

DANCE MOVEMENT THERAPY IMPROVES EMOTIONAL RESPONSES IN PARKINSON'S DISEASE PATIENTS WITH DEPRESSION AND ANXIETY

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Abstract

Aims. Lately, the studies encourage the therapeutic use of dance on the psychological results related to health, in order to increase the quality of life, well-being, disposition, especially to reduce depression and anxiety. Because patients with Parkinson's disease are prone to poor quality of life, along with other emotional problems, we set out to study the effects of dance-movement therapy in this disease.

Methods. In a group of 15 patients with Parkinson's disease, suffering also of depression and anxiety, the effects of 3 months of dance / movement therapy sessions 2-4 times a week on the neurological and emotional state of the patients were examined. The results were compared to a control group consisting of Parkinson's disease patients with depression and anxiety that did not perform dance / movement therapy sessions. We performed the following scale: Unified Parkinson's Disease Rating Scale on both groups of patients.

Results. There were improvements in movement initiation during the one-hour dance / movement therapy sessions, regarding to the results of Unified Parkinson's Disease Rating Scale and depression and anxiety levels according to specific scales for the patients from the DMT group, in comparison with the control group that did not show significant performances.

Conclusions. These results suggest that dance / movement therapy is a useful method as an additional approach in the treatment of patients with Parkinson's disease. The study concludes that dance/movement therapy is a useful adjuvant treatment method with great applicability in incipient clinical contexts.

Keywords: Parkinson's disease, dance-movement therapy, depression.

Introduction

Parkinson's disease is a progressive neurological disorder. The etiology of this neurological disease includes the degeneration of the neurons located in the substantia nigra that are responsible for the production of dopamine, a neurotransmitter linked primarily to the movement coordination function (Duncan, 2013), (Docu Axelerad, 2019).

Clinical manifestations of Parkinson's disease appear in the moment of the affection of at least 80% of the cells of the substantia nigra. The Parkinson's disease' motor symptoms are related to resting tremor; bradykinesia (slowness in performing movements), rigidity (plastic hypertonia, which affects flexor muscles, causing typical posture changes) and balance impairments (because of the loss of postural rehabilitation reflexes) (Sirbu, 2020), (Stroe, 2020), (Docu Axelerad, 2019), (Dantes, 2020), (Docu Axelerad, 2020).

Impairments and imbalance in walking and falls are usually encountered among individuals with

Parkinson's disease, contributing to a higher incidence of falls (Docu Axelerad, 2020). Walking disorders among these patients are characterized by slowing of the walking and the achievement of walking in small steps and the possibility of the occurrence of the freezing phenomenon. Usually, patients have difficulty balancing when they turn and go back (Docu Axelerad, 2020).

Prospective studies report that by the year 2030, the number of patients with Parkinson's disease is anticipated to double taking into consideration the expanding aging population (Docu Axelerad, 2020), (Sirbu, 2017). The result of this event would be that the continuous diminishing of disease-related symptoms, management and treatment of this disease have a significant cost for the economy (Docu Axelerad, 2020).

Furthermore to motor symptoms, patients with Parkinson's disease might introduce non-motor symptoms, which are the most pregnant in the latest

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*the abstract was published in the 20th I.S.C. "Perspectives in Physical Education and Sport" - Ovidius University of Constanta, May 28-29, 2020, Romania

Received 1.04.2020 / Accepted 05.05.2020

stages of the disease (Docu Axelerad, 2020). Moreover, the most important motor signs that are related to Parkinson's disease and the psychological part of these patients is also affected. Studies in literature showed that dementia and depression can have adverse repercussions at the same time the progress of the disease and in the stages of the disease and curing dementia and anxiety can bring a positive effect on the disease (Docu Axelerad, 2020), (Docu Axelerad, 2019), (Sirbu, 2016).

Methods

This study aims to demonstrate that the dance-movement therapy method improves the symptoms of depression, anxiety and quality of life of patients with Parkinson's disease. For this, a sample of 15 patients with depression and anxiety, along Parkinson's disease, who performed a dance-movement therapy program for three months was the DMT group and another group of 15 Parkinson's disease patients with both depression and anxiety was the control group.

