

Parkinson's Disease

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October 2025

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1. 'I Knew Nothing About Parkinson's': Insights into Receiving a Diagnosis of Parkinson's Disease and the Impact of Self-Management, Self-Care, and Exercise Engagement, from People with Parkinson's and Family Members' Perspectives: Qualitative Study.

Authors: Ahern L.;Curtin C.;Timmons S.;Lamb S.E. and McCullagh, R.

Publication Date: 2025

Journal: Geriatrics (Switzerland) 10(3) (pagination), pp. Article Number: 73. Date of Publication: 01 Jun 2025

Abstract: This paper draws on stories of receiving the diagnosis of Parkinson's disease, which emerged from a broader narrative study exploring beliefs about exercise and challenges facing people with Parkinson's disease. Background/Objectives: By interviewing people with Parkinson's disease (PwPD) and their family members, this paper aimed to gain insights into PwPD's experiences with diagnosis, its influence on exercise engagement, and access to services in Ireland. Method(s): This study employed a qualitative research design, using purposeful and maximum variation sampling. PwPD (varying in age, sex, geographical setting, and disease severity) were recruited from urban physiotherapy services. Semi-structured interviews with 12 PwPD and a group interview with four family members were conducted between November 2022 and January 2023. The interviews were recorded, transcribed, and analysed using thematic analysis. Result(s): Four themes emerged: (1) firstly, there was disempowerment and emotional shock at diagnosis: PwPD expressed frustration with delays in diagnosis and with how language and empathy affected their ability to cope initially. (2) There was a lack of signposting and services access: a strong need exists for clear information on services and resources to prevent social disengagement. (3) In terms of exercise education and self-management support, PwPD lacked early exercise education and guidance, relying on self-education. (4) With regard to the emotional burden on family caregivers, family members manage care logistics and face emotional burdens, which they try to conceal. Conclusion(s): The delivery of a Parkinson's diagnosis could be improved by recognising its psychosocial impact on PwPD and families. Providing

clear information on services within weeks of diagnosis was considered crucial. Limited exercise education affected PwPD's ability to self-manage. Early physiotherapy access is strongly recommended to help delay functional decline and encourage an active lifestyle. Copyright © 2025 by the authors.

2. Closing the Gate Before the Horse is Out of the Barn: A Model to Effectively Predict the First Fall in Patients with Parkinson's Disease.

Authors: Anis S.; Zimmerman E.; Munyeshyaka M.; Fernandez H.H.; Rosenfeldt A.B. and Alberts, J. L.

Publication Date: 2025

Journal: SSRN (pagination), pp. Date of Publication: 18 Aug 2025

Abstract: Background: Falls in Parkinson's disease (PD) are costly, reduce quality of life, and lead to loss of independence. A major gap in preventing PD-related falls is the lack of an effective model to predict the first fall. Since prior falls are the strongest predictor, identifying those at risk before their first fall is critical. We developed a first-fall prediction model using real-world data from Cleveland Clinic's Waiting Room of the Future (WROTF) and compared its performance to the established Paul Motor Model and our recent CYCLE-II clinical trial-based model.

Methods: A retrospective cohort study was completed using routinely collected clinical data from PD patients between January 2021 and August 2024. The CYCLE-II Cognitive Model and Paul Motor Model were refit using logistic regression and evaluated via 10-fold cross-validation. Model discrimination was assessed by average AUC. A new WROTF LASSO Model was developed on the same dataset, with a parallel model created for those without prior falls to predict first fall events.

Findings: A total of 997 patients with PD were included (mean age 69.6 +/- 8.8 years; 62.8% male; mean disease duration 3.6 +/- 4.3 years). The CYCLE-II Cognitive Model achieved an AUC of 0.70, while the Paul Motor Model yielded an AUC of 0.77. Among fall-naïve individuals (n=570), the CYCLE-II Cognitive Model retained good performance (AUC 0.68), while the Paul Motor Model declined (AUC 0.62). The WROTF LASSO Model achieved the highest performance (AUC 0.81), and 0.70 in fall-naïve patients. Key predictors for first fall included decreased processing speed, slower walking speed, disease duration, and age.

Interpretation: The WROTF LASSO Model, integrating cognitive, motor, and clinical features, enhances early fall risk identification in routine PD care. Identifying fall risk before the first fall can reduce future falls by enabling proactive physical therapy or balance training for those individuals. Copyright © 2025, The Authors. All rights reserved.

3. Pathological beta power increase in the subthalamic nucleus is absent in essential tremor.

Authors: Baker Erdman H.; Bergman H.; Leon J.F.; Heymann S.; Atamna Y.; Abu Snineh M.; Zarchi O.; Tamir I. and Israel, Z.

Publication Date: 2025

Journal: Brain Communications 7(5) (pagination), pp. Article Number: fcaf297. Date of Publication: 2025

Abstract: Parkinson's disease and essential tremor are common movement disorders characterized by distinct motor symptoms. Deep brain stimulation targeting the subthalamic nucleus has shown efficacy in managing Parkinson's disease symptoms, whereas the posterior subthalamic area is an emerging

target for essential tremor. This analytical cross-sectional study investigates the electrophysiological activity of the subthalamic nucleus in Parkinson's disease and essential tremor patients from deep brain stimulation surgeries to understand the underlying neural oscillatory mechanisms. Microelectrode recordings during deep brain stimulation surgery from 35 Parkinson's disease patients targeting the subthalamic nucleus and 21 essential tremor patients simultaneously targeting the posterior subthalamic area and subthalamic nucleus using a novel dual electrode technique were analysed for the main analysis. Additionally, subthalamic nucleus data from a subgroup of 12 Parkinson's disease patients was compared with seven essential tremor patients who were matched based on the y-coordinate of the electrode. A final comparison was made between a third subgroup of nine Parkinson's disease patients with satisfactory subthalamic nucleus recordings in the posterior BenGun location and 21 essential tremor patients. Recordings were collected from two medical centres with a common electrophysiology team. Root mean square and spectral analysis were employed as well as statistical analysis of demographic and recorded subthalamic nucleus anatomical dimensions. Relative dimensions of subthalamic nucleus physiological regions did not differ between the main groups. The motor subregion of the subthalamic nucleus in Parkinson's disease patients exhibited significantly increased beta frequency power (13-30 Hz). Conversely, essential tremor patients did not show this increase, suggesting distinct pathophysiological mechanisms. Additionally, the subthalamic nucleus spiking activity, as measured by RMS analysis, was higher in Parkinson's disease patients. y-coordinate matched, and posterior subthalamic nucleus Parkinson's disease patient comparisons confirmed the higher beta frequency power in Parkinson's disease patients only. These findings underscore the different neural dynamics between Parkinson's disease and essential tremor. They highlight the role of beta oscillations in Parkinson's disease's motor symptoms and raise questions about the absence of beta oscillations in essential tremor, whether it reflects a normal lack of beta activity or an active suppression of a normal beta stop signal. Copyright © 2025 The Author(s).

