T2)	P (1-tailed)	t (df) (T1 vsT2)	P (1-tailed)
T1 Mobility	1.31	.468	.58	<0.001	-.703	ns
T2	1.36	.485				
T1 Pain/discomfort	1.63	.536	.84	<.0001	1.000	ns
T2	1.58	.545				
T1 Self-care (washing/dressing)	1.10	.304	.33	.020	-.813	ns
T2	1.15	.362				
T1 Anxiety/depression	1.45	.504	.56	<.0001	.573	ns
T2	1.40	.627				

T1 Usual activities (family/housework)	1.63	.581	.035	.413	.621	ns
T2	1.56	.502				
T1 Overall health scale	73.37	16.247	.68	<.0001	-1.254	ns
T2	75.93	15.050				

Table 5. Short Form survey for functional health and wellbeing (n=40/41)						
	mean	std. deviation	<i>r</i> (T1,T2)	P (1-tailed)	t (df) (T1vsT2)	P (1-tailed)
T1 General health	2.76	.932	.46	.001	.797	ns
T2	2.64	.932				
T1 Moderate activities	2.35	7.20	.62	<.0001	.255	ns
T2	2.33	.644				
T1 Climbing stairs	2.26	.693	.79	<.0001	628	ns
T2	2.21	.773				
T1 Physical health/accomplishment	3.76	1.031	.56	<.0001	-.819	ns
T2	3.88	.968				
T1 Physical health/regular activities	3.95	.999	.64	<.0001	1.70(42)	.048
T2	3.72	1.098				

T1 Emotional health/accomplishment T2	4.12 4.02	1.041 1.137	.43	<0.002	.530	ns
T1 Emotional health/care given to activities T2	4.21 4.17	1.001 1.010	.30	.026	.260	ns
T1 Normal activities/pain T2	3.95 4.07	1.011 1.068	.67	<.0001	-.868	ns
T1 Calm/peace T2	2.49 2.32	.779 .879	.645	<.0001	1.55(40)	.064
T1 Energy T2	2.78 2.73	1.025 1.086	.73	<.0001	.404	ns
T1 Feeling downhearted T2	3.83 3.78	1.022 1.061	.63	<.0001	.350	ns
T1 Physical and emotional health/social activities T2	3.95 4.22	1.024 1.013	.42	.003	-1.56(40)	0.62

(T1 = base-point; T2 = end-point; ns = not significant)

Table 6. Short Warwick Edinburgh Mental Wellbeing Scale (n=40/41)

	mean	std. deviation	<i>r</i> (T1,T2)	P (1-tailed)	t (df) (T1vsT2)	P (1-tailed)
T1 Optimism T2	3.85 3.85	.802 .949	.47	.001	.000	ns
T1 Feeling useful T2	3.66 3.66	.728 .825	.50	.0005	.000	ns
T1 Feeling relaxed T2	3.78 3.68	.652 .650	.36	.010	.850	ns
T1 Dealing with problems T2	3.54 3.56	.552 .594	.28	0.38	-.227	ns
T1 Thinking clearly T2	3.59 3.54	.547 .522	.26	.05	.467	ns
T1 Feeling close to people T2	3.78 3.63	.759 .799	.44	.002	1.138	ns
T1 Ability to make up mind T2	3.46 3.34	.636 .530	.48	.0005	1.302	ns

Artistic outcomes

Discussion

The results from the early evaluation are encouraging, with evidence of an association between the Dance to Health programme and the maintenance or improvement of certain domains of physical, mental and social health and wellbeing as well as early artistic development and identity as part of a community that enjoys dancing. The programme also supported confidence to engage in creative expression through dance. The relatively low levels of change and modest statistical significance overall from the quantitative data, may be attributable to pre-existing high levels of health and wellbeing reported by participants at the outset. The lack of statistical significance may also reflect insufficient participant numbers to detect changes robustly. However, narrow changes between pre and post-test questionnaires were re-balanced in the qualitative data from which strong perceptions of improvement across all of the evaluation domains were consistently recorded. This discrepancy reflects the distinct difference between structural outcomes, which are measured quantitatively, and phenomenological outcomes, which are measured qualitatively. It highlights the challenges of evaluating complex arts and health interventions (Daykin and Stickley, 2016) and in identifying the most effective tools with which to measure true impact. Larger, longer -term studies are needed to test the consistency of the quantitative and qualitative findings, and the relationship between the two

Dance ability and interest

Quantitative data showed that participants' enjoyment in being creative in the dance sessions correlated to their perceptions of ability to control and coordinate their bodies and this improved over time. Perceptions of gradual improvement in dance mobility and strength were also expressed. This included for example, improvements in core strength and gaining confidence to stand on one leg. These factors and others relating to heightened perceptions of dance ability overall were articulated frequently in the focus group discussions and concur with previous studies that highlight dance as an effective mechanism for supporting physical strength, balance and flexibility (Jeon et al. 2000; Federici et al. 2005; McKinley et al. 2008; Eyigor et al. 2009; Dewhurst et al. 2014). Opportunities to be creative were also cited.

