Parkinson's Disease: Advanced-Intensive Physiotherapeutic Rehabilitation in the Physiotherapy Laboratory at UAMD

Aida Zotaj Lako[1]

Selda Sokoli Veizaj[2]

Marsida Krasniqi[3]

Rezarta Kalaja[3]

[1]Dr.,
Department of Medical Technical Science,
Faculty of Professional Studies,
University Aleksander Moisiu,
Durrës, Albania
[2]MSC.,
Department of Medical Technical Science,
Faculty of Professional Studies,
University Aleksander Moisiu,
Durrës, Albania
[3]Prof.Asoc,
Department of Medical Technical Science,
Faculty of Professional Studies,
University Aleksander Moisiu,
Durrës, Albania

Received: 5 January 2025 / Accepted: 2 March 2025 / Published: 25 March 2025

Doi: 10.56345/ijrdv12n124

Abstract

The objective: The objective of this topic is to slow down Parkinson's disease, verifying which of the rehabilitations is more efficient the advanced one compared to the traditional one. Material and Method: The study was conducted during the period January-November 2024 and these data were extracted from the clinical records of patients and rehabilitation was done in the physiotherapy laboratory at UAMD. There are a total of 32 patients in the age group of 51-90 years, with PD. From January-November 2024 there were 15 patients who underwent simple physiotherapeutic rehabilitation and there were 17 patients who underwent intensive physiotherapeutic rehabilitation. Results: Out of 32 patients with PD included in the study, the most affected age group is 71-80 years old for both genders. There is a predominance of this age with 53% for gender F compared to the 71-80 age group with 41% for gender M. Regarding the stages of the disease, which 17 of them have undergone intensive rehabilitation and they have very good results compared to 15 pacients who have done simple rehabilitation which have good results. Discussion: Our country urgently needs to establish a standardized rehabilitation protocol, and assessment scales for Parkinson's disease. In this paper, we proved that with advanced-intensive e physiotherapeutic rehabilitation, we had very good results for 1- 4 phases of the disease.

Keywords: *Parkinson's disease (PD), intensive rehabilitation in the physiotherapy laboratory at UAMD, physiotherapeutic management*

1. Introduction

Parkinson's disease is defined as a progressive neurological disorder characterized by symptoms such as bradykinesia, tremors, rigidity, and postural instability (James Parkinson in 1817). The most common treatment of Parkinson's disease is the pharmacological one, which is based on the use of drugs that replace dopamine (Brichta Lars. et, al. 2013). However, we can say that physiotherapy play a very important role in the rehabilitation of people with (PD), especially in relation to the management of motor symptoms, promotion of regular physical exercises, and prevention of injuries and secondary complications (Marco YC Pang. et, al. 2021). Studies have been conducted to evaluate the efficiency and comparison of the visual result and the impact with the quality of life (Krasniqi et, al. 2020), movement evaluation, equilibrium and sensory stimuli in preventing the risk of falls in severe forms of disease. Also according to (Sokoli.S et, al. 2024) the use of tests for equilibrium Sharpended/Romberg are important for patients with brain diseases such as PD. Placing greater emphasis and significance on auditory stimuli in preventing the risk of falls (Ayena JC. et, al. 2017). Other studies have evaluated the impact of rhythmic exercises, and ball exercises in improving the pace of walking in patients with PD (Bueno, M. E. B. et, al. 2017), we can say that based on the rhythm, specifically in rhythmic dances such as tango, it has been efficient in the rehabilitation of patients with PD (Koh Y. et, al. 2020).

Therefore, many rehabilitative strategies such as advanced-intensive rehabilitation, aerobic exercise, strength/resistance exercise, treadmill training, occupational therapy, have been found to improve motor and non-motor symptoms of PD. (Studer, M. et, al. 2021). These elements directly influenced the increase of autonomy and functionality of patients suffering from PD, which would enable patients to perform daily tasks more easily, with a higher level of self-efficacy (Carroll LM. et, al. 2020). In Albania we have done studies about physiotherapeutic rehabilitation and the effect in PD (Zotaj.A et, al. 2022). It is very importat an early diagnosis, as this can influence in pateints satisfaction with healthcare service (Kalaja.R et, al. 2022), but even in economic part of patients (Zotaj. A et, al. 2024). The aim of our study is the evaluation of protocols for advanced-intensive e rehabilitation in patients with Parkinson's disease in the city of Durres and the rehabilitation was done in the physiotherapy laboratory at UAMD.