4. Investigation of gastrointestinal tumor symptoms and risk factors in eighty patients with Parkinson's disease.

Authors: Fu, Zhong-Guo;Ren, Zhan-Xiu;Wang, Xin-Hong and Wang, Bai-Fang

Publication Date: Sep 15 ,2025

Journal: World Journal of Gastrointestinal Oncology 17(9), pp. 106912

Abstract: BACKGROUND: Parkinson's disease (PD) is often accompanied by gastrointestinal symptoms; however, the relationship between PD and gastrointestinal tumors remains unclear. AIM: To explore the symptom characteristics and risk factors of gastrointestinal tumors in patients with PD by integrating clinical, neurological, gastrointestinal, and laboratory assessments. METHODS: Eighty patients with PD who were admitted to our hospital between January 2023 and December 2024 were retrospectively analyzed. Clinical characteristics and neurological status were evaluated using standardized scales, including the Mini-Mental State Examination, Depression Anxiety Stress Scale-21, Pittsburgh Sleep Quality Index Barthel Index, Non-Motor Symptoms Scale, and the Intake, Feeling nauseated, Emesis, physical Exam, Duration of symptoms (I-FEED) gastrointestinal dysfunction score. Laboratory indicators including tumor markers [carcinoembryonic antigen (CEA), carbohydrate antigen 19-9 (CA19-9), carbohydrate antigen 72-4 (CA72-4)] were measured. Differences between PD patients with and without gastrointestinal tumors were compared, and logistic regression was used to identify associated factors. RESULTS: Among the 80 PD patients, 16 (20.00%) had gastrointestinal tumors. The most common symptoms in the tumor group were constipation (93.75%), urgency of defecation (75.00%), and abdominal tightness (75.00%). Patients with gastrointestinal tumors had significantly higher I-FEED, CEA, CA19-9, and CA72-4 levels (P CONCLUSION: This study uniquely combines neurological symptom scales and tumor markers to evaluate gastrointestinal tumor risk in patients with PD. The findings suggest that gastrointestinal dysfunction and tumor marker elevation are key clinical indicators, and highlight the importance of comprehensive assessment in identifying high-risk PD

5. Early thinking palliative care for people with Parkinson's disease: A thematic synthesis based on a systematic mixed-methods review.

Authors: Garon M.;Weck C.;Leta V.;Dijkstra B.W.;Muenta C.;Gentile G.;Trivedi D.;Groot M.M.;Lorenz S.;Odin P.;Konitsiotis S.;Pedrosa D.J.;Fotiadis D.I.;Meinders M.J.;Bloem B.R.;Schrag A.E.;Grover L.;Taba P.;Ray Chaudhuri K.;Antonini A., et al

Publication Date: 2025

Journal: Journal of Parkinson's Disease 15(4), pp. 710–758

Abstract: Background: Parkinson's disease is a progressive neurodegenerative disorder. Awareness and the evidence supporting the merits of palliative care (PC) approaches to people with Parkinson's disease (PwP) are increasing. Objective(s): This review aimed to address four key questions related to PC for PwPs and their caregivers: i) What are the indicators for timely access to PC? ii) When should PC be introduced? iii) What are the current care models for providing PC? iv) What are the barriers and facilitators at the organizational level? Methods: A systematic literature search was conducted in PubMed, CINAHL, Cochrane, EMBASE, and MEDLINE (2006-2024). Six reviewers independently screened abstracts and full texts, and thematic synthesis was applied to develop analytical themes. Reporting followed PRISMA guidelines. Result(s): Out of 894 studies, 70 were included. PwPs were infrequently referred to PC services, and while several referral criteria were identified, no consensus emerged. Barriers to accessing PC included insufficient information, inadequate education, difficulties determining referral timing, limited home-based care options, inconsistent provider support, and disparities linked to socioeconomic and cultural factors. Facilitators included improved care coordination and education for PwPs, caregivers, and healthcare providers. Effective PC models were identified, including home-based, hospital-based, and community-based approaches, which improved quality of life and reduced healthcare costs. Conclusion(s): Establishing consensus on referral timing and criteria is essential for integrating PC into Parkinson's disease care. Overcoming barriers requires enhanced education, better care coordination, and targeted interventions to address disparities, ensuring comprehensive, patient-centred care for PwPs and their caregivers. Copyright © The Author(s) 2025. This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

6. Medication Adherence: A Reimbursable Theory-Guided Evidence-Based Educational Intervention for Patients With Parkinson's Disease.

Authors: George A.E.;Hermanns M.;Monsivais D.B. and Parker, C. D.

Publication Date: 2025

Journal: Research and Theory for Nursing Practice (pagination), pp. Date of Publication: 22 Se 2025

Abstract: Background: Parkinson's disease is a challenging, progressive neurodegenerative process projected to affect more than 1.2 million patients by 2030, with an economic burden that will surpass \$79 billion annually in the United States. Pharmacological interventions are the hallmark of treatment for symptom management for this lifelong disease. Multiple medications and a variety of dosing times have an increasingly negative effect on medication adherence. Purpose(s): This article will discuss

medication adherence challenges, describe a theory-guided evidence-based intervention to improve medication adherence, and explore the economic implications in an outpatient clinic setting. Method(s): A pilot chart review of 40 cases over 30 days found 60% of patients indicated medication nonadherence. An evidence-based practice quality improvement project was implemented using pre- and postmeasurements of physical, social, and adherence metrics separated by medication adherence teaching. The metrics used include the Parkinson's Disease Questionnaire 39, part of the International Movement Disorder Society's Unified Parkinson's Disease Rating Scale, and the Morisky, Green, Levine Scale. Result(s): Results were encouraging; medication adherence increased by 26%, while quality of life improved by 18%. Medication adherence improvement efforts follow the Centers for Medicare & Medicaid Services proposed guidelines to stabilize health care reimbursement and pharmaceutical economics. Implications for Practice: Consistent implementation of medication adherence teaching into the current office visit structure identifies patients at risk and improves provider-patient relationships using evidence-based adherence interventions. Any health care system can improve patient outcomes and facilitate revenue growth using medication adherence teaching coupled with the appropriate diagnostic and visit coding. Copyright © 2025 Springer Publishing Company.