Group identity

Scores for the Group Identity Scale showed the highest level of significance, indicating a strong sense of bonding, belonging and identity amongst participants over time. The phenomenon of group attachment was also articulated often in the focus group discussions. Feeling welcome and safe, not being judged, and being an important part of something were frequently highlighted. The sense of camaraderie extended to the dance artists, of whom the participants without exception spoke fondly. Appreciation for the artists' dance and facilitator skills were also frequently expressed. These findings are important, particularly in light of literature that highlights not only the benefits of group bonding to support mental wellbeing (Cruwys et al. 2013) but also the relationship between group identity and positive health behaviours (Sani et al. 2014).

Loneliness and social relationships

The development of meaningful social relationships during the DtH programme featured strongly in the qualitative commentary. This linked robustly with group identification, with many focus group participants expressing enthusiasm for meeting new people, making and maintaining new friends, and shared motivation to attend and take part in dance sessions. Quantitative data showed only a slight rise in each of the items in the Loneliness Scale. This finding indicates that whilst participants gained socially from being part of their DtH group, many were not overly lonely at the pre-test point. A small number of participants recounted stories of transformation, for example, from being 'the woman in the dressing gown' to being a confident, sociable individual keen to pursue new activities. This comment and others pertaining to good mental health link with the Five Ways to Wellbeing message (Marks et al. 2008) and the call from the World Health Organisation to reduce the risk of loneliness and social isolation among older people (WHO, 2002).

Wellbeing, health and functioning

Evidence from the focus group discussions suggests the Dance to Health programme can enhance participants' quality of life in relation to:

Enhanced feelings of wellbeing

Improved physical ability

Positive mood

A sense of motivation

Opportunities to achieve

Positive cognitive challenge

Improved memory

Noteworthy improvements to physical, emotional, mental health and general wellbeing were cited frequently. Perceived improvements in balance, strength, flexibility, mobility and stamina correspond to findings of previous reviews of literature (Keogh et al. 2009; Fernández-Argüelles et al. 2015). Moreover, findings link strongly with the principles embedded into the FaME and Otago models and the evidence base highlighting their efficacy relating to falls-prevention (Skelton et al. 2005; Thomas et al. 2010; Charters 2013).

Limitations

Initially 198 people registered for the DtH programme. Attrition levels were mostly due to new attendees' expectations of partner social dancing or a different genre of dance not being met. This factor and the challenge of co-ordinating nationally spread research procedures with the different dance organisations and artists, contributed to the smaller evaluation sample of 67. The study would have benefitted from local research coordinators and a larger sample, particularly in relation to the quantitative findings.

The linking of several validated questionnaires with one bespoke questionnaire made a total number of 39 questions and consequently some participants found the length and varied nature of the final questionnaire onerous and confusing to complete. This resulted in some missing data and omission of at least three insufficiently completed questionnaires. A more manageable number of items is recommended for this population in future studies.

Focus group discussions were highly successful as participants appeared comfortable sharing views and audio recordings provided a rich source of data. It is recommended that co-planning with prospective participants is given more attention in future to address practical problems that limited participation for some (e.g. travel arrangements/clashing with meal times). 'It is proposed that a future systematised analysis of this data will yield a fuller understanding of the effects of the early stages of this

intervention but in this study, time limitations restricted the analytic process to an initial expansion of the quantitative data.'

As with most pilot activities for older people, levels of attendance fluctuated. Suggested reasons included the twice-weekly commitment may have been too demanding for some, and/or the content and/or pace of the sessions may not have suited all tastes or abilities.

Conclusions

The Dance to Health programme engendered interest and curiosity around dance and the early evaluation process itself appeared to stimulate greater interest in the role of dance in participants' health and wellbeing. The evaluation revealed the programme was delivered well by the trained dance artists and supported and enhanced a sense of overall health and wellbeing. In particular, the benefits to health and wellbeing related to group bonding, social relationships, and the ability to control and coordinate the body when dancing and outside dance sessions. Whilst limited changes were seen in the quantitative data in this study, the qualitative data were encouraging with improvements reported in physical strength, flexibility, mobility and stamina, and in mental health relating to a sense of belonging, meaningful-camaraderie and a sense of achievement.

Based on this evaluation, a case is made for using creative dance as a mechanism for supporting the health and social wellbeing and to raise an interest in dance among older people at risk of falls. To encourage widespread adoption and diffusion of such programmes, future research in this area should include:

- A larger size and diversity of sample
- Robust quantitative data
- Research design to compare physiotherapy interventions with creative dance interventions, and to compare effects between FaME and Otago-based dance groups to understand which individuals in the target population are most able to access and benefit from such interventions
- Physical measures (strength, mobility, balance, coordination) at base-line and end-point

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