All the patients were recruited from the neurological private clinic of dr Docu Axelerad Any, being diagnosed with Parkinson's disease by a neurologist. Inclusion criteria were: Parkinson's disease, ability to self-care, EDSS < 3.5. Patients were also excluded if their diagnosis was not clearly established, they were suffering severe cognitive deficits, or had signs of any psychiatric disease. Individuals did provide the signed consent associated with the program to ensure that all procedures and tests, their risks and benefits are fully understood.

The sessions were 1 hour / 1 hour and the average duration, twice/ three times a week, with short breaks of 5-10 minutes (to avoid fatigue), for three months. The beginning of the courses started with 7-10 min warm-up, accentuating the range of movement.

The intervention program that was followed was very simple and did not require much material. The intervention was also attended by a doctor, in charge of performing neurological evaluations and a physiotherapist.

The results of the training were tested using UPDRS Test, Beck Depression Inventory and Beck Anxiety Inventory. The results of the training were statistically assessed using measures of paired samples test. A value of $p < 0.05$ was taken as significant. All analyses were performed using IBM SPSS Statistics 20.

Results

At the Beck Depression Inventory test performed before the period of dance movement therapy training, the DMT group of patients obtained a mean score of 39.53 ± 2.41 points. At the Beck Depression Inventory test performed after the period of dance movement therapy training, the DMT group of patients obtained a mean score of 34.13 ± 3.58 points. The difference between the scores before and after the training period were statistically significant $p < 0.001$. Bar graph of results from a paired sample t-test with appropriate error bars are seen in Figure 1 below.

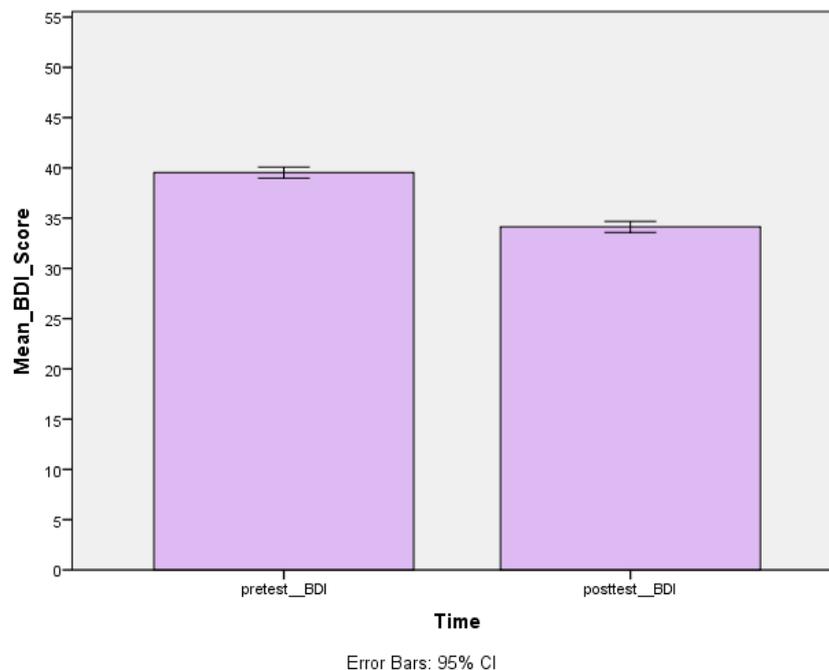


Figure 1. Mean scores of the Parkinson's disease patients in the DMT group obtained at the Beck Depression Inventory.

At the Beck Anxiety Inventory test performed before the period of dance movement therapy training, the DMT group of patients obtained a mean score of 29.20 ± 4.05 points. At the Beck Anxiety Inventory test performed after the period of dance movement therapy training, the

DMT group of patients obtained a mean score of 23.33 ± 4.04 points. The difference between the scores before and after the training period were statistically significant $p < 0.001$. Bar graph of results from a paired sample t-test with appropriate error bars are seen in Figure 2 below.