7. The Cost-Effectiveness of Opicapone Versus Entacapone as Adjuvant Therapy for Levodopa-Treated Individuals With Parkinson's Disease Experiencing End-of-Dose Motor Fluctuations.

Authors: Harrison-Jones, Glynn;Green, William and Bainbridge, Jamie

Publication Date: 2025

Journal: Parkinsons Disease 2025, pp. 8408907

Abstract: Background: In levodopa-treated individuals with Parkinson's disease (PD) and end-of-dose motor fluctuations, the BIPARK-I randomized controlled trial (RCT) demonstrated that opicapone is noninferior to entacapone in reducing OFF-time. Furthermore, the BIPARK-II RCT demonstrated that opicapone is well tolerated and significantly reduces OFF-time compared with placebo. This study developed a cost-effectiveness model (CEM) of opicapone compared with entacapone from the perspective of the English National Health Service (NHS) and personal social services (PSS). Methods: The CEM used a Markov model with three health states, including "≥25% OFF-time," and "dead," as individuals spending less than 25% of their awake time experiencing OFF-time have previously been shown to have a significantly improved health-related quality of life and to accumulate fewer healthcare costs. The CEM had a 25-year time horizon, expressed costs as 2021/22 Great British Pounds (GBPs), and health outcomes as quality-adjusted life years (QALYs). Both costs and health outcomes were discounted at 3.5% annually, and a cost-effectiveness threshold of 20,000 per QALY was used. Probabilistic sensitivity analysis (PSA) considered parameter uncertainty. Results: The deterministic base case indicates that an individual treated with opicapone accrues fewer costs and more QALYs compared with each entacapone comparator and, therefore, is considered cost-effective. The PSA indicates that the probability that opicapone is cost-effective ranges from 87.2% to 98.0%, depending on the choice of entacapone comparator. Conclusions: Opicapone is cost-effective when compared with entacapone for levodopa-treated PD patients experiencing end-of-dose motor fluctuations. Trial Registration: ClinicalTrials.gov identifier: NCT01568073. Copyright © 2025 Glynn Harrison-Jones et al. Parkinson's Disease published by John Wiley & Sons Ltd.

8. Medication Adherence in Parkinson's Disease: Longitudinal Changes and the Influence of Depressive Symptoms.

Authors: Heimrich K.G.;Schonenberg A.;Franke G.H. and Prell, T.

Publication Date: 2025

Journal: Patient Preference and Adherence 19, pp. 2835–2845

Abstract: Purpose: Parkinson's disease (PD) is a progressive neurodegenerative disease. As the

disease progresses, medication regimens become increasingly complex. The long-term success of PD pharmacotherapy is highly dependent on patient adherence to the prescribed medication regimen. The aim of this study is to investigate how intentional and unintentional non-adherence evolves over time and to identify PD-related factors that influence these longitudinal changes. These findings may be crucial in developing targeted interventions to improve adherence, particularly in patients who have difficulties with intentional or unintentional non-adherence. **Patients and Methods:** The sample consisted of 91 people with PD who were initially treated as part of the PD multimodal complex treatment at the Department of Neurology, Jena University Hospital, Germany. They were followed up three and six months after discharge. Medication adherence was assessed using the Stendal Adherence to Medication Score (SAMS) and its three subscores for forgetfulness, knowledge, and modification. Statistical analyses included Wilcoxon signed rank test, Friedman test, and generalized estimating equations to determine longitudinal changes in non-adherence and the influence of PD-related variables. **Result(s):** Analysis of SAMS subscores showed improvement over time in modification and knowledge, whereas forgetfulness did not show significant change. Modification was significantly associated with depressive symptoms. **Conclusion(s):** Medication adherence in PD is a dynamic process and changes over time. The findings suggest that while educational interventions are effective in improving knowledge and reducing intentional non-adherence, addressing depressive symptoms and cognitive impairment is critical to improving overall adherence. Future research should continue to explore the factors that influence adherence behaviors and develop targeted strategies to help people with PD maintain adherence throughout the course of their disease. Copyright © 2025 Heimrich et al.

9. Polygenic scores contribution to Parkinson's disease comorbidities.

Authors: Hernandez C.F.; Villaman C.; Tejos C.; Repetto G.M.; Leu C.; Lal D.; Mata I.F.; Klein A.D. and PerezPalma, E.

Publication Date: 2025

Journal: Brain Communications 7(5) (pagination), pp. Article Number: fcdf325. Date of Publication: 2025

Abstract: Comorbidities are common in Parkinson's disease and significantly impact the disease progression and management. While polygenic scores have been widely used to assess genetic risk for complex diseases, their role in comorbidity presentation in Parkinson's disease remains unclear. This study investigates whether genetic predisposition to comorbidities, as measured by polygenic scores, differs between individuals with Parkinson's disease and the general population and explores how genetic risk influences disease onset and sex-related differences. We analysed data from 4144 individuals with Parkinson's disease and 370 480 individuals from the general population in the UK Biobank, focusing on four comorbidities with high-quality genome-wide association study data: Type 2 diabetes, major depressive disorder, migraine headaches and epilepsy. We first compared polygenic score distributions between individuals with Parkinson's disease and the general population. While our findings indicate that comorbidities and polygenic risk scores do not significantly differ between individuals with Parkinson's disease and the general population, we show an association with disease onset and sex-specific differences. Individuals with earlier disease onset (50-70 years old) had higher genetic risk for major depressive disorder (odds ratio: 2.19, P-value: 1.27×10^{-15}) and epilepsy (odds ratio: 1.58, P-value: 0.00845). Additionally, a female participant with Parkinson's disease exhibited higher genetic risk scores for major depressive disorder (odds ratio: 1.5, P-value: 0.0119) and migraine headaches (odds ratio: 2.1, P-value: 0.0155), while a male participant displayed higher genetic risk scores for Type 2 diabetes (odds ratio: 2.7, P-value: 2.11×10^{-17}). Comorbidity-polygenic score did not differ between people with versus without Parkinson's disease, yet within Parkinson's disease, a higher genetic burden for specific comorbidities was linked to earlier onset and sex-specific presentation, implicating common variants as modifiers of clinical heterogeneity rather than the primary disease risk. These results enhance our understanding of the genetic influences shaping the broader clinical presentation of Parkinson's disease and highlight the need for further research into the interplay between genetic risk factors, comorbidities and disease heterogeneity. Copyright © The Author(s) 2025. Published by Oxford University Press on behalf of the Guarantors of Brain

