



## **Impact of *Well-Dance* on physical and mental health of older adults in the Dun Laoghaire-Rathdown borough**

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### **Background**

In Ireland, older adults with physical and mental health difficulties have lower levels of activity participation (O'Regan et al., 2011). Activity participation is considered a key component of healthy ageing. It is therefore important to have a variety of community-based activities available for older adults. Dance programmes provide an opportunity to participate in a leisure activity and demonstrates a positive impact on mobility and endurance (Forster et al., 2013). However, research is required to examine the impact of dance on increasing activity participation in a range of daily activities.

A dance programme, *Well-Dance*, was developed by the Dance Theatre of Ireland (DTI) for community dwelling older adults (O'Toole et al., 2015). This dance programme, which increases in complexity over the course of the programme, consists of both creative expression and contemporary dance routines. Routines are accompanied by a variety of music including jazz, classical and contemporary pieces. Movements incorporated into the dance routines include stretching, leg lifts, stepping forward, backward and side-stepping, lunges and heel rises. Dancing in pairs and small group dancing are included as is creative expression through improvisation or non-choreographed movements. With guidance from the programme instructors, participants are facilitated to adapt the dance movements to suit their personal ability.

The *Well-Dance* programme was delivered over a six-month period in three locations across the Dun Laoghaire Rathdown County Council borough, namely Dun Laoghaire, Shankill and Dundrum. A study was carried out to evaluate the impact of the programme. The main objectives of the study was to examine the impact of *Well-Dance* on activity participation, physical capacity, mood and quality of life.

### **Study objectives**

1. To examine the impact of a 20-week dance programme on frequency of participants' activity engagement
2. To examine the impact of a 20-week dance programme on participants' mobility
3. To examine the impact of impact of a 20-week dance programme on participants' anxiety levels
4. To examine the impact of impact of a 20-week dance programme on participants' mood and quality of life.

5. To explore participants experiences of the Well-Dance programme and their perceptions of the impact of the programme on their daily activities.

## **Study design**

A sequential exploratory mixed methodology approach was used in this study (Creswell and Plano Clark, 2011). A pre-test, post-test design was used for the quantitative phase. A qualitative descriptive approach was used to explore participants experiences of Well-Dance. The data from both approaches were analysed separately (Corcoran, 2006).

## *Sample*

The *Well-Dance* programme was delivered in three locations across the Dun Laoghaire Rathdown County Council borough, namely Dun Laoghaire, Shankill and Dundrum. The programme was advertised through community groups and word of mouth. All participants who signed up for the dance programme were included in the study. Participants signed consent forms prior to commencement of the study.

## *Data collection methods*

### Quantitative phase

1. The Frenchay Activities Index (FAI) measures frequency of participation in social and community-based activities (Christiansen, 2005). The measure contains 15 items divided into 3 sub-scales (domestic chores, leisure/work and outdoor activities) the maximum score for each sub-scale is 15. The scale also provides a summed score from 15 – 45 with 45 as the maximum total for the index. Higher total and subscale scores indicate greater frequency of activity participation (Schulling, de Haan, Limburg, & Groenier, 1993).
2. The EQ-5D-3L is a self-report measure of health status developed by the EuroQol group (Euroqol, 2009; Rabin & DeCharro, 2001). It is a non-disease specific assessment for assessing health related quality of life. Higher scores indicate higher quality of life.
3. Falls Efficacy Scale (FES) measures the level of concern about falling during social and physical activities inside and outside the home, whether or not the person actually does the activity (Yardley et al., 2005). Higher scores indicate greater concerns about falling, with scores ranging from 16 (no concern about falling) to 64 (severe concern about falling).
4. The Geriatric Anxiety Scale (GAS) Segal, June, Payne, Coolidge, & Yochim, 2010) is a 30-item self-report measure used to assess anxiety symptoms among older adults. The GAS contains three anxiety-related subscales: somatic, cognitive, and affective anxiety. Higher scores indicate higher levels of anxiety.
5. Timed up and Go (TUG) test (Podsiadlo and Richardson, 1991). This is a simple and quick test used to assess a person's mobility. It involves the person walking a distance of 6 metres which is timed. TUG is a valid and

reliable tool for use with community dwelling older adults. It correlates strongly with measures of balance and function (Bischoff et al., 2000).