In this study patients with Parkinson's disease were randomly selected for the comparison between allocation of rehabilitations such as advanced-intensive rehabilitation which is done through aerobic exercise, strength/resistance exercise, treadmill training, occupational therapy according to the model followed and proven by Mike Studer et, al. 2021, or traditional rehabilitation that they would perform and also for patients who were unable to come to the physiotherapy laboratory we went to their homes to do simple rehabilitation . All these rehabilitations have been processed and compared through standardized international assessment scales before and after rehabilitation, such as BERG rating scale, H.A.D.S rating scale, H&Y rating scale In this study we have proved causation always implies correlation.

2. Material and Methods

The study was conducted during the period January-November 2024 and the data was extracted from the data of the clinical records of the patients at the Central Polyclinic, Durrës, and were rehabilitated in the physiotherapy laboratory at “Aleksander Moisiu University” of Durres. The statistical method used for data analysis, including comparisons between groups, is ANOVA.

A total of 32 patients, 51-90 group ages resulted in Parkinson's disease. From there were 15 patients who underwent simple physiotherapeutic rehabilitation at home and there were 17 patients who underwent intensive physiotherapeutic rehabilitation in the physiotherapy laboratory at “Aleksander Moisiu University”.

3. Results

Our study has made us understand a lot about this pathology in our country and why we try to implement advanced-intensive e rehabilitation as we proved that the patients had very good results. In the study of Zotaj et, al 2024 conducted from January to November 2024, 32 patients with Parkinson's disease were diagnosed and rehabilitated, with different durations and these patients were randomly selected for study from the data of the clinical records of the patients at the Central Polyclinic, Durrës. There is a predominance of the 71-80 age group, with 8 cases (53%) for gender F compared to the 71-80 age group with 7 cases (41%) for gender M, unlike study conduced by Zotaj.A et,al 2023 where the male gender predominated compared to the female gender. Regarding the stages of the disease, which have undergone intensive rehabilitation, they have result 4=very good rehabilitation compared to result 3=good rehabilitation for those who have done simple rehabilitation. For the pacients who have done advanced-intensive rehabilitation, we found that the age

group of 51-60 years has the easiest stage 2-phase and occupies 16% of cases, the age group of 61-70 and 71-80 years has a slightly more severe phases 3-phase and occupies 25% and 47% of cases and 81-90 years old has the severe stage- 4 phase and occupies 12% of cases.

Table 1: Distribution of Phases by age group and relevant cases

Age groups	Cases	F	M	Phases
51-60 years old	5	3	2	2
61-70 years old	8	4	4	3
71-80 years old	15	8	7	3
81-90 years old	4	0	4	4
Total	**32**	**15**	**17**	**Easier=1 to severe=5**

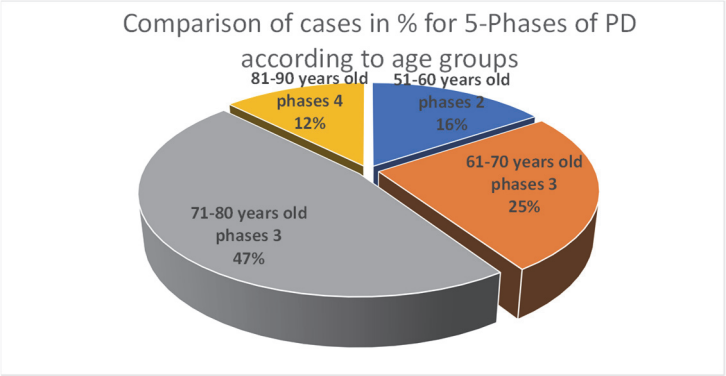

Chart 1: % for 5-phases of PD according to ages groups

Chart 1- shows that the age group of 71-80 years old -3 phase has the most cases
and accounts for 47% of all cases of PD, followed by the age group of 61-70 years old- 3 phase with 25% of cases and the age with the fewest cases is the age of 51-60 -2 phase with 16% and 81-90 years old – 4 phase and accounts for 12% of all cases.