10. Cognitive and neuropsychiatric profiles distinguish atypical parkinsonian syndromes.

Authors: Hu M.T.;Coma A.Q.;Rowe J.B.;Zerennen T.;Church A.;Fumi R.;Costantini A.;Jabbari E.;Jensen M.T.;Gerhard A.;Pavese N.;Kobylecki C.;Leigh P.N.;Koychev I.;Morris H.R. and Manohar, S. G.

Publication Date: 2025

Journal: Brain 148(9), pp. 3239–3251

Abstract: Atypical parkinsonian syndromes are distinguished from Parkinson's disease (PD) by additional neurological signs and characteristic underlying neuropathology. However, they can be diagnostically challenging, rapidly progressive and are often diagnosed late in disease course. Their different demographic features and prognoses are well studied, but the accompanying cognitive and psychiatric features may also facilitate diagnosis. Progressive supranuclear palsy (PSP) and corticobasal syndrome (CBS) may cause cognitive and behavioural manifestations that overlap with frontotemporal dementia, including non-fluent aphasia, apathy and impulsivity. Clinical diagnostic criteria have limited sensitivity, with pathologically confirmed PSP often having presented an initial clinical syndrome other than PSP-Richardson's syndrome. Here, we integrate cross-sectional multicentre baseline data from the PROSPECT-M-UK and Oxford Discovery cohorts. This allowed us to compare cognitive and psychiatric features across a total of 1138 people with PSP, CBS, multiple-system atrophy (MSA) and idiopathic PD. Data from the different cohorts were harmonized and compared using multiple linear regression. There were five key results: (i) different syndromes showed distinctive cognitive profiles, using readily applicable 'bedside' screening tools. Frontal executive dysfunction was most evident in PSP, visuospatial deficits in CBS, with milder deficits in memory and executive function in MSA, as compared with PD; (ii) the most prevalent neuropsychiatric features were depression and anxiety in CBS, apathy in PSP, with sleep disturbances common in PD. As expected, apathy correlated positively with impulsivity across all disorders. Neuropsychiatric features were generally better at discriminating between atypical parkinsonian syndromes than were the cognitive domains; (iii) both cognitive function and motor severity declined with disease duration, and motor function predicted cognition in PSP, CBS and PD but not in MSA, suggesting that in MSA cognitive and motor dysfunction are decoupled; (iv) plasma neurofilament light chain (NFL) levels, measured in a subset of patients, correlated with cognitive deficits in PSP, but not motor deficits; (v) cognitive deficits contributed to the impairment in activities of daily living after controlling for motor severity, with every two points on the Montreal Cognitive Assessment worsening the Schwab and England score by one point. In anticipation of future neuroprotective therapies, we present a classifier to improve diagnostic accuracy for atypical parkinsonian syndromes in vivo. Longitudinal cohort studies with resources for neuropathological gold standard diagnosis remain important to validate better diagnostic tools for people with PSP, CBD, MSA and atypical parkinsonism. Copyright © 2025 The Author(s).

11. Subcutaneous foslevodopa/foscarbidopa initiation in a Parkinson's day-clinic - a suitable setting to ensure treatment efficacy, tolerability and psychosocial adaption.

Authors: Jander A.;Bergner S.;Schonwald B.;PotterNerger M.;Buhmann C. and Hidding, U.

Publication Date: 2025

Journal: Frontiers in Aging Neuroscience 17(pagination), pp. Article Number: 1619850. Date of Publication: 2025

Abstract: Background: Subcutaneous foslevodopa/foscarbidopa (LDp/CDp) has expanded the treatment options in advanced Parkinson's disease (aPD). However, the most appropriate therapeutic setting for therapy implementation is not clear. Objective(s): To present a concept for LDp/CDp therapy implementation in a Parkinson's day-clinic and efficacy and safety outcome data from patients under the new therapeutic regimen. Method(s): Retrospective clinical data were collected from the first 24 patients with aPD who were initiated on LDp/CDp treatment at the Hamburg Parkinson's day-clinic.

Outcome parameters were analyzed in terms of motor symptoms (MDS -UPDRS II-IV), safety aspects and effects on patients' quality of life (PDQ-39). Result(s): The concept of the Parkinson's Day-clinic enabled the successful implementation of LDp/CDp therapy in patients with advanced Parkinson's disease (aPD). It provided individualized medical supported via neurologists, specialized nurses and therapists and thus facilitated the transition from clinic-based care to home-based support. Compared to previous optimized oral treatment, the application of LDp/CDp significantly reduced motor complications such as dyskinesias and motor fluctuations by 53% on the MDS-UPDRS IV ($p = 0.0094$). Motor function improvements were paralleled by a numerical increase in activities of daily living scores (MDS-UPDRS II) and improvement in long-term mobility (PDQ-39 mobility subscale), suggesting potential benefits in daily functioning and perceived mobility. Conclusion(s): The value of our data is limited by its retrospective design and small sample size. However, the data suggest that a proper day-clinic setting enables the successful implementation of subcutaneous LDp/CDp therapy with improvement of motor functions and reduction of side effects. It also ensures the necessary intensive medical support and offers comprehensive device-related and psychosocial guidance for both patients and caregivers. Copyright © 2025 Jander, Bergner, Schonwald, Potter-Nerger, Buhmann and Hidding.

