



The Effectiveness of Waltz Dance in Improving Balance Performance and Reducing Risk of Falls in Older Adult Community Dwellers

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Abstract

This study aimed to determine the effectiveness of a waltz dance program in improving balance performance and reducing the risk of falls among older adult community dwellers in Barangay 399, Sampaloc, Manila. A Single Subject Research Design (SSRD) was utilized involving 2-3 participants aged 60–85 years old who met the inclusion criteria. Balance performance and fall risk were measured using the Short Physical Performance Battery (SPPB) before and after the interventions. Participants first underwent standard balance exercises followed by a waltz dance intervention, each conducted for two weeks, three times per week.

Results showed that participants generally maintained their baseline SPPB scores across both interventions. Statistical analysis using the Mann–Whitney U test revealed no significant difference between pretest and posttest scores in both the control (standard exercise) and experimental (waltz dance) phases ($p = 0.519$). These findings indicate that the waltz dance program did not significantly improve balance performance nor reduce the risk of falls among the participants.

The study concludes that while waltz dance may serve as an alternative and engaging physical activity, it was not effective in producing significant improvements under the conditions of this study. Limitations such as small sample size and short intervention duration may have influenced the results. Future studies are recommended to involve larger samples and longer intervention periods to better evaluate the effectiveness of dance-based interventions.

Keywords: Waltz Dance; Balance Performance; Risk of Falls; Older Adults; Community Dwellers; Short Physical Performance Battery (SPPB); Fall Prevention; Physical Therapy Intervention

Introduction

Falls are a major public health concern among older adults, often leading to injury, reduced independence, and decreased quality of life. They are a leading cause of mortality among individuals aged 65 and above and contribute significantly to disability and hospitalization. Globally, a substantial proportion of older adults experience falls each year, with many cases resulting in injuries that require medical attention. In the Philippines, fall incidence among community-dwelling older adults is also notably high, with some cases leading to serious fractures and long-term complications.

One of the primary contributors to falls in the elderly is the decline in balance, muscle strength, and coordination associated with aging. These changes impair the ability to respond effectively to environmental challenges, increasing fall risk. Interventions such as physical therapy and structured exercise programs targeting balance and strength have been shown to reduce this risk. Among these, dance-based activities have gained attention due to their combination of physical, cognitive, and social benefits.

Ballroom dancing, particularly the waltz, involves controlled, rhythmic movements that may enhance balance, gait, and coordination. While some studies suggest that dance can improve functional mobility in older adults, evidence specifically supporting waltz as an intervention remains limited. Therefore, this study aims to determine the effectiveness of waltz dance in improving balance and reducing the risk of falls among older adult community dwellers.

Methods

The researchers utilized a Single Subject Research Design (SSRD). A Single Subject Research

Design was a useful tool for defining fundamental behavioral principles and creating evidence-based policies because it used a rigorous, experimental research approach to identify functional or causal links between variables (Healy et al., 2021). It was helpful in assessing how well waltz dancing improved balance and reduced the risk of falls in older persons since this study aimed to record how an individual or small group of individuals behaved before and after the intervention. The participants in a single subject study acted as both the control and treatment group, in contrast to true experiments where participants were assigned at random to a control and treatment group (Siegle, 2024). An outcome measure, Short Physical Performance Battery (SPPB), was used in this study to quantitatively measure the effectiveness of waltz dance in improving balance and reducing risk of falls among older adults aged 60 and above residing in Barangay 399, Sampaloc, Manila.

Results and Discussion

This chapter presents, analyzes, and interprets the data gathered to determine the effectiveness of waltz dance in improving balance performance and reducing risk of falls in older adult community dwellers. The presentation of results follows the sequence of the specific problems stated in Chapter 1 (Table 1).

Initially, before the implementation of the Standard balance exercise, participants demonstrated stable performance, with P1 and P3 scoring 12 (Good performance), which indicates good balance performance and low fall risk and P2 with a score of 8 (Moderate performance), which indicates moderate balance problem and moderate fall risk. Prior to the implementation of the waltz dance, P1 maintained a score of 12 while P2 showed a slight decrease from 8 to 7 on the pretest score but was still considered under moderate performance. No pretest data were available for P3 for the waltz dance as P3 had withdrawn from the study due to personal reasons prior to the start of the Waltz dance intervention and was excluded from phase comparison analysis. Overall, these results indicate that participants' mobility levels remained largely unchanged across both phases (Table 2).