The questionnaires were completed at three time points: Time1 (T1): prior to commencement of *Well-Dance*; Time 2 (T2): at the mid-point of the programme, and Time 3 (T3), at the end of the programme.

### Qualitative phase

Focus groups were used to collect qualitative data for this study. This method is useful in evaluating health care interventions and elucidating quantitative findings as they provide both an individual and collective perspective (Sandelowski, 2000; Liamputtong, 2009). Focus groups have been proposed as a particularly useful method of data collection when taking a qualitative descriptive approach and as counterpart to quantitative research to obtain a broad range of information about events (Sandelowski, 2000).

## Findings

### Demographics

A total of 83 people enrolled in the Well-Dance programme across the three locations and participated in T1 data collection. As seen in Table 1 there were less participants at T2 and T3. As reported in Table 1, the demographic profile of attendees at the three data collection points was similar. At all three data collection periods the majority of participants were married, female and living with somebody. The majority had achieved a secondary level of education and were retired.

The majority of participants reported taking part in *Well-Dance* to improve their health, get fit and have fun. Other reasons for attending the programme included to improve their dancing skills, to meet other people and to take time out for themselves.

**Table 1: Demographic profile of participants at all three data collection period**

Time 1 (n=83)			Time 2 (n=47)			Time 3 (n=44)		
Location	DTI	37	Location	DTI	22	Location	DTI	19
	Shankill	18		Shankill	12		Shankill	16
	Dundrum	28		Dundrum	13		Dundrum	9
Gender	Male	Female	Gender	Male	Female	Gender	Male	Female
	6	77		3	44		5	39
Mean age	70.7 (SD6.6)		Mean age	70.2 (SD6.5)		Mean age	70.6 (SD5.2)	

Less than a third of the group reported having long term health conditions. During the focus group discussions the range of health issues identified included hypertension, diabetes, varying types of arthritis, asthma and angina. Participants were asked if

they had fallen in the past year. At each time point approximately 25% reported a fall in the past year.

*Results for self-report questionnaires*

As seen in the Table 2, the participants of the dance programme are engaging frequently in different types of activity and do not report any unusual level of fear of falling. In the focus group discussions participants discussed how they were also involved in many other leisure activities such as walking, golf, pitch and putt, bridge, fitness programmes, badminton and swimming.

**Table 2: Average total scores of self-report questionnaires**

Measure	Average score Time 1	Average score Time 2	Average scores Time 2
<b>Frenchay Activities Index (max score 45)</b>	33.8	33.7	34.7
<b>Falls Efficacy Scale (max score: 64)</b>	21.3	21.2	20.7
<b>Timed up and Go (TUG) (no max score)</b>	9.2 seconds	8.1 seconds	8.4 seconds
<b>Geriatric Anxiety Scale (max score 75)</b>	7.7	5.7	7.2
<b>EQ-5D-3L (max score 100)</b>	79.8	79.6	85.7

All measures showed improvements in the total scores. On testing the measures for significant differences between the three time points of the study, only two measures showed significant differences: the Timed up and Go (TUG) test and the health related quality of life scale (EQ-5D-VAS). The Timed up and Go (TUG) test showed a significant decrease between T1 and T2 and again between T1 and T3 ( $p=0.002$  and  $0.002$  respectively).

A screening questionnaire asked participants if they had experienced a fall in the past year. At T1, twenty three people reported that they had fallen. Of these 23 people 11 of them completed T2 and T3 measures. The demographic profile of these people is similar to the full group of participants in that they are mainly female, have an average age of 70.7, they are married or widowed, and the majority attended secondary level education. This group of attenders also improved in their TUG scores at all three time points with a statistically significant difference between T1 and T2 ( $p=0.050$ ).