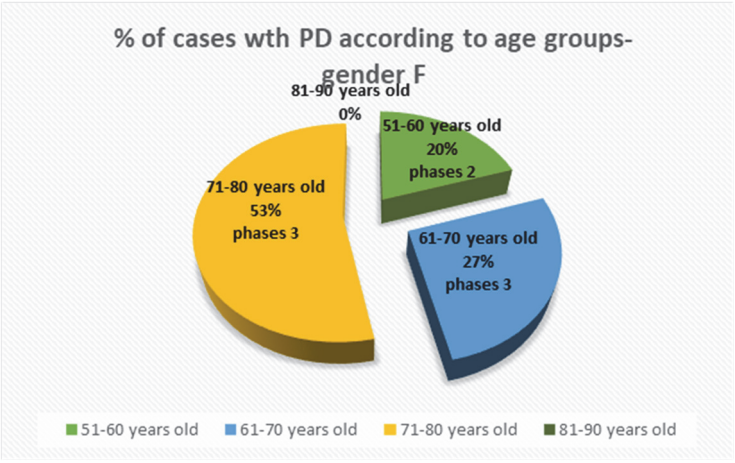

Chart 2: % of cases divided by age group 51-90 years old based on Female gender

Chart 2- shows that the age group of 71-80 years has the most cases and accounts for 53% of all cases of PD, followed by the age group of 61-70 years old with 27% of cases and the age with the fewest cases is the age of 51-60 years old accounts for 20% of all cases.

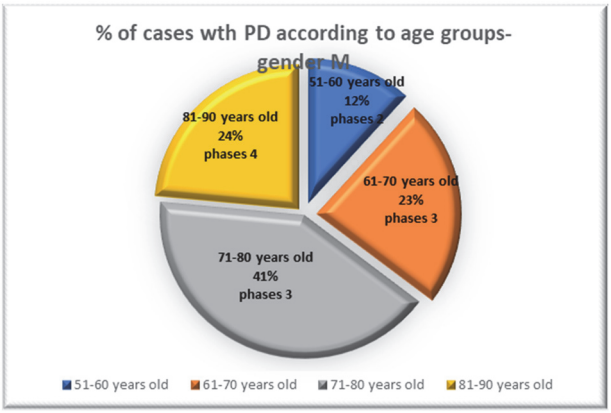

Chart 3: % of cases divided by age group 50-90 years based on Male gender

Chart 3- shows that the age group of 71-80 years has the most cases and accounts for 41 % of all cases of PD, is followed by the age group of 61-70 years old with 23% of cases and otherwise gender F with no cases for 81-90 years old accounts for 24% of all cases and the age with the fewest cases is the age of 51-60 years old with 12%.

Table 2: Shows how many cases we have, randomly assigned and unable to come to the physiotherapy laboratory at UAMD, for each age group and which of the 5 phases these age groups belong to and the result before and after advanced Physiotherapy Rehabilitation compared to the traditional one, based on BERG rating scale, H.A.D.S rating scale, H&Y rating scale

Age group	Cases of traditional rehabilitation	Cases of intensive rehabilitation	Phases	Results after traditional rehabilitation	Results after intensive rehabilitation
51-60 years old	2	3	2	*3-good result*	*4-very good result*
61-70 years old	4	4	3	*3-good result*	*4-very good result*
71-80 years old	7	8	3	*3-good result*	*4-very good result*
81-90 years old	2	2	4	*3-good result*	*4-very good result*
Total for all cases	**15**	**17**	**1- 5**	*3-good result*	*4-very good result*