12. Diagnosis and Severity Rating of Parkinson's Disease Based on Multimodal Gait Signal Analysis With GLRT and ST-CNN-Transformer Networks.

Authors: Ji M.;Dong H.;Guo L. and Li, W.

Publication Date: 2025

Journal: IEEE Journal of Translational Engineering in Health and Medicine 13, pp. 450–460

Abstract: Objective: Parkinson's disease (PD) diagnosis relies on the evaluation of motor and non-motor symptoms, with gait abnormalities serving as a key marker for early detection. Traditional clinical assessment often relies on visual gait analysis, which is a subjective process prone to bias. This study introduces a PD severity classification method that leverages gait features. Method(s): A Spatial-temporal Convolutional neural network-Transformer (ST-CNN-Transformer) model for PD severity classification was established. Multimodal gait data, including foot acceleration, angular velocity, and Vertical Ground Reaction Force (VGRF), were collected in collaboration with Xiangyang First People's Hospital, Hubei Province. Zero-velocity points (ZVPs) were detected using the Generalized Likelihood Ratio Test (GLRT), and gait cycle features were extracted from inertial measurement unit data for precise segmentation. The ST-CNN-Transformer model captures spatial-temporal features and periodic correlations. Result(s): Evaluation on a dataset comprising 10 healthy controls and 30 PD patients yielded a classification accuracy of 98.81%, surpassing existing gait-based methods for PD severity classification. Conclusion(s): This study introduces a deep learning (DL) approach to automating PD severity classification by integrating ZVP and gait segmentation derived from multimodal data. The proposed model significantly enhances diagnostic accuracy. Significance: By combining DL with GLRT-based gait segmentation and multimodal gait analysis, this study proposes a robust and interpretable PD severity assessment framework that contributes to more accurate and objective clinical decision-making. Copyright © 2013 IEEE.

13. Midlife Vascular Risk Factors, Parkinson Disease, and Parkinson Disease-Dementia: The ARIC Study.

Authors: Johri M.;Morrill V.;Okine D.N.;Huang X.;Rosenthal L.;Seemiller J.;Shrestha S.;Sullivan K.J.;Chen H. and Gottesman, R. F.

Publication Date: 2025

Journal: Neurology 105(6) (pagination), pp. Article Number: e213931. Date of Publication: 23 Se 2025

Abstract: Background and ObjectivesVascular risk factors (VRFs) such as smoking, hypertension, obesity, and diabetes are associated with dementia, but their importance in Parkinson disease (PD) and PD-dementia (PDD) is less well understood. Previous studies demonstrated that smoking may be

protective of PD, but its role in PDD is unclear. The primary objective was to examine the association between midlife VRFs and the risk of developing PD and PDD in older adults. **Methods** The prospective, longitudinal community-based cohort Atherosclerosis Risk in Communities study recruited Black and White adults (45-64 years old) from Jackson, MS; Forsyth County, NC; Minneapolis suburbs, MN; and Washington County, MD, in 1987-1989. VRFs (smoking status, hypertension, obesity, hypercholesterolemia, and diabetes) were measured at the baseline visit. PD cases were retrospectively adjudicated through 2016 by reviewing participant medications, self-reported physician-made diagnoses, and hospitalization and death surveillance data. Dementia cases were adjudicated using in-person and telephone-based cognitive testing, informant interviews, and hospitalization codes. PDD cases were defined as an adjudicated PD diagnosis followed by an adjudicated dementia diagnosis. Cox proportional hazard models, adjusted for age, race, sex, education level, and APOE 4 status, evaluated midlife VRFs together in association with PD, with separate models evaluating PD without dementia, PDD, and dementia without PD. **Results** Among 13,875 individuals with nonmissing VRF and outcome data with up to 30 years of follow-up (25% Black, 54% female), 179 developed PD at a mean age of 73.4 years, 94 developed PDD at a mean age of 79.2 years, and 1,791 developed dementia without PD at a mean age of 79.7 years. Midlife current smoking (hazard ratio [HR] 0.36, 95% CI 0.21-0.61) was significantly associated with a lower PD rate, independent of other risk factors and demographics. Midlife current smoking was also significantly associated with a lower rate of PDD (HR 0.41, 95% CI 0.18-0.95). Other VRFs were not associated with either PD or PDD. **Discussion** Smoking status in midlife was associated with lower rates of PD and PDD, but other VRFs had no association with PD or PDD. Further studies should evaluate changes of these VRFs over the life course and explore mechanisms for the observed associations. Copyright © 2025 American Academy of Neurology.

14. Multidisciplinary inpatient care for Parkinson's disease: a single-centre cohort study on improvements in gait, overall motor function, and quality of life.

Authors: Kleinholdermann U.;Mugge F.C.J.;Carapezza T.;Decher L.;Timmermann L. and Pedrosa, D. J.

Publication Date: 2025

Journal: Neurological Research and Practice 7(1) (pagination), pp. Article Number: 62. Date of Publication: 01 Dec 2025

Abstract: Background: Parkinson's disease (PD) multimodal complex treatment (PD-MCT) is an inpatient therapeutic programme specifically designed for patients exhibiting parkinsonian symptoms. Established in Germany, this comprehensive approach addresses the multifaceted challenges associated with the management of PD, particularly in advanced stages or when complications such as motor fluctuations, dyskinesia, or non-motor symptoms become pronounced. The programme integrates pharmacological optimization, physiotherapy, occupational therapy, speech therapy, and psychological support, among other complementary therapies, to enhance patient outcomes holistically. Despite its availability for seventeen years, only seven studies evaluating the effectiveness of PD-MCT have been conducted. In this study we evaluated the effects of PD-MCT with a special focus on gait, hypothesizing an improvement after the treatment. **Method(s):** In this single-centre cohort study at a German university hospital we included patients with PD diagnosed by the Movement Disorder Society (MDS) criteria, aged 18-85 years, legal capacity to consent and admitted for treatment with PD-MCT. We assessed changes in motor and non-motor symptoms using Wilcoxon's signed rank test on pre/post measurements of part III of the motor part of the MDS Unified Parkinson's Disease Rating Scale (MDS-UPDRS), the Parkinson's Disease Questionnaire (PDQ-39) and the Timed Up and Go Test (TUG). As a particular emphasis was placed on gait analysis we objectively measured gait throughout the treatment period using advanced mobile sensor technology and analysed gait speed, stride length and lift height using linear mixed effects models. **Result(s):** In our sample of 43 PD patients we found significant improvements in MDS-UPDRS part III ($V = 679$, $p = 0.001$), PDQ-39 ($V = 770$, $p = 0.001$). **Result(s):** In our sample of 43 PD patients we found significant improvements in MDS-UPDRS part III ($V = 679$, $p = 0.001$), PDQ-39 ($V = 770$, $p = 0.001$). **Result(s):** In our sample of 43 PD patients we found significant improvements in MDS-UPDRS part III ($V = 679$, $p = 0.001$), PDQ-39 ($V = 770$, $p = 0.001$). **Result(s):** In our sample of 43 PD patients we found significant improvements in MDS-UPDRS part III ($V = 679$, $p = 0.001$), PDQ-39 ($V = 770$, $p = 0.001$).