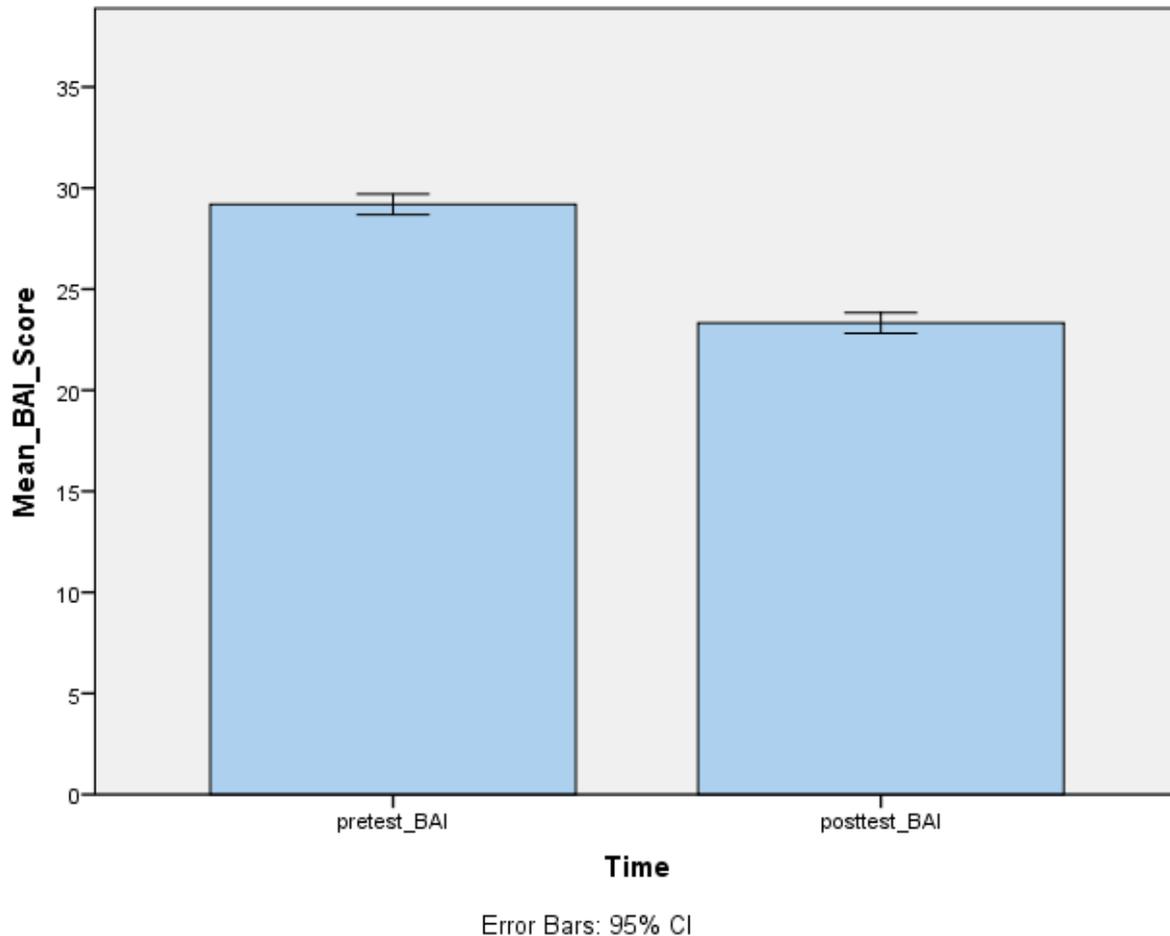


Figure 2. Mean scores of the Parkinson's disease patients in the DMT group obtained at the Beck Anxiety Inventory.

At the UPDRS test performed before the period of dance movement therapy training, the DMT group of patients obtained a mean score of 49.33 ± 2.25 points. At the UPDRS test performed after the period of dance movement therapy

training, the DMT group of patients obtained a mean score of 44.60 ± 2.23 points. The difference between the scores before and after the training period were statistically significant $p < 0.001$.