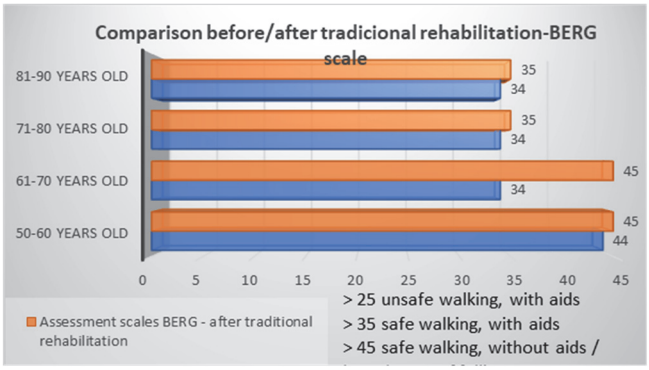

Chart 4: BERG rating scale for patients before/after tradicional rehabilitation

Chart 4-We see a improvement in the results, which we have collected according to age in relation to the BERG assessment scale after tradicional rehabilitation.

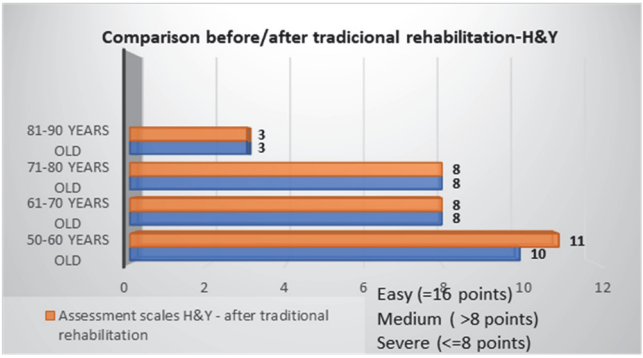

Chart 5: H&Y rating scale for patients before/after tradicional rehabilitation

Chart 5-We see a improvement in the results, which we have collected according to age in relation to the H&Y assessment scale after tradicional rehabilitation.

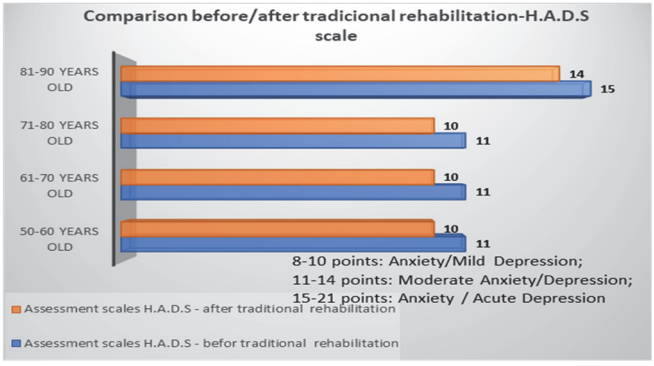

Chart 6: H.A.D.S rating scale for patients before/after tradicional rehabilitation

Chart 6-We see a improvement in the results, which we have collected according to age in relation to the H.A.D.S assessment scale after tradicional rehabilitation.

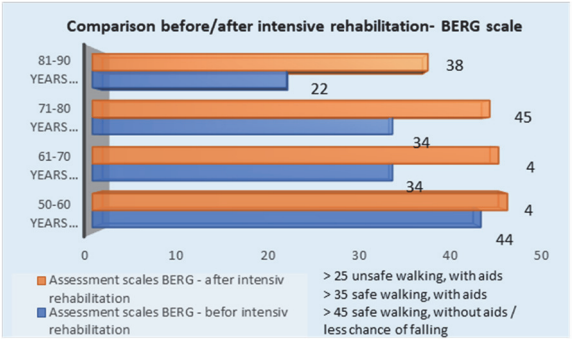

Chart 7: BERG rating scale for patients before/after advanced-intensive e rehabilitation

Chart7-We clearly see a *significant improvement* in the results, which we have collected according to age in relation to the BERG assessment scale after advanced-intensive e rehabilitation.