Participants health related quality of life was measured using the EuroQoL measure. This measure contains a visual analogue scale from 1-100. Respondents are asked to rate their perceptions of their health. The average baseline score for the group was 79/100 indicating that, in general, the group perceive they have a good quality of

life. This score remained the same at T2, however, it had improved significantly ( $p=0.010$ ) by the end of the programme with the score increasing to 86/100.

The Geriatric Assessment Scale contains three categories of anxiety namely affective, cognitive and somatic anxiety. Although the category scores improved at each time point, only the affective category was significantly improved between T1 and T2 ( $p=0.031$ ).

The Falls Efficacy Scale (FES) measures a person's concerns about falling during different daily activities. Although the groups average scores reduced over the 20-week dance programme, there were no significant changes between the three data collection times. The FES scale indicate levels of concern regarding falling. Table 3 shows the proportion of participants who reduced their level of concern about falling.

Level of concern	Time 1 (n=81)	Time 2 (n=43)	Time 3 (n=43)
Low	48%	54%	56%
Moderate	38%	37%	35%
High	14%	9%	9%

As can be seen in Table 3, all categories improved in the level of concern regarding falling. The proportion of people in the 'low concerns' category increased at all three time points, while the proportion of people in the moderate and high concerns decreased at each time point. As a component of falling relates to physical abilities such as that measured in the TUG measure, the findings of these two measures support the positive impact of Well-Dance on participants' physical abilities.

## Qualitative findings

Focus groups were held with participants in all three locations at all three data collections times. Qualitative data analysis resulted in the identification of the following themes:

1. Reasons for attending Well-Dance
2. Impact of Well-Dance on physical and cognitive skills
3. Impact of Well-Dance on participants' mood
4. Perceptions of the programme

### *Reasons for attending Well-Dance*

During the Time 1 focus group, participants were asked why they had attended Well-Dance. The main reason put forward was for exercise and fitness reasons. Although many of the participants reported being active and engaging in many other activities such as golf, pitch and putt, bowls, and swimming, they still believed that the dance programme was a more challenging form of exercise:

*“I felt I needed a bit more. I would walk a bit but I felt I needed to do something a bit more energetic and I also I like music and dancing around” (LAT1P1).*

There were however some participants who reported not being active and considered Well-Dance as an opportunity to engage in exercise:

*“I just haven’t been doing any keep fit or I’m not a great person for the gym or that and I don’t play golf so just, I was delighted to be almost handed something” (LAT1P3).*

Two other participants explained that they were attending Well-Dance instead of spending time watching television:

*“It’s better than looking at television” (LCT1P2).*

*“That’s exactly what I think, yeah, it’s better than sitting looking at telly. Looking at ads” (LCT1P4).*

Other focus group participants identified specific health conditions they experience and stated that they were attending the programme to improve their health:

*“I’ve osteoporosis so I think it’s very good for strengthening, balance and all that kind of stuff and then arthritis, apparently it’s good for that too, that’s the two reasons really” (LAT1P2).*

Some participants joined the programme for social reasons. For example:

*“I think the social aspect is so important, with everybody, I think as humans we need social contact” (LBT1P4).*

### **Impact of Well-Dance on physical and cognitive skills and participants’ mood**

During both the Time 2 and Time 3 focus groups, participants reported a range of physical and cognitive skills which they believed had improved as a result of dancing.

#### *Physical benefits*

Numerous physical benefits were identified from dancing. These included improved coordination, greater flexibility, reduced pain, and increased awareness of posture.

*“I’m more flexible. I must say my legs feel a lot more flexible because of all the different exercises. Because I never did a lot of those exercises, they’re very different to what you’d normally do - you’re moving a lot of different muscles” (LAT2P2).*

*“It strengthened my feet especially, I think a lot of the exercise is very good for your feet and your toes and all the muscles in your legs” (LBT2P6).*

*“You’re more aware of your posture because you say “oh I’ve got to straighten my shoulders and walk tall”. You know the way, you’re inclined to pull yourself back” (LAT2P7).*

One participant reported feeling more secure when walking in crowds:

*"I feel I can walk better through crowds, you know the way we walk through the crowds, I feel I can walk better, looking for the spaces as they say. Walking along the streets sometimes you'd think back to the class where you're moving in and out and doing things"* (LCT3P5).