(V = 679, p = 0.001), PDQ-39 (V = 770, p = 0.001), PDQ-39 (V = 770, p = 0.001). Result(s): In our sample of 43 PD patients we found significant improvements in MDS-UPDRS part III (V = 679, p = 0.001), PDQ-39 (V = 770, p = 0.001). Conclusion(s): Our results underscore the added value of a multimodal inpatient approach, thereby supporting its role as a justified investment in the management of complex PD cases. This work contributes to the expanding body of evidence advocating for integrated, multidisciplinary care models in the treatment of neurodegenerative disorders. Trial registration: This study has not been registered. Copyright © The Author(s) 2025.

15. Assessment of sarcopenia tools as predictors of falls in patients with mild to moderate Parkinson's Disease: A cohort study.

Authors: Lima D.P.;Gomes V.C.;Luna J.R.G.D.;Santos L.T.R.;Almeida S.B.D.;VianaJunior A.B.;Silva C.E.U.D.;Dantas T.D.M.;Amaral C.M.S.D.;Peixoto Junior A.A.;RorizFilho J.D.S.;MontenegroJunior R.M. and BragaNeto, P.

Publication Date: 2025

Journal: Clinics 80(pagination), pp. Article Number: 100776. Date of Publication: 01 Jan 2025

Abstract: Background: Sarcopenia contributes significantly to falls, frailty, and functional decline. Falls result from multiple factors. Objective(s): To assess whether sarcopenia assessment tools can predict falls and recurrent falls in patients with mild to moderate Parkinson's Disease (PD). Method(s): The authors conducted a cohort study from March 2021 to March 2023 at a Brazilian tertiary public hospital, including patients aged 50 or older with mild to moderate PD who could stand and walk independently. The authors utilized tests recommended by the revised European consensus on sarcopenia (2019): SARC-F, grip strength, Short Physical Performance Battery, and body composition via DEXA scan. SARC-F is a cost-effective tool for assessing sarcopenia risk, evaluating perceived physical limitations. Participants completed a standardized fall report and were monitored monthly for twelve months. Result(s): Among 103 patients, 48 (46.6 %) experienced falls, and 23 (22.3 %) had recurrent falls, totaling 159 falls. Longer disease duration predicted both falls and recurrent falls over 12-months. A history of falls in the last six months and dysautonomia also predicted falls, while SARC-F scores and type-2 diabetes predicted recurrent falls. SARC-F accuracy ranged from 58.06 % at a score of 4 % to 78.64 % at 10, with a correlation to UPDRS Part III. Conclusion(s): SARC-F, disease duration, and type-2 diabetes were independent predictors of recurrent falls. A history of falls, disease duration, and dysautonomia predicted falls. Confirmed sarcopenia did not predict falls or recurrent falls in this cohort. Copyright © 2025

16. Measuring Rigidity During Deep Brain Stimulation Surgery: Evidence of Clinical Benefits in Patients With Advanced Idiopathic Parkinson's Disease.

Authors: Lopes, Elodie;Almeida, Vania;Dias, Leonor;Rosas, Maria J.;Vaz, Rui and Cunha, Joao P.

Publication Date: Aug ,2025

Journal: Cureus 17(8), pp. e89881

Abstract: INTRODUCTION: Wrist rigidity, conventionally qualitatively assessed by clinicians, is an important feature for the success of the deep brain stimulation of subthalamic nucleus (STN-DBS) surgery in patients with Parkinson's disease (PD). To tackle this subjectivity, our group designed and implemented a wearable device with an embedded sensor, the iHandU system (inSignals Neurotech), to quantify the rigidity in real time, supporting the clinical decision-making during STN-DBS. METHODOLOGY: This study aimed to evaluate the clinical benefit of using the iHandU device for real-time rigidity quantification during STN-DBS surgery in patients with advanced idiopathic PD. For this purpose, we conducted a retrospective cohort study involving 81 patients with advanced PD undergoing STN-DBS in Movement Diseases and Functional Surgery Unit of the Centro Hospitalar e Universitario Sao Joao, Porto, Portugal,, comparing 40 patients assessed intraoperatively with the

iHandU device to 41 patients assessed by manual methods. Clinical outcomes (motor scores, stimulation parameters, and medication dosage) were compared at multiple time points over a 12-month follow-up. **RESULTS:** We found that the iHandU group showed significantly higher improvement in motor symptoms with reduced ON/OFF fluctuations and dyskinesias. These gains were obtained with less stimulation current, which reduced the occurrence of side effects, such as speech impairment. Moreover, the iHandU group did not show any significantly worse parameters, although sleep disturbances were more frequent (but not statistically significant) than in the control group. **CONCLUSIONS:** The use of iHandU device during STN-DBS was associated with better clinical benefits, namely, by providing improved motor benefits, fewer dyskinesias, and fewer cases of speech disturbance, among other less significant benefits. The use of PD symptom measurement instead of qualitative assessment is probably associated with better clinical outcomes and should be used more frequently in symptom evaluation. Copyright © 2025, Lopes et al.

17. Understanding the experience of prescription charges in people living with parkinson's disease: a focus group study.

Authors: Readman M.R.;Oluseye A.;Brighton L.J.;Polden M.;Fairman I.;Parkinson I.;Parkinson C. and Giebel, C.

