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A Cross-Sectional Examination of the Mental and Social Well-Being of Older Female  
Scottish Country Dancers and Physically Active Non-Dancers

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## **Abstract**

It has been established that conventional forms of physical activity such as walking, jogging and swimming can help maintain the mental and social well-being of older individuals. However, there have been few attempts to determine whether dance participation offers the same benefits. This study compared measures of mental and social well-being between Scottish country dancers and physically active non-dancers. Scores were recorded for the Warwick-Edinburg Mental Well-Being Scale, Satisfaction with Life Scale, EQ-5D, Lubben Social Network Scale and General Perceived Self-Efficacy Scale. There was no significant difference between the two groups for any of the measures. However, the outcomes compare favorably with the available population norms. As such, Scottish country dance might be a viable alternative to the more conventional exercise forms for active older females.

## **Key Words**

Exercise, dance, wellbeing, aging, physical activity

According to the World Health Organization (WHO), the aged population (>60 yrs.) is the world's fastest growing demographic (WHO, 2014). Whilst the growth in this age group is to be celebrated, this increase nevertheless has the potential to place a strain on health care provision and increase costs (WHO, 2002); a sentiment echoed by both the US (The Healthy States Initiative, 2007) and UK Governments (Government Response to the House of Lords Select Committee on Public Service and Demographic Change Report of Session 2012-13: 'Ready For Ageing?', 2013). In an effort to minimize the health care demands, the WHO (2002; 2014) has recommended that individuals, including older individuals, adopt an 'active aging' approach to health care; this being defined 'as the process of optimizing opportunities for health (physical, mental and social), participation (in social, cultural and civic affairs) and security in order to enhance quality of life as people age'. One way that at least one of these areas (health), and potentially the others, can be addressed is through partaking in regular physical activity (PA). Perhaps the most obvious benefits to be derived from PA are those associated with the physical aspects of aging. Indeed, regular PA has been shown to provide older individuals with enhancements in gross fitness components such as endurance, strength, flexibility (Mazzeo & Tanaka, 2001; Rahl, 2010) and functional ability (Bulbulian & Hargan, 2000). Such adaptations can prevent the onset of chronic illness, disability and reduce injury from falls, whilst also allowing individuals to maintain independence for longer (WHO, 2002). However, when the definition of 'active aging' is considered, it is apparent that physical improvements alone are not sufficient. It has been claimed that older individuals might be particularly prone to mental health problems such as reductions in life satisfaction and depression (Paluska & Schwenk, 2000; Windle, Hughes, Linck, Russell & Wood, 2010; Goldie & Grant, 2011). Specific research into the interaction between PA and the mental health of older individuals is scarce, however what is available has shown a positive relationship (Paluska & Schwenk, 2000; Windle et al., 2010). Social

support is also considered to be a requirement for optimal health (Cousins, 1995; Uchino, Cacioppo & Kiecolt-Glaser, 1996; Golden et al., 2009). Unfortunately, it has been claimed that as people age they are likely to have fewer community ties and social support mechanisms (Goldie & Grant, 2011). Encouragingly, involvement in PA might help older individuals maintain social relations (Cattan, White, Bond & Learmouth, 2005; King & King, 2010).

It is evident that being physically active in old age provides many benefits. However, some constraints to involvement exist and these might be particularly relevant to the more conventional forms of exercise recommended by institutions such as the American College of Sports Medicine(2009); e.g. jogging, walking, swimming and low impact sports. Numerous barriers to being physically active have been cited by this age group; these include, a dislike of going out in bad weather and/or alone (Crombie et al., 2004), a lack of enjoyment and company (Dergance et al., 2003) and fear of crime if exercising outside (Schutzer & Graves, 2004). This perhaps goes some way in explaining why the number of over 65s who meet the recommended activity guidelines remains relatively low; between 22% and 39% (depending on type of insurance cover) in the US (Blackwell, Lucas & Clarke, 2014) and 20% in the UK (Townsend et al., 2012). An exercise form that might nullify at least some of the barriers to exercise involvement, is dance.