A participant who reported having asthma stated:

*"For me anyway I found it was really my breathing that had a big difference. It's not just the physical exercise, it's very good for your lungs and your breathing as well"* (LAT3P4).

Another participant with angina explained:

*"I have angina and normally I wouldn't be able to do that sort of exercise. And I was doing it and I haven't suffered with any chest thing at all since I did it, so I think it's great"* (LBT3P7).

Some participants discussed losing weight since joining Well-Dance. One participant who has Diabetes explained:

*"I'm type 2 diabetes and I was with my clinic on Monday and, now its years since I was there and I have lost several pounds. So I was waiting to be told off because I hadn't been walking very much and my diabetes was the best it has ever been"* (LBT3P2).

When asked if she believed if Well-Dance contributed to this she stated:

*"Well I hadn't been doing any other exercises other than that"* (LBT3P2).

One participant discussed experiencing less pain and how she can now do other activities as a result:

*"I had a pain in my neck and my shoulder, every day, nothing to knock me out but I take Panadol. Suddenly one day I said "God I've no pain in my shoulder or my neck". The pain is gone and I can do anything now and I'm gardening now"* (LCT2P3).

Another discussed the benefit of Well-Dance on her Fibromyalgia:

*"And I have fibromyalgia and I was suffering really bad with the pain and since the six weeks I feel the pain has sort of gone, it's not as bad as it was and I have it for years and nothing I could do would get rid of it. It's absolutely brilliant, I have to say. Anybody who has fibromyalgia should try it, that's all I could say"* (LBT2P6).

As a result of improvement in physical abilities some focus group participants identified new activities in which they now engage. Participants explained the reason for this was that they had more energy after the dance classes. Activities discussed included gardening and housework:

*“Oh yes, I mean I love gardening and I used to go out there and I’d be like “oh God I better not do this”, you know? Whereas now I’m out there pulling and dragging” (LCT3P1).*

*“I’m doing more in the house too. Things that you’re putting off, now I go into my rooms and think, “I must sort out those magazines or books or those clothes” and you think “yeah I’ll do that now” (LAT3P6)*

### **Cognitive skills**

*“It’s mental stimulation as well as physical” (LAT3P1).*

Focus group participants discussed a range of cognitive skills which they believe had improved as a result of participating in Well-Dance. These skills included memory, concentration, planning and spatial awareness.

Participants discussed having to remember the sequence of the dance steps:

*“And it’s not just physical, because you have to try and remember the sequence and that’s where a lot of people our age begin to have problems is in remembering the sequencing” (LAT3P5).*

Other participants reported having to concentrate:

*“And you’re thinking you have to have your mind on what you’re doing” (LBT2P4).*

*“And we did one where we broke up into pairs so one person would do all the action and we had to follow very quickly. You had to react, to do exactly what they did, you know? So, you can’t think of anything else only what’s going on in the room” (LBT3P7).*

*“Well I mean I think it’s all about reflex because your mind has to keep working. You have to be thinking. And then when he says “change”, you have to know which way you have to go to change, and that’s what I like about it” (LCT3P2).*

One participant who reported having Temporal Arteritis stated improvements in her concentration:

*“I have a joint disease in my head and I can’t concentrate very well and I found I was concentrating on the dancing there. It’s an inflammation of the veins coming down off the brain. But I have to say now it did help me (LBT3P6)*

Another participant discussed increased body awareness:

*“And just being aware of the world around us and our connection with the ground and being aware that this is your body and where your feet are” (LAT2P1).*

### **Impact on participants’ mood**

Dance has previously been reported to improve mood (Alpert et al., 2009). The focus group participants of this study also reported positive feelings and having more energy as a result of Well-Dance. They described feeling more joyful, happier, being more positive and having more self-confidence.