Publication Date: 2025

Journal: BMC Public Health 25(1), pp. 2879

Abstract: **BACKGROUND:** In England, people aged > 60 are typically required to pay for their prescriptions. Whilst exemption criteria enable people living with specified long-term health conditions to receive free prescriptions, Parkinson's disease is omitted from this list. People with Parkinson's are often reliant upon medications, and evidence suggests that medical fees can reduce quality of life and medicine adherence. We, therefore, aimed to explore the impact of prescription charges on people with Parkinson's and their family care partners (caregivers). **METHOD(S):** This is a qualitative focus group study with people with Parkinson's and caregivers. Focus groups were semi-structured and conducted online. Participants were recruited through opportunity sampling. Eligible participants were adults aged 18 and over living in England who either (1) had a diagnosis of Idiopathic Parkinson's Disease or (2) provided unpaid care for someone with Parkinson's, including parents, adult children, siblings, or close friends. Data was analysed using reflexive thematic analysis within a critical realist paradigm. **RESULT(S):** Five focus groups were conducted with people with Parkinson's (n = 12) and caregivers (n = 12). All focus groups comprised both people with Parkinson's and caregivers. Thematic analysis identified three overarching themes: (1) The financial toll of medication and its ripple effects; (2) Lack of inclusion and support; and (3) Difficulties of seeking support. People affected by Parkinson's disagreed with current policy and suggestions of per-prescription charge re-evaluation were expressed. **CONCLUSION(S):** Prescription charges have multifaceted negative impacts on people affected by Parkinson's. Current prescription charge policies, including their exemption criteria, should be reviewed, alongside initiatives to raise awareness of existing financial support systems, such as pre-payment certificates. **REGISTRATION:** Study protocol and analysis strategy are pre-registered on Open Science Framework (<https://osf.io/y8ve5/>). Copyright © 2025. The Author(s).

18. Olfactory function is longitudinally associated with semantic fluency in Parkinson's disease: a cohort study.

Authors: Roos D.S.;Berendse H.W.;Doty R.L.;Twisk J.W.R. and Klein, M.

Publication Date: 2025

Journal: Journal of Neurology 272(9) (pagination), pp. Article Number: 604. Date of Publication: 01 Se 2025

Abstract: Background: Olfactory dysfunction is an early, common, and progressive symptom in Parkinson's disease (PD). Whether the decline in olfactory function is longitudinally associated with a

deterioration of (non-)motor symptoms remains debated. Objective(s): This study aimed to investigate the longitudinal relationship between olfactory function and (non-)motor symptoms, particularly cognitive decline, in PD patients over a ten-year follow-up period. Method(s): Ninety patients were assessed at baseline and after approximately ten years. Olfactory function was measured using the 40-item University of Pennsylvania Smell Identification Test (UPSIT). (non-)Motor symptoms were evaluated using various scales and questionnaires, including the MMSE to assess global cognitive function. Linear regression was used to analyze the change in olfactory function over time in relation to changes in (non-)motor function, and to determine whether baseline olfactory test scores would be associated with (non-)motor function at follow-up. In a subset of 62 patients, in whom comprehensive cognitive testing was performed, we analyzed the longitudinal relationship between olfactory function and performance on specific cognitive tests. Result(s): Statistically significant associations were found between a decrease in UPSIT scores and decline in MMSE, and between baseline UPSIT scores and MMSE performance at follow-up. In the subgroup with comprehensive cognitive testing, a decrease in UPSIT scores was associated with worsening semantic fluency. Furthermore, an association was found between baseline UPSIT score and semantic fluency at follow-up. Conclusion(s): Decline in olfactory function in PD is longitudinally associated with worsening global cognitive function, particularly a deterioration in semantic fluency. Baseline olfactory function may be predictive of later cognitive decline, especially in the semantic domain. Copyright © The Author(s) 2025.

19. Anxiety-related attentional characteristics and their relation to freezing of gait in people with Parkinson's: Cross-validation of the Adapted Gait Specific Attentional Profile (G-SAP).

Authors: Rosenblum U.;Cocks A.J.;Norris M.;Kal E. and Young, W. R.

Publication Date: 2025

Journal: Journal of Parkinson's Disease 15(4), pp. 829–842

Abstract: Background: Anxiety often exacerbates freezing of gait (FOG) in people with Parkinson's (PwP). Anxiety-related attentional processes and associated processing inefficiencies, like conscious movement processing (CMP) and ruminations, can substantially impact movement control. However, their impact on FOG remains largely unexplored. Objective(s): To validate an adapted 10-item (1-5 Likert scale) Gait-Specific Attentional Profile (G-SAP) in PwP and assess if adapted G-SAP-subcales (Physiological Arousal, CMP, Rumination, and Processing Inefficiencies) are associated with self-reported FOG frequency. Method(s): We recruited 440 PwP (Mage = 65.5 +/- 8.7; 5.8 +/- 5.0 years since diagnosis) across the UK. Participants completed the adapted G-SAP and questionnaires on demographics, medical background, and FOG frequency. We assessed adapted G-SAP's internal consistency, structural validity, and subscale scores associations with FOG frequency. Result(s): The adapted G-SAP showed acceptable internal consistency ($\alpha \geq 0.66$) and acceptable/good model fit (comparative fit index = 0.976). Physiological Arousal and CMP subscale scores presented weaker correlations for PwP with FOG (PwP + FOG, $r = 0.52$) compared to PwP without FOG (PwP-FOG, $r = 0.77$; $p = 0.006$). Higher Rumination (OR: 1.323, 95%CI: [1.214-1.440]) and Physiological Arousal (OR: 1.195, 95%CI:[1.037-1.377]) were significantly associated with higher FOG frequency, controlling for age, time since diagnosis and balance/gait problems. Conclusion(s): The adapted G-SAP is reliable and convenient to measure and identify potentially maladaptive anxiety-related attentional processes that may impact FOG. Results suggest that PwP who experience more worrisome thoughts and greater physiological arousal in daily life are likelier to freeze. Compared to PwP-FOG, for PwP + FOG high physiological arousal was associated with reduced goal-directed focus of attention. Future research will determine if this is a causal risk factor. Copyright © The Author(s) 2025. This article is distributed under the terms of the Creative Commons Attribution 4.0 License (<https://creativecommons.org/licenses/by/4.0/>) which permits any use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

20. Combined Effects of Depression, Fatigue and Cardiovascular Dysfunction on Functional Dependence Over Seven Years in Early Parkinson's Disease.