The Arts Council for England (2006) describes dance as being an enjoyable, social exercise that can be performed both indoors and out. If this description is accepted, then it would appear that dance participation might be less affected by some of the barriers to exercise participation. Importantly, with respect to the current investigation, it is claimed that dance can be an excellent way to improve mental health and maintain social relationships (Arts Council of England, 2006; Connolly & Redding, 2010; Malkogeorgos, Zaggelidou & Georgescu, 2011). Despite such assertions, research into the mental and social health benefits

of dance is relatively scarce. What is available, however, has offered some support for the claims. Hui, Chui and Woo (2009) using a 12-week intervention program, found that dance participation (Cha Cha) led to improved mental well-being in many participants. Likewise, in a study by Mavrovounitois, Argiriadou and Papaionnou (2010) older participants reported reductions in state anxiety and distress along with improvements in general mental well-being after completing a single Traditional Greek dance session. Guzmán-García, Hughes, James and Rochester (2013) conducted a meta-analysis into the veracity of dance as a care-home intervention and concluded that involvement led to increased social interaction and communication. Despite some promising results, a positive link between dance participation and mental and social well-being has not always been found. For example, Eyigor, Karapolat, Durmaz, Ibisoglu and Cakir (2009), concluded that involvement in Turkish folklore dance had no significant effect on depression ratings of older individuals. Furthermore, the previously mentioned study of Hui et al. (2009) showed that whilst dance participation provided some psychological benefits, there was no change in social functioning nor emotional well-being.

From the perspective of 'active aging', it would appear that dance participation might offer older individuals a more viable alternative to the conventional exercise forms. However, the contradictory outcomes and general lack of research in this field suggests that more research is required before more definite conclusions can be drawn regarding its supposed benefits. Scottish Country Dance (SCD) is traditional group dance form that can be performed at varying degrees of intensity whilst articulating choreographed multidirectional movements, turns and spins. It has been suggested that the cultural resonance and social aspects of this type of dance form make it particularly appealing to older individuals (Hunt, Ford, & Mutrie, 2001; Cooper & Thomas, 2002; Lima & Vieira, 2007; Wikstrom, 2004). Including a broad range of measures, this study compared the mental and social health

profiles of practitioners of SCD to those of individuals involved in the more conventional activity modes (e.g. walking, jogging, swimming and low impact sports). At the least, we expected the profiles to be similar. However, given its social nature, it is possible that SCD will provide additional improvements in mental and social well-being. We also compared the outcomes of this investigation to normative data derived from the general population. It is hoped that this approach will provide an insight into the 'active aging' benefits that can be derived from an active lifestyle.

## **Method**

### **Design**

This study will utilize a cross-sectional approach. Cross-sectional designs are useful for uncovering associations; in this instance between exercise type and measures of mental and social well-being. Such designs also neutralize issues surrounding participant drop out (Mann, 2003; Sedgwick, 2014). We adopted this approach because we wanted to examine the potential impact of long-term (e.g. active aging) exercise involvement and as such, an intervention design would be impractical. However, it must be recognized that this approach limits the ability to make cause-effect inferences (Mann, 2003; Sedgwick, 2014).

### **Participants**

Initially we aimed to examine the profiles of both males and females, however, a lack of male recruits meant that only females were included in this study. Adopting a purposive sampling technique, and utilizing the inclusion criteria of Greig, Young, Skelton, Pippet, Butler and Mahmud (1994), a total of sixty-five healthy older females were recruited. Twenty-seven were classified as (SCD) dancers (age  $68 \pm 6$  years, body mass  $65.0 \pm 8.9$  kg,

stature  $161.2 \pm 5.4$  cm ); these were recruited from the Royal Country Dancing Society based in the North West of Scotland. Thirty-eight, physically active non-dancers (age  $72.9 \pm 7$  years, body mass  $63.8 \pm 10.2$  kg, stature  $155.1 \pm 7.4$  cm); these were recruited via emails sent to a number of health clubs situated in the North West of Scotland. All participants engaged in their chosen activities at least 3 days a week at what they classified as 'moderate' intensity. Both groups had a minimum of 10 years of experience in their chosen activities; this was a condition of involvement. Physically active non-dancers participated in a variety of activities of the kind recommended by the ACSM (2009); i.e. brisk walking, jogging and swimming. Data pertaining to activity choices, frequency and intensity was collected through the use of the Rapid Assessment of Physical Activity Form (Topolski, LoGerfo, Patrick, Williams, Walwick & Patrick, 2006); this incorporated a section asking participants to state the type of PA they undertook. To compare the metabolic demands of the various activities MET values were obtained from the 2011 Compendium of Physical Activities (Ainsworth et al., 2011). Although SCD is not included in this compendium, an approximation can be made via similar dance forms. For example Cultural dancing (e.g. Greek, Middle Eastern and Salsa) and has been ascribed a MET value of 4.5, whereas general dancing (e.g. Irish Step, Line Dancing and Country) has a MET value of 7.8. For the non-dance activities the predicted METS were: brisk walking (4.3), Recreational swimming (6.0) and general jogging (7.0). The MET values, along with the data gained from the Rapid Assessment of Physical Activity Form (Topolski et al., 2006), does indicate a degree of comparability between the activity forms. Ethical approval was obtained from the University ethics committee and all procedures followed were in accordance with the Helsinki Declaration of 1975.