*“Yeah I feel the benefit of it. I feel the better for coming you know, I do yeah. It makes you feel good yeah (LBT3P3).*

*“We’re all real happy, you’re always very happy at the end of it, everyone is in great form at the end of it” (LAT3P5).*

*“Your confidence, having more confidence in yourself, you’re not kind of protecting yourself as much. I’m not as nervous as I was” (LAT3P4).*

*“I always got a buzz when I left here, always. Yeah, I always felt good, leaving here” (LAT3P4).*

One of the reasons suggested for the change in mood related to the positive affirmation that dance provided participants as older adults. Participants also discussed how the dance programme promoted a positive perspective on abilities of older adults:

*“For older people I think it’s great because you do feel that you’re kind of past it, or you’re moving on, and then suddenly this thing happens and it’s really good. You realise that you can do more than you ever thought you could” (LAT3P3).*

*“And each week they keep stretching you a little bit more. And I think the focus is on ability to do. They treat you as capable people rather than as people who should do a restricted form of everything” (LBT3P5).*

*“You’re really planning for 20 years down the road rather than sitting in a nursing home, you know you can be out walking and moving. I think it’s great whoever organised this, I mean this is forward thinking for older people, I think it’s fantastic” (LBT3P4).*

*“I think psychologically it’s quite comforting that somebody came up with this idea that people might be interested in dance. Because so much talk about older people is all about their health problems and going for a little walk. It’s not very imaginative what is out there for older people in terms of movement. So I think that, a younger generation of people are prepared to launch classes and take an interest in older people and gentle movement and so on, is very encouraging, very positive” (LBT3P3).*

The impact on mood could also be related to the social interaction opportunities provided by attending Well-Dance. Many participants reported meeting people as a benefit of the programme:

*“I was quite happy to get to meet other people and also have some exercise” (LCT3P2).*

*“And I think sort of meeting new people, and the same people coming so you have something in common” (LAT2P5).*

*“Yeah it’s lovely to meet up with everybody else. Get to know new people” (LCT3P2).*

*"I thoroughly enjoyed it. I met people that I would have known to see on the street, you know you get to talk to them and you're saying hello to them now when you see them" (LBT3P6).*

Other participants highlighted the fun element of Well-Dance:

*"It was great fun, I must say it was exercises that we made fun out of and you know it was part of the day's, it was very, very good" (LBT3P5).*

*"There were exercise we were doing and we'd be tying ourselves up in knots and it was really funny because it's not a serious thing. Robert would make fun of it and still get us to work (LBT3P2).*

A number of participants described a flow-like experience when participating in the dance. For example:

*"In some of the exercises we were supposed to be flying around like angels and for the moment it felt you were an angel. And it was just a great bit of fun, as well as you felt you were doing something for your own benefit, for your health" (LAT3P2).*

### **Perceptions of the programme**

Focus group participants were positive about the programme. *"It's a good experience I think. And I would strongly recommend it to anybody" (LBT3P4).* They discussed the format of the classes and identified elements of the class which they believed contributed to the enjoyable experience and facilitated their participation in the dance.

Participants particularly identified the impact of the two instructors on their enjoyment of Well-Dance:

*"I think the teachers made it" (LAT3P5)*

*"Certainly the two teachers are lovely leaders and you don't feel any criticism if you're not doing it right, they just repeat it" (LAT2P1).*

*"Their enthusiasm is very infectious, they don't seem to see it as a chore. They're interested in the group of older people, not just dancers or younger people who are going to be going places, we're not going to be going that far!" (LAT2P3).*

*"They're very committed. They're incredibly committed" (LCT2P2).*

Participants also commented on the instructors' teaching skills:

*"And they give very clear direction of what exactly they want us to do" (LAT2P1).*

Many participants discussed how the dance instructors allowed participants to dance at their own pace and within their own physical ability:

*"They're happy to let you do what you can feel you can do. I have two fractures in my upper back so I can't do the arm movements above my shoulders. They just said do what you feel like. And I could sit out if I knew I couldn't do or shouldn't do something*