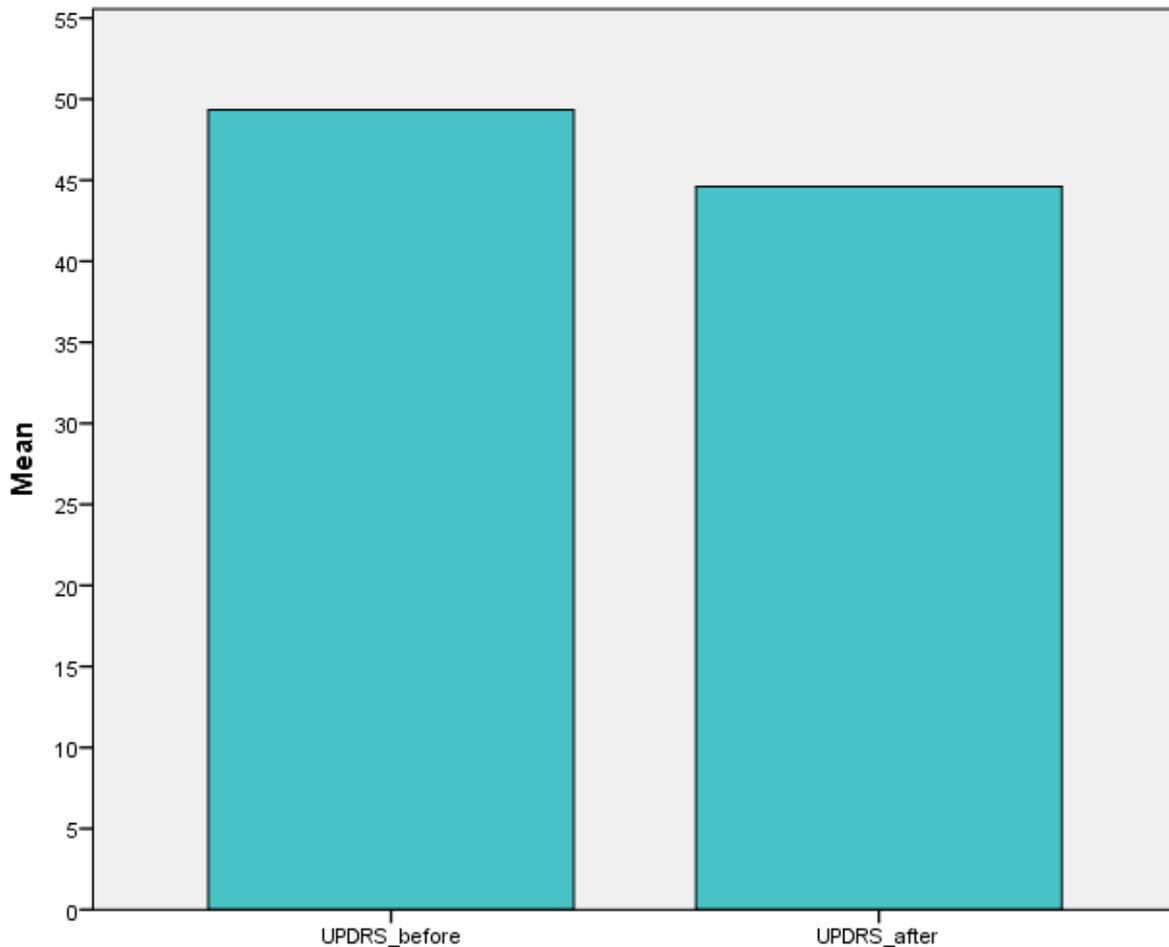


Figure 3. Mean scores of the Parkinson's disease patients in the DMT group obtained at the UPDRS.

The control group of patients did not obtain significantly different results at the Beck Depression Inventory, Beck Anxiety Inventory and UPDRS Scale Test before and after the three months.

Discussions

Recently, scientific research from the literature have concluded that a form of exercise, dance, have effects on the well-being in general for the Parkinson's disease patients (Docu Axelerad, 2019), aside from enhancing the mobility, and postural control in people with Parkinson's disease (Batson, 2010), (Boso, 2006), (Stroe, 2020), (Brauninger, 2012). A modified form of Argentine tango Irish set dancing contact improvisation, and modern dance, with the presence other forms of dance too, have sown to bring positive aspects to the affected mobility and mood in the patients with Parkinson's disease (Clair, 2012), (de Dreu, 2012), (Docu Axelerad, 2019), (Docu Axelerad, 2020) (Falup-Pecurariu, 2019).