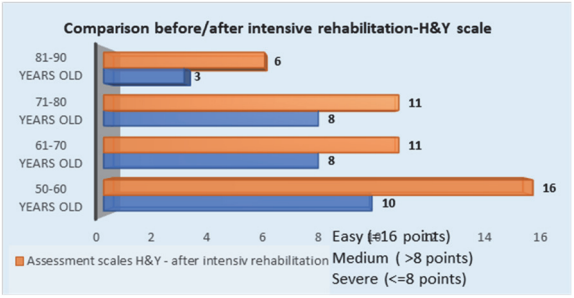

Chart 8: H&Y rating scale for patients before/after advanced therapy

Chart 8-We clearly see also in this evaluation scale, *a significant improvement* of the results, which we collected according to age in relation to the H&Y evaluation scale after advanced-intensive e rehabilitation

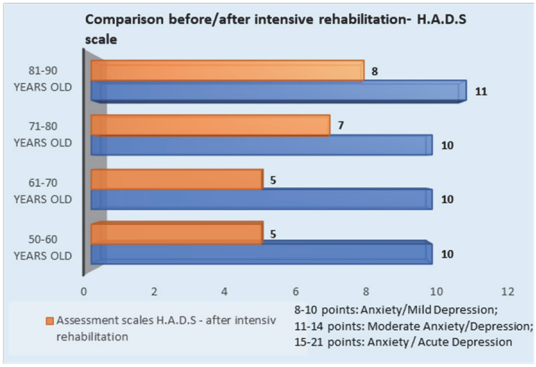

Chart 9: H.A.D.S rating scale for patients before/after advanced therapy

Graph 9-We clearly see a *significant improvement* in the results, which we collected according to age, in relation to the H.A.D.S rating scale after advanced-intensive e rehabilitation.

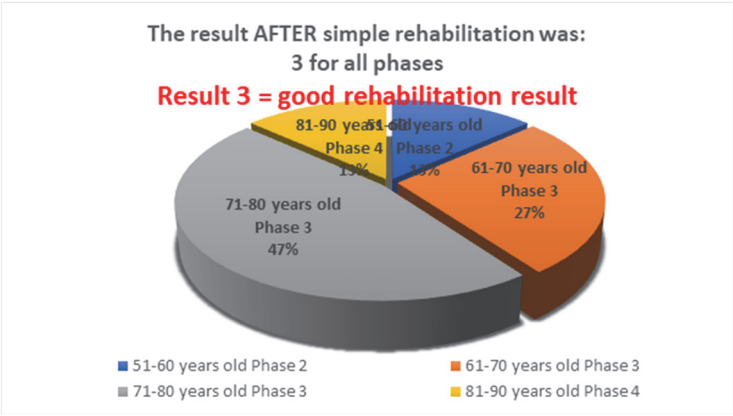

Chart 10: Rehabilitation results in % of cases after traditional therapy based on age groups

Chart 10- We see that the results of rehabilitation in % for phase 2, 3 and 4, after traditional therapy based on the age groups and the phases in which the patients are, is equal to the result *3 (good result for all stages)*

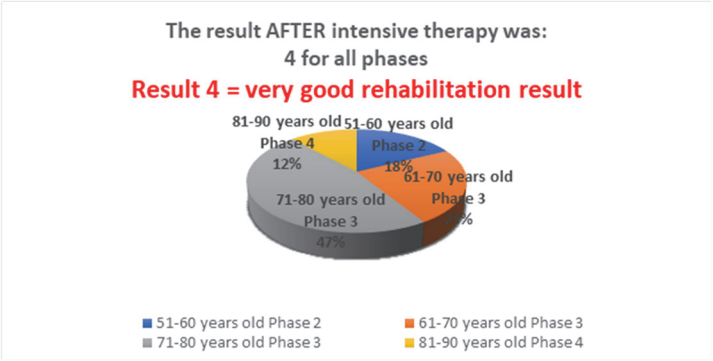

Chart 11: Results of rehabilitation in % of cases after intensive therapy based on age groups

Chart 11- We see that the results of rehabilitation in % for phase 2, 3 and 4, *after intensive therapy* based on the age groups and the stages in which the patients are, unlike the chart 10, are equal to the result *4 (very good result for all phases)*

4. Discussion

Parkinson's disease (PD) represents the second cause after Alzheimer's, as the disease with high disability worldwide (WHO).