*and they were quite happy about it. There was no forcing you to do anything that you didn't want to" (LAT3P1).*

*"And it was thoroughly enjoyable, he, doesn't put pressure on you. They weren't judging you" (LBT2P3).*

*"You can either come and do it by yourself and you can also do it with other people so it's not as formalised as say ballroom dancing. There's a freedom to it as well as a form, so its lovely for just wanting to move" (LAT3P6).*

Some participants discussed the variety of music used during the classes and the range of dance types:

*"And it's contemporary movement to music, but it's all different, like there's jazz in it, there's ballet in it, there's jiving in it, there's Michael Jackson in it" (LAT2P6).*

*"And all the different types of music, we had jazz and then we had Fred Astaire and then we'd African music and that was another rhythm" (LCT3P4).*

*"As I said the dance sequences are brilliant and it doesn't go on that long that you'd get bored, only does it 2 or 3 weeks and then he starts something new" (LBT2P4).*

Participants also enjoyed visualization techniques used during classes:

*"... or he'd say or paint the ceiling, you know like a graffiti thing and everyone is in their own space as such, you know so as I said nobody is minding what somebody else is doing" (LAT2P2).*

*"He said "right we're all sneaking out of school", so you'd sneak along all around the room and then he'd say "oh we're nearly being caught" so then you have to fly around the room" (LAT2P4).*

*"So then it's a lovely day and we fly up and there's paint in the sky, and then he said "oh we're on the beach and it's nice and soft" and you stick your toes and your feet and feel the ground and feel around. And then oh we're on pebbles and they're very hot, going like this, hopping along" (LBT3P6).*

Participants also discussed how their physical endurance increased as the classes progressed:

*"Because the first week or so the hour and a half was quite long because we hadn't been used to it. And then as the weeks went on it wasn't enough. It was over before you knew it" (LCT3P1).*

However, a small number of participants reported the classes were too long:

*"I think it goes on too long and when somebody says something they say "oh we're trying to push the boat out". I mean they dance all day every day. They are athletes" (LCT2P4).*

Some participants also offered some suggestions for increasing public awareness of the programme:

*“We don’t really think it was properly advertised. It should have been more aggressively advertised maybe in the local free paper even” (LCT3P2).*

## **Discussion**

The Well-Dance programme has been designed by the dance instructors of the Dance Theatre of Ireland (DTI) for older adults. A previous exploratory study reported significant impact of Well-Dance on activity participation of older adults (O’Toole et al., 2015). This previous study investigated the impact of a six-week Well-Dance programme whereas for this current study Well-Dance was delivered over a 20-week period. The demographic profile of the 20-week programme was similar to that of the six-week programme. Therefore it appears that Well-Dance appeals more to females and those in their early 70’s. Perhaps older adults in their late seventies or early eighties perceive dance as an activity that is beyond their physical abilities.

The purpose of this study was to examine the impact of Well-Dance on mobility, quality of life, mood and activity participation. Significant differences were found in participants’ scores in the Timed Up and Go (TUG) test between baseline scores and mid way through the programme (10 weeks) and again between the mid point and the final assessment. This indicates that the Well-Dance programme significantly increased the speed at which participants completed the 6-metre walking test. This test is considered a reliable indicator of balance and therefore, it could be suggested that Well-dance also significantly improved participants’ balance. Future research should include specific balance measures to confirm this possibility.

A small number of people in this study reported a fall in the past year. For those people who completed the programme, there was also a significant difference in their TUG scores between the beginning and end of the Well-Dance programme. Falls has many negative long-term health and social consequences for older adults. Those who have experienced falls are more likely to withdraw from valued activities which in turn results in social isolation and mental health difficulties (Heslop and Wynaden, 2016). Well-Dance therefore could be a promising intervention to offer people who have experienced falls to improve their mobility and confidence.