Conclusions

The definitive beneficial components of dance and music for improving depression and anxiety in Parkinson's disease patients need more information, but dance programs may have multidimensional effects on the quality of life for these patients (Opara, 2012),

(Palacios, 2012), (Peto, 1995), (Schrag, 2000), (Suzukamo, 2006). Also, therapies that allow the patient to regain the control on their body and movements and therapies that include a great amount of social interaction have been demonstrated to be effective at improving quality of life (Volpe, 2013), (Stroe, 2020), (Docu Axelerad, 2020), (Scalzo, 2012).

References

- Batson G. Feasibility of an intensive trial of modern dance for adults with Parkinson disease. *Complement Health Pract Rev.* 2010;15(2):65–83.
- Boso M, Politi P, Barale F, Enzo E. Neurophysiology and neurobiology of the musical experience. *Funct Neurol.* 2006;21(4):187–191.
- Bräuninger I. The efficacy of dance movement therapy group on improvement of quality of life: a randomized controlled trial. *Arts Psychother.* 2012;39(2012):296–303.
- Clair AA, Lyons KE, Hamburg J. A feasibility study of the effects of music and movement on physical function, quality of life, depression,

- and anxiety in patients with Parkinson disease. *Music Med.* 2012;4(1):49–55.
- Docu Axelerad A, Docu Axelerad D, Docu Axelerad S, Stroe A Z, Walking in Parkinson's disease. *Ovidius University Annals, Series Physical Education and Sport / SCIENCE, MOVEMENT AND HEALTH.* 2019; 19 (2): 350 – 354.
- Duncan GW, Khoo TK, Yarnall AJ, et al. Health-related quality of life in early Parkinson's disease: the impact of nonmotor symptoms. *Mov Disord.* Epub October 7, 2013.
- Docu Axelerad A, Stroe A Z, Docu Axelerad S, Docu Axelerad D, Divinity in dementia. *Proceedings DIALOGO.* 2019; 6 (1): 187 – 194. DOI: 10.18638/dialogo.2019.6.1.18, ISBN: 978-80-973541-1-4 (html), 978-80-973541-0-7(pdf), ISSN: 2393-1744.
- de Dreu MJ, van der Wilk AS, Poppe E, Kwakkel G, van Wegen EE. Rehabilitation, exercise therapy and music in patients with Parkinson's disease: a meta-analysis of the effects of music-based movement therapy on walking ability, balance and quality of life. *Parkinsonism Relat Disord.* 2012;18 Suppl 1:S114–S119.
- Docu Axelerad A, Stroe A Z, Docu Axelerad S, Combating Depression in Parkinson's Disease with Melotherapy. *Proceedings DIALOGO.* 2019; 6(1): 195 - 202, DOI: 10.18638/dialogo.2019.6.1.19, ISBN: 978-80-973541-1-4 (html), 978-80-973541-0-7(pdf), ISSN: 2393-1744
- Docu Axelerad A, Stroe A Z, Docu Axelerad S, How religiosity affects Parkinson's disease symptoms. *Proceedings DIALOGO.* 2019; (6) 1: 203 - 211, DOI: 10.18638/dialogo.2019.6.1.20, ISBN: 978-80-973541-1-4 (html), 978-80-973541-0-7(pdf), ISSN: 2393-1744.
- Dantes E, Docu Axelerad S, Stroe A Z, Docu Axelerad D, Docu Axelerad A, The rehabilitation of hemiparesis after stroke. *Ovidius University Annals, Series Physical Education and Sport / Science, Movement and Health.* 2020; 20 (1): 5 – 9.
- Docu Axelerad A, Jurja S, Stroe A Z, Docu Axelerad S, Docu Axelerad D, The role of physical exercise in multiple sclerosis. *Ovidius University Annals, Series Physical Education and Sport / Science, Movement and Health.* 2020; 20 (1): 10 – 15.
- Docu Axelerad D, Docu Axelerad S, Dantes E, Stroe A Z, Docu Axelerad A, Mixed dementia and physical exercise. *Ovidius University Annals, Series Physical Education and Sport / Science, Movement and Health.* 2020; 20 (1): 16 – 21.
- Docu-Axelerad A, Stroe ZA, Docu-Axelerad D, Docu-Axelerad S. Multiple sclerosis and yoga. *Arch Balk Med Union.* 2020;55(1):154-158. <https://doi.org/10.31688/ABMU.2020.55.1.19>
- Docu Axelerad A, Docu Axelerad D. Comparative Evaluation of Pregabalin, Gabapentine, Sertraline and Duloxetine in Painful Diabetic Non Insulin-dependent Neuropathy. *Procedia - Social and Behavioral Sciences.* 2015; 191: 469-472.
- Falup-Pecurariu, C., Diaconu, Ș., Falup-Pecurariu, O. et al. *Acta Neurol Belg* (2019). <https://doi.org/10.1007/s13760-019-01215-2>.
- Opara JA, Broła W, Leonardi M, Blaszczyk B. Quality of life in Parkinson's disease. *J Med Life.* 2012;5(4):375–381.
- Palacios N, Gao X, Schwarzschild M, Ascherio A. Declining quality of life in Parkinson disease before and after diagnosis. *J Parkinsons Dis.* 2012;2(2):153–160.
- Peto V, Jenkinson C, Fitzpatrick R, Greenhall R. The development and validation of a short measure of functioning and well being for individuals with Parkinson's disease. *Qual Life Res.* 1995;4(3):241–248.
- Sirbu CA, Dantes E, Plesa CF, Docu Axelerad A, Ghinescu MC. Active Pulmonary Tuberculosis Triggered by Interferon Beta- 1b Therapy of Multiple Sclerosis: Four Case Reports and a Literature Review. *Medicina.* 2020; 56: 202.
- Sirbu C.A., Sirbu O.M., Constantin C., Sandu A.M., Neuroimmunotoxicity of aluminum. *Farmacia.* 2015; 63(1): 8-10.
- Sirbu C.A., Furdu-Lungut E., Plesa C.F., Nicolae A.C., Drăgoi C.M., Pharmacological treatment of relapsing remitting multiple sclerosis-where are we? *Farmacia.* 2016; 64(5): 651-655.
- Sirbu CA, Dragoi CM, Nicolae AC, Plesa CF. History of interferon treatments in multiple sclerosis– 60 years of progress. *Farmacia.* 2017; 65(1): 14-18.
- Schrag A, Jahanshahi M, Quinn N. How does Parkinson's disease affect quality of life? A comparison with quality of life in the general population. *Mov Disord.* 2000;15(6):1112–1118.
- Stroe A Z, Docu Axelerad S, Docu Axelerad D, Docu Axelerad A, Exercises in Parkinson's disease. *Ovidius University Annals, Series Physical Education and Sport / Science, Movement and Health.* 2019; 19 (2): 344 – 349.
- Stroe AZ, Docu Axelerad A, Docu Axelerad S, Docu Axelerad D. Compulsivity and coronavirus. *Proceedings DIALOGO.* 2019; 6(2): 146-152. DOI: 10.18638/dialogo.2020.6.2.13.