Patients with Parkinson's disease were randomly selected for the allocation of rehabilitations that they would perform and also for patients who were unable to come to the physiotherapy laboratory we went to their homes to do rehabilitation.

Rehabilitation was done over a period of 8-12 weeks and after them their follow-up for another 4 weeks in order for the patients to be followed by the physiotherapist to understand if they continue to do the relevant exercises as needed.

Furthermore we measured these results through the assessment scales which we have brought in this study such as international assessment scale, BERG rating scale, H.A.D.S rating scale, H&Y rating scale, before and after the rehabilitations. In this study we have proved causation always implies correlation.

- **A total** of 32 patients in the age group of 51-90 years were included in our study with Parkinson's disease. (Tab.1)
- **5-phases** of PD according to ages groups- the age group of 71-80 years old-3 phase has the most cases and accounts for 47% of all cases of PD, followed by the age group of 61-70 years old- 3 phase with 25% of cases and the age with the fewest cases is the age of 51-60 -2 phase with 16% and 81-90years old-4 phase and accounts for 12% of all cases. *(Chart 1)*
- **For Female gender -** the age group of 71-80 years has the most cases and accounts for 53% of all cases of PD, followed by the age group of 61-70 years old with 27% of cases and the age with the fewest cases is the age of 51-60 years old accounts for 20% of all cases. *(Chart 2)*
- **For Male gender -** the age group of 71-80 years has the most cases and accounts for 41% of all cases of PD, is followed by the age group of 61-70 years old with 23% of cases and otherwise gender F with no cases for 81-90 years old accounts for 24% of all cases and the age with the fewest cases is the age of 51-60 years old with 12%. *(Chart 3)*
- **A total of cases** 15 patients have undergone traditional rehabilitation with 3-good result after that, 17 patients have undergone intensive rehabilitation with 4-very good result after that (Tab.2)
- **For BERG rating scale-** for patients before/after traditional rehabilitation, we saw a improvement in the results, which we have collected according to age in relation to the BERG assessment scale after tradicional rehabilitation. *(Chart 4)*
- **For H&Y rating scale-** for patients before/after traditional rehabilitation, we also saw a improvement in the results, which we have collected according to age in relation to the H&Y assessment scale after tradicional rehabilitation. *(Chart 5)*
- **For H.A.D.S rating scale-** for patients before/after traditional rehabilitation, we also saw in this evaluation scale, improvement in the results, which we have collected according to age in relation to the H.A.D.S assessment scale after tradicional rehabilitation. *(Chart 6)*
- **For BERG rating scale-** for patients before/after advanced-intensive rehabilitation, we saw a *significant improvement in the results*, **after** advanced-intensive e rehabilitation. We collected data by age on the BERG rating scale. *(Chart 7)*
- **For H&Y rating scale-** for patients before/after advanced-intensive e rehabilitation, we also saw in this evaluation scale, a significant improvement of the results, **after** advanced-intensive e rehabilitation. *(Chart 8)*
- **For H.A.D.S rating scale-** for patients before/after advanced-intensive e rehabilitation, we also saw in this evaluation scale, a significant improvement of the results, **after** advanced-intensive e rehabilitation. *(Chart 9)*
- **Regarding rehabilitation** results in % of cases **after traditional** therapy based on age groups- we saw that the results of rehabilitation in % phase 2, 3 and 4, after traditional therapy based on the age groups and the stages in which the patients are, is equal to the result 3 *(good result for all stages) (Chart 10)*
- **Regarding the rehabilitation** results in % of cases **after intensive** therapy based on age groups- we saw that the results of rehabilitation in % for phase 2, 3 and 4, after intensive therapy based on the age groups and the stages in which the patients are, unlike the chart 10, are equal to the result 4 *(very good result for all phases). (Chart 11)*

Clarification: We proved that early physiotherapeutic rehabilitation and advanced-intensive rehabilitation would be much better compared to traditional rehabilitation, and it is also extremely important for patients suffering from Parkinson's disease as it affects its slowing down, so that the patient achieves the transition more slowly from the first stage to the second stage and so on.