After implementation of the Standard balance exercise, participants demonstrated stable performance, with P1 and P3 maintaining a score of 12 (Good performance), indicating good balance performance and low fall risk for the post test. P2 also maintained their previous score of 8 (Moderate performance), which indicates moderate balance problem and moderate fall risk. Post test scores under waltz dance for P1 remained unchanged however, P2 had a slight decrease score from 7 on the pretest, to 6 (poor performance) on the posttest which indicates poor balance performance and high fall risk. Still, no post test data were provided for P3 due to withdrawal prior to the start of the waltz dance intervention Table 3.

The results revealed no significant difference between the Standard Balance Exercise and Waltz Dance groups at baseline, as indicated by similar mean ranks (MR = 3.33 vs. 2.50) and a non-significant result ($U = 2.000, p = 0.519$). Likewise, no significant difference was observed between the two groups after the intervention, with identical mean ranks (MR = 3.33 vs. 2.50) and the same non-significant test outcome ($U = 2.000, p = 0.519$). These findings suggest that both groups had comparable levels of physical performance before and after the intervention, indicating that neither approach demonstrated a distinct advantage over the other within the study period.

Conclusion and Recommendation

The findings of this study indicate that neither the Waltz dance intervention nor standard balance exercises produced significant improvements in balance performance or reduction in fall risk among older adult participants. The SPPB scores showed no meaningful changes from pretest to posttest, suggesting that participants maintained their baseline level of balance and fall risk throughout the study period. Additionally, there was no significant difference between the two interventions, indicating that neither approach was more effective than the other. Thus, the null hypothesis is accepted.

Overall, the results suggest that participation in a Waltz dance program, under the conditions of this study, does not significantly enhance balance or reduce fall risk among older adults. While both interventions may have potential benefits, they were not sufficient

Table 1: Individual SPPB Pre Test Scores and Mobility Classification of Participants in the Control and Experimental Phase.

Participant	Standard Balance Exercise (Control)	Classification	Waltz Dance (Experimental)	Classification
P1	12	Good	12	Good
P2	8	Moderate	7	Moderate
P3	12	Good	—	—

Interpretation: 0–6 points (poor performance), 7–9 points (moderate performance), and 10–12 points (good performance).

Table 2: Individual SPPB Post Test Scores and Mobility Classification of Participants in the Control and Experimental Phase.

Participant	Standard Balance Exercise (Control)	Classification	Waltz Dance (Experimental)	Classification
P1	12	Good	12	Good
P2	8	Moderate	6	Poor
P3	12	Good	—	—

Interpretation: 0–6 points (poor performance), 7–9 points (moderate performance), and 10–12 points (good performance).

Table 3: Comparison of SPPB (Short Physical Performance Battery) Scores between the Control and Experimental Phase in terms of the Pretest and Posttest.

Phase	Group	Mean Rank	Statistic (Mann-Whitney U)	p-value	Decision	Conclusion
Pretest	Standard Balance Exercise	3.33	2.000	0.519	Accept Null	NOT Significant
	Waltz Dance	2.5				
Posttest	Standard Balance Exercise	3.33	2.000	0.519	Accept Null	NOT Significant
	Waltz Dance	2.5				

to yield measurable outcomes. These results may be influenced by limitations such as small sample size, short intervention duration, and individual differences like aptitude for dancing. Future research should consider longer intervention periods, larger sample sizes, and more intensive or varied programs to better evaluate the effectiveness of dance-based interventions.

Based on the findings and conclusions of this study, several recommendations were proposed to guide future research. Researchers are encouraged to explore other forms of dance or combined exercise interventions that may be more effective in improving balance and reducing fall risk among older adults. Additionally, conducting studies with larger sample sizes is recommended to enhance the reliability and validity of results.

Future studies should also consider extending the duration of interventions to provide participants with sufficient time to achieve measurable improvements. Ensuring participant adherence to the intervention protocol is likewise important, as consistency may help maximize potential outcomes and yield more accurate findings.

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