Health-related quality of life (HRQOL) is a multi-dimensional concept that includes domains related to physical, mental, emotional, and social functioning. Although the participants reported high levels of health-related quality of life at baseline, this increased significantly by the end of the programme. HRQOL is becoming increasingly recognized as an important outcome measure to determine the impact of health-based interventions on health and well-being. Well-being is a relative state where one maximizes his or her physical, mental, and social functioning in the context of supportive environments to live a full, satisfying, and productive life. It is also considered an indicator of positive health behaviour (Kobau et al., 2010).

An increased sense of well-being was also identified through the focus group discussions where participants described feeling happier, more joyful and positive at the end of each dance class. The Irish Longitudinal Ageing study, TILDA, examined levels of mental health in Irish older adults and reported that 10% of study participants had clinical levels of depression and 18% had sub-threshold levels of

depression (O'Regan et al., 2011). Of those in the depression category, 47% of participants had low levels of activity engagement. Given the recognised protective impact of activity participation on mental health, the Well-Dance programme could be promoted as an activity to improve mood for older adults in the Dun Laoghaire/Rathdown borough.

A core objective of the recent Healthy Ireland policy document is to increase health and well-being in the Irish population (Dept. of Health, 2013). It advocates for inter-sectoral co-operation to achieve this goal. Community-based organisations, (such as the Dance Theatre of Ireland) that offer group-based leisure activities, should be considered central contributors to this objective.

The participants of this study scored high in the baseline score of the Frenchay Activities Index (FAI) indicating that they appear to be an active group. This was also confirmed in the focus group discussions when participants identified a wide range of other leisure and productive activities in which they engaged. Although the FAI scores improved between T1 and T3, the difference was not statistically significant. In the focus group discussions at the end of the 20-week programme, however, some participants discussed how as a result of Well-Dance they were engaging in activities that they had previously stopped doing such as gardening. This would indicate that dance could have an important influence on activity participation. Perhaps a different study design, such as a randomized control trial, would detect significant differences in a dance cohort.

In the end-of-programme focus group participants reported a wide range of health benefits from participating in Well-Dance. These included feeling a greater level of fitness, being more flexible, and more coordinated. Some of the participants identified improvements in specific pain sites and discussed how that, as a result of attending Well-Dance, they now had less pain. Connolly et al., (2016) identified pain as a risk factor for reduced participation in activities of daily living in an older cohort of Irish adults. It therefore appears that Well-Dance could be an appropriate programme for primary care clinicians to use for people who are troubled with pain.

The focus group participants also reported improvements in their cognitive skills such as memory, concentration, following instructions and spatial awareness. Cognitive difficulties are a recognized feature of the ageing process and are often an indicator of early onset dementia. Recently the Irish Institute of Public Health has identified participation in activities as a protective factor against the onset of Alzheimers disease (Cleary and McEvoy, 2015). This study did not objectively measure cognition as an outcome of the Well-Dance programme, however, based on participants' reports in the focus group, future studies should include a cognitive assessment to objectively measure the impact of dance on cognition.

As reported 83 people enrolled in Well-Dance however at the mid-programme assessment this number had reduced to 47 with a similar number remaining by the end of the programme. Part of the reason for this could have been related to the timing of the mid-programme and end-of-programme assessments in that they coincided with Easter and summer school holidays respectively and many of the participants had previously reported being involved in child-care for their

grandchildren. However, this conclusion was not confirmed and future studies should follow up with those who stop attending the programme to ascertain the exact reason for this attrition.

## **Summary**

A 20-week dance programme, Well-dance, was delivered over a 20-week period in three locations across the Dun Laoghaire Rathdown Borough. A study was carried out to evaluate the impact of Well-Dance on participants' mobility, quality of life, mood and activity participation. The study also explored participants' perceptions of the programme. Well-Dance significantly improved participants' mobility and their quality of life which are considered important contributors to successful ageing (Department of Health 2013). However, due to the lack of a comparison group, a randomized control trial study is required to confirm these findings. Although improvements were noted in how frequently participants engaged in their daily activities, these improvements did not reach a level of statistical importance. However, the qualitative data did report some changes in activity levels. The qualitative data also indicated that Well-Dance improved participants' mood and their cognitive skills. These findings also need further investigation through larger studies with a comparison group.

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