Also, according to the many types of research that we have conducted for this study, it turned out that if we put the physiotherapy rehabilitation protocols and rating scales, these results would increase even more in % and would be from good results in very good results.

5. Conclusions

One of the reasons why we chose this topic is the fact that PD has a very important socio-economic impact, especially in relation to the disability it causes in patients based on the stages they are in. Foreign countries use assessment scales and advanced rehabilitation methods such as those presented in this thesis, unlike our country that uses simple physiotherapeutic rehabilitation. This finding is reflected in the high percentage of improvement of patients with a **very good result**=4 rehabilitated with advanced-intensive e therapy, compared to patients who did simple therapy and received as a **good result**=3 from rehabilitation and not very good. Hence our country has an urgent need for the establishment of a standardized rehabilitation protocol and assessment scale and their application. The use of physiotherapeutic treatments has resulted in the reduction of physical and motor disability and in the improvement of the life of patients suffering from Parkinson's disease, always accompanied by drug therapy. In this way, this therapy not only helps in reducing disability, but also in reducing patients' depression as they manage to become more autonomous and we will also have socio-economic benefits for our country, because Parkinson's disease brings a major disability for these patients. Now is the time to apply advanced-intensive physiotherapeutic rehabilitation in our country as well. However, it must be said that the management of Parkinson's disease has significantly improved in recent years in our country as well.

Just as in the economic article of Zotaj.A et, al.2024, in which it is clearly seen that the payments for physiotherapy rehabilitation sessions are different for different countries, we must emphasize that the sooner patients start intensive physiotherapy rehabilitation, the less they will spend economically over time of time as they will be more suitable for activities of daily life.

We should also add that as healthcare becomes increasingly interconnected, evidence-based policy making is critical to ensure equitable access to healthcare services worldwide (Krasniqi. M et, al. 2023)

References

Alexandre de Assis IS, Luvizutto GJ, Bruno ACM, Sande de Souza LAP. *The Proprioceptive Neuromuscular Facilitation Concept in Parkinson Disease:* A Systematic Review and Meta-Analysis. J Chiropr Med. 2020 Sep;19(3):181-187. doi: 10.1016/j.jcm.2020. 07.003. Epub 2020 Dec 15. PMID: 33362441; PMCID: PMC7750824. https://www.who.int/news/item/14-06-2022-launch-of-who-s-parkinson-disease-technical-brief ; 14-06-2022 WHO.

Aras, B., Seyyar, G.K., Fidan, O., Colak, E. 2021. The effect of tai chi on functional mobility, balance and falls in Parkinson's disease: a systematic review and meta-analysis of systematic reviews. *Explore*, 18(4), 402-410.

Ayena JC, Tremblay LE, Otis MJ, Ménélas BJ. *Comparing auditory, visual and vibrotactile cues in individuals with Parkinson's disease for reducing risk of falling over different types of soil.* Somatosens Mot Res. 2017 Dec;34(4):226-234. doi: 10.1080/08990 220.2017.1421157. Epub 2018 Jan 10. PMID: 29318933.

Bartels, A.L., Leenders, K.L. 2009. Parkinson's disease: the syndrome, the pathogenesis and pathophysiology. *Cortex*, 45, 915-921.

Brichta Lars, Greengard Paul,Flajolet Marc. Advances in the pharmacological treatment of Parkinson's disease: targeting neurotransmitter systems. *Trends in Neurosciences*.2013; 36(9), 543–554. DOI: 10.1016/j.tins. 2013.06.003.

Carroll LM, Morris ME, O'Connor WT, Clifford AM. *Is Aquatic Therapy Optimally Prescribed for Parkinson's Disease? A Systematic Review and Meta-Analysis.* J Parkinsons Dis. 2020;10(1):59-76. doi: 10.3233/JPD-191784. PMID: 31815701.