## Measures



*The Warwick-Edinburg Mental Well-Being Scale (WEMWBS)*. Created by Stewart-Brown and Janmohamed (2008), this is a 14-item scale designed to assess mental well-being and psychological function. Items include 'I've been feeling relaxed', 'I have been thinking clearly' and 'I've been interested in new things'. Participants are required to respond to the statements via a Likert Scale (1= 'None of the time' and 5 = 'All of the time'). Scores range from 14 to 70, with higher score reflecting a greater level of mental well-being. The median value for this scale is 42.

*Satisfaction with Life Scale (SWLS)*. Developed by Diener, Emmons, Larsen and Griffin (1985), this scale incorporates five statements relating to subjective well-being and life satisfaction. Items include 'In most ways my life is close to my ideal', 'I am satisfied with life' and 'The conditions of my life are excellent'. Items are rated using a 7-point Likert scale (1 = Strongly disagree and 7 = Strongly agree'). Scores range from a 5 to 35, with a higher score representing higher life satisfaction. The median value for this scale is 20.

*EQ-5D*. The EQ-5D is a measure of health status developed by The EuroQol Group (1990). In its totality the EQ-5D incorporates a section that examines factors such as pain/discomfort and mobility as well as a single index value for health status; this investigation includes the latter scale only. The single index scale asks participants to respond to the statement 'how good or bad your own health is today' on a 1 -100 visual-analogue scale. The median value for this scale is 50.

*The Lubben Social Network Scale - Revised (LSNR-R)*. This is a twelve-item scale to assess social isolation in older adults (> 65 yrs.) via perceived social support received by family and friends (Lubben, Gironde & Lee, 2002). Items include 'how many relatives do you see or hear from at least once a month', 'How many relatives do you feel close to such that you could call on them for help' (family scale) and "How many of your friends do you see or hear from at least once a month', 'How many friends do you feel close to such that you

could call on them for help' (friendships scale). The scale is rated on a 5-point Likert Scale (1 = 'none' and 5 = 'always'). Scores range from 0 to 60, with higher scores indicating a greater level of social support and low risk of isolation. The median value for this scale is 30.

*The General Perceived Self-Efficacy Scale (GSE)*. This scale purports to assess perceived self-efficacy with respect to coping with daily hassles and adaptation after stressful life events (Schwarzer and Jerusalem, 1995). Items include 'it is easy for me to stick to my aims and accomplish my goals', 'I can remain calm when facing difficulties because I can rely on my coping abilities' and 'I can usually handle whatever comes my way'. Responses are made on a 4-point Likert Scale (1 = 'not at all true and 4 = Exactly true'). Scores are summated to give a final composite score with a range from 10 to 40. The median value for this scale is 25.

### **Statistical Analysis**

Prior to the main analysis a series of Pearson's correlations were conducted between the various scales. All the correlations were low (0.09 - 0.28), indicating minimal relationship between the variables. As such, multiple independent t tests were conducted instead of MANOVA. Significance was set at 0.05. For all statistical analyses, SPSS v 15.0 (SPSS, Chicago, ILL) was used.

### **Results**

INSERT TABLE 1 HERE

With equal variances were assumed for all of the variables, the independent t tests between the SCD and the non-dance groups showed that there was no significant difference for any of

the dependent measures: WEMWBS  $t(52) = -.67, p = 0.50$ ; SWLS  $t(62) = .30, p = 0.76$ ; EQ-5D  $t(60) = 1.62, p = 0.10$ ; LSNR-R  $t(62) = .65, p = 0.51$  and GSE  $t(53) = .61, p = .054$ . The descriptive data can be seen in Table 1.

## Discussion

The World Health Organization (WHO, 2002) has voiced concerns regarding the impact on of an aging population upon health provision. Consequently, they have recommended that individuals, including the older individuals, adopt an ‘active aging’ approach to health. Research has shown that PA in general can provide health improvement in many domains (e.g. physical, mental and social), however, as we have argued dance, because of its cultural resonance and social aspects is an activity form which appears to be especially suited for older participants. Utilizing a cross-sectional approach, we compared the mental and social health profiles of a sample of Scottish country dancers to those involved in more conventional modes of PA to determine whether SCD offered, at the least, similar mental and social benefits.