- Suzukamo Y, Ohbu S, Kondo T, Kohmoto J, Fukuhara S. Psychological adjustment has a greater effect on health-related quality of life than on severity of disease in Parkinson's disease. *Mov Disord.* 2006;21(6):761–766.
- Stroe ZA, Docu Axelerad S, Docu Axelerad D. Melotherapy- a complementary approach in the symptomatology of multiple sclerosis patients. *J Complement Med Res.* 2020; 11(1): 164-169. doi: 10.5455/jcmr.2020.11.01.19
- Stroe A Z, Docu Axelerad S, Docu Axelerad D, Docu Axelerad A, Neurorehabilitation through exercise in parkinson's disease patients, *Ovidius University Annals, Series Physical Education and Sport /Science, Movement and Health.* 2020; 20 (1): 67 – 71.
- Scalzo PL, Flores CR, Marques JR, Robini SC, Teixeira AL. Impact of changes in balance and walking capacity on the quality of life in patients with Parkinson's disease. *Arq Neuropsiquiatr.* 2012;70(2):119–124.
- Stroe ZA, Docu Axelerad S, Stuparu AF, Docu Axelerad D. Assessing the effectiveness of yoga, Tai Chi and aerobics on the fatigue of multiple sclerosis patients. *TPERJ.* 2020; 13(24): 12-18. DOI:10.2478/tperj-2020-0002
- Volpe D, Signorini M, Marchetto A, Lynch T, Morris ME. A comparison of Irish set dancing and exercises for people with Parkinson's disease: a Phase II feasibility study. *BMC Geriatr.* 2013;13:54.