Evaluation of efficacy of tango dance in patients with Parkinson's disease; Review Selda Veizaj, Aida Zotaj (Lako) & Arlinda Cakoni

Garcia-Agundez, A., Folkerts, A.K., Konrad, R., Caserman, P., Tregel, T., Goosses, M., Göbel, S., Kalbe, E. 2019. Recent advances in rehabilitation for Parkinson's disease with exergames: A systematic review. *Journal of NeuroEngineering and Rehabilitation*, 16(1), 17.

Hackney, M.E., Earhart, G.M. 2009. Effects of dance on movement control in Parkinson's disease: A comparison of Argentine tango and American ballroom. *Journal of Rehabilitation Medicine*, 41(6), 475-481.

Kalaja, R., & Krasniqi, M. (2022). Patient satisfaction with quality of care in public hospitals in Albania. Frontiers in Public Health, 10, 100. https://doi.org/10.3389/fpsyg.2022.100

Koci, S., Kapisyzi, M., Dobi, D., Rroji, A., Vreto, G., Kruja, J. 2013. Vascular Parkinsonism. *Journal of the Neurological Sciences*, 333(1), E105.

Koh Y, Noh G. *Tango therapy for Parkinson's disease: Effects of rush elemental tango therapy.* Clin Case Rep. 2020 Apr 2;8(6):970-977. doi: 10.1002/ccr3.2771. PMID: 32577245; PMCID: PMC7303853.

Krasniqi M, Trebicka B. Visual impairment and quality of life, a cross-sectional study. Int J Psychosoc Rehabil. 2020;24(07):10234-40

Krasniqi, M., Kalaja, R., Trebicka, B., & Myshketa, R. (2023). The Effect of Migration of Health Workers in Labor Markets a Literature Review. *Interdisciplinary Journal of Research and Development*, *10*(3), 92. https://doi.org/10.56345/ijrdv10n314

Kruja, J., Beghi, E., Zerbi, D., Dobi, D., Kuqo, A., Zekja, I., Mijo, S., Kapisyzi, M., Messina, P. 2012. High prevalence of major neurological disorders in two Albanian communities: results of a door-to-door survey. *Neuroepidemiology*, 38(3), 138-147.

Liu Yang, Y., Li, X.-Y., Gong, L., Zhu, Y.-L., Hao, Y.-L. 2014. Tai Chi for improvement of motor function, balance and gait in Parkinson's disease: A systematic review and meta-analysis. *PLoS One*, 9(7), e102942.

McGuinness, L.A., Higgins, J.P.T. 2021. Risk-of-bias VISualization (robvis): An R package and Shiny web app for visualizing risk-of-bias assessments. *Research Synthesis Methods*, 12(1), 55-61.

Nocera, J.R., Amano, S., Vallabhajosula, S., Hass, C.J. 2013. Tai chi exercise to improve non-motor symptoms of Parkinson's disease.*Journal of Yoga and Physical Therapy*, 3.

Schrag, A., Jahanshahi, M., Quinn, N. 2000. How does Parkinson's disease affect quality of life? A comparison with quality of life in the general population. *Movement Disorders*, 15(6), 1112-1118.

Sokoli Veizaj, S., Kalaja, R., Lako Zotaj, A., & Myrtaj, L. (2024). Influence of Facial Profiles, Posture and Balance. *Interdisciplinary Journal of Research and Development*, *11*(1), 106. https://doi.org/10.56345/ijrdv11n114

Studer, M. 2021. Riabilitazione Neurologica– Neuroplasticita, Parkinosn, Ekuilibro e Ictus. https://tv.streamededu.com/programs/riabilitazione-neurologica-neuroplasticita-parkinson

Zotaj A, Myderrizi N, Krasniqi M, Kalaja R. Parkinson's disease, early physiotherapeutic rehabilitation during the period January-December 2022 at the Central Polyclinic, Durres. J Adv Pharm Educ Res. 2023;13(4):104-8. https://doi.org/10.51847/VhemLjEYy6

Zotaj, A., Krasniqi, M., Bara, R., Kalaja, R., & Veizaj, S. (2024). Assessment of the economic value of physiotherapy treatment for economically effective results. Economics of Development, 23(3), 104-114. https://doi.org/10.57111/econ/3.2024.104