Using WEMWBS to assess general mental well-being, we found no difference between the groups. Whilst normative data for the older population is scarce, Stewart-Brown and Janmohamed (2009), also utilizing WEMWBS, have reported the Scottish population mean to be 50.7. Our results therefore show that the participants in the current study possess similar mental-well being profiles to the population at large; this is especially encouraging given that the Scottish population mean also included younger individuals. For Life satisfaction (SWLS), mean scores were not significantly different. Diener et al. (1985) has reported the mean general population for an older US sample to be 25.8. This therefore suggests that being physically active has little effect on perceptions of life satisfaction.

However, it must be noted that the participants measured by Diener et al. (1985) were also involved in social activities (e.g. coffee-group meetings, religious meetings). As such, our results suggest that partaking in PA provides benefits similar to those that are obtained from other social activities. To assess perceived health, the EQ-5D Single Index Visual-Analogue Scale was utilized. No significant difference was found between the groups. Our data compares favorably to that provided by Kind, Dolan, Gudex and Williams (1998), who found the mean EQ-5D mean value of an older community dwelling sample in England to be 75.5. To assess levels of social interaction the LSNR-R was used. Again, there were no significant between-group differences. According to Lubben et al. (2002), values below twenty should be considered to be indicative of social isolation. With the mean values of both groups being well above this cut off point it would appear that the participants in the present study, regardless of activity choice, consider themselves as being very socially active. Unfortunately, we were unable to find any Western population norms for this scale; although on average, the participants in the current study scored considerably higher on the LSNR-R than a similarly aged Korean cohort sampled by Lim, Park, Lee, Oh and Kim (2013). Finally, perceived self-efficacy of coping with daily hassles and adaptation after stressful life events was compared using the GSE scale. As with the other measures, there was no difference between the groups. Referring to the general population norms, also utilizing the GSE scale, Scholz, Gutiérrez-Doña, Sud and Schwarzer (2002) assessed a large sample drawn from twenty-five countries. Our outcomes compare well, being in most cases equal to or higher than many National norms.

In conclusion, the present study has shown that Scottish country dancers possess similar mental and social well-being profiles to physically active non-dancers. In most cases, the mean values compared favorably to the available population norms. Furthermore, that the means for all of the measures were above the respective median values is encouraging. These

findings therefore suggest that both the conventional exercise modes and SCD offer older participants many benefits in terms of the mental and social aspects of 'active aging'. Although we had argued that SCD, being an inherently social activity, might be more productive than a general activity regime, our results show that was not the case. Nevertheless, given our assertions that SCD might be a more appropriate form of activity for this age group, perhaps negating some of the potential barriers to activity, we do suggest that SCD might be a viable alternative to the conventional methods of exercise. As such, those involved in exercise prescription might consider employing SCD in any 'active ageing' regime. This study is limited in some respects. That we utilized a cross-sectional design means that we cannot, with certainty, determine cause and effect. It is of course possible that participants became physically active because they already possessed positive mental and social well-being profiles. However, from what we know from the literature we might infer that this is not necessarily the case. Unfortunately, we were only able to secure female participants so it remains unclear as to whether males would be afforded the same apparent benefits. We also failed to establish whether those in the conventional activity group performed their activities within a social environment. It is therefore unclear whether SCD would be more advantageous than exercising alone. Lastly, much of the literature in this area has included measures of depression. We did consider measuring this construct through the use of the Geriatric Depression Scale (Yesavage, Brink, Rose, Lum, Huang, Adey & Leirer, 1983). However, upon inspection, we felt that the questions being asked were both intrusive and sensitive. We therefore took the decision to omit this measure from the current study. As such, we are unable to make inferences about SCD's effect on this aspect of mental health. Despite the limitations, our results suggest that SCD can be offered as an alternative to conventional exercise modes. Our claims that social dance activities might overcome some

of the potential barriers to exercise for older individuals might be an interesting area for future research.

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Table 1: Mental well-being scores for Scottish country dancers compared to physically active non- dancers.

	WEMWBS	SWLS	EQ-5D	LSNR-R	GSE
Scottish country dancers	48.1 ± 5.6	26.8 ± 5.2	83.9 ± 7.9	39.7 ± 7.3	31.1 ± 3.8
Non-dancers	49.2 ± 1.1	26.4 ± 5.0	87.0 ± 6.9	38.6 ± 5.0	30.5 ± 3.4

Data is presented as mean ± SD. WEMWBS: The Warwick-Edinburg Mental Well-Being Scale; SWLS:

Satisfaction with Life Scale; EQ-5D - Single Index Health Measure; LSNR-R: The Lubben Social Network

Scale – Revised; GSE: The General Perceived Self-Efficacy Scale.