Authors: Stewart C.B.;Sathyanarayana S.;Foster V.K.;Iredale R.;Galley D.;Pasquini J.;Anderson K.N.;Pavese N. and Ledingham, D.

Publication Date: 2025

Journal: Movement Disorders Clinical Practice (pagination), pp. Date of Publication: 2025

Abstract: Background: Parkinson's disease (PD) is associated with both motor and non-motor symptoms, which collectively impact activities of daily living (ADLs) and contribute to the loss of functional independence. There is a lack of understanding of how non-motor symptoms drive this loss in independence. Objective(s): This study aims to firstly implement a milestone-based approach to determine the time-points at which subjects with PD require help with specific tasks, using current gold-standard scales. Secondly, we aimed to explore the influence of motor and non-motor symptoms on the progression of functional dependence in individuals with early-stage PD over a 7-year period. Method(s): Using data from 166 PD participants, obtained from the Parkinson's Progression Markers Initiative (PPMI), we determined the time taken to reach the first functional dependence "event" over 7 years of annual visits, using clinician- and patient-reported outcomes, including the Schwab & England ADL scale and the MDS-UPDRS Parts I and II. To determine the effect of non-motor symptoms on functional dependence, linear mixed modelling was employed, adjusting for key motor variables, medication, age, sex and PD duration. Result(s): Depression, fatigue, and motor impairment emerged as significant influencers of functional dependence, with cardiovascular dysfunction nearing significance. Conclusion(s): We identified that, over time, both motor and non-motor symptoms contributed to the decline in functional independence, with depression, fatigue and cardiovascular dysfunction playing a particularly prominent role. These findings highlight the importance of a comprehensive, multidisciplinary approach to PD management, addressing both motor and non-motor symptoms to improve long-term outcomes and quality of life. Copyright © 2025 The Author(s). Movement Disorders Clinical Practice published by Wiley Periodicals LLC on behalf of International Parkinson and Movement Disorder Society

21. Detection of cognitive deficits years prior to clinical diagnosis across neurological conditions.

Authors: Tai X.Y.;Toniolo S.;Llewellyn D.J.;Van Duijn C.M.;Husain M. and Manohar, S. G.

Publication Date: 2025

Journal: Brain Communications 7(5) (pagination), pp. Article Number: fcab307. Date of Publication: 2025

Abstract: Understanding the cognitive trajectory of a neurological disease can provide important insight on underlying mechanisms and disease progression. Cognitive impairment is now well established as beginning many years before the diagnosis of Alzheimer's disease, but pre-diagnostic profiles are unclear for other neurological conditions that may be associated with cognitive impairment. We analysed data from the prospective UK Biobank cohort with study baseline assessment performed between 2006 and 2010 and participants followed until 2021. We examined data from 497 252 participants, aged between 38 and 72 years at baseline, with an imaging sub-sample of 42 468 participants. Using time-to-diagnosis and time-from-diagnosis data in relation to time of assessment, we compared a continuous measure of executive function and magnetic resonance imaging brain measures of total grey matter (GM) and hippocampal volume in individuals with ischaemic stroke, focal epilepsy, Parkinson's disease, multiple sclerosis, motor neurone disease (amyotrophic lateral sclerosis) and migraine. Of the 497 252 participants [226 206 (45.5%) men, mean (SD) age, 57.5(8.1) years], 12 755 had ischaemic stroke, 6758 had a diagnosis of focal epilepsy, 3315 had Parkinson's disease, 2315 had multiple sclerosis, 559 had motor neurone disease and 18 254 had migraine either at study baseline or diagnosed during the follow-up period. Apart from motor neurone disease, all conditions had lower pre-diagnosis executive function compared to controls (assessment performed median 7.4 years before diagnosis). At a group level, focal epilepsy and multiple sclerosis showed a gradual

worsening in executive function up to 15 years prior to diagnosis, while ischaemic stroke was characterised by a modest decline for a few years followed by a substantial reduction at the time of diagnosis. By contrast, participants with migraine showed a mild reduction in pre-diagnosis cognition compared to controls which improved following clinical diagnosis. Pre-diagnosis MRI GM volume was lower than controls for stroke, Parkinson's disease and multiple sclerosis (scans performed median 1.7 years before diagnosis), while other conditions had lower volumes post-diagnosis. These cognitive trajectory models reveal disease-specific temporal patterns at a group level, including a long cognitive prodrome associated with focal epilepsy and multiple sclerosis. The findings may help to prioritise risk management of individual diseases and inform clinical decision-making. Copyright © 2025 The Author(s).

22. Healthcare Service Utilisation of People Living With Non-Alzheimer's Dementia: A Systematic Review.

Authors: Tjin A.;Thang L.L.;Sondh H.K. and Stewart, R.

Publication Date: 2025

Journal: Journal of Geriatric Psychiatry and Neurology (pagination)

Abstract: Introduction: The global rise in dementia presents significant challenges for healthcare systems. While Alzheimer's disease (AD) dominates dementia care, people with non-Alzheimer's dementias (non-AD), such as dementia with Lewy bodies (DLB), frontotemporal dementia (FTD), vascular dementia (VD), and Parkinson's disease dementia (PDD), often have distinct and unmet healthcare needs. Aim(s): This systematic review aimed to summarise evidence on healthcare utilisation (HCU) patterns and factors affecting care among people living with non-AD dementias. Method(s): Following a PROSPERO-registered protocol (CRD42024568391), comprehensive searches of Embase, Ovid MEDLINE, Global Health, PsycINFO, and PubMed were conducted in February and June 2024. Peer-reviewed English-language studies reporting on HCU or its determinants in DLB, FTD, VD, or PDD were included. Reviews, case reports, grey literature, and studies without subtype-specific data were excluded. Quality was assessed using the Newcastle-Ottawa Scale. Result(s): Thirty-one studies (16 cohort; 10 cross-sectional, 4 case-description, and 1 chart review) were included. HCU varied by dementia subtype and was influenced by sociodemographic, cognitive, and clinical factors. Compared with AD, non-AD dementias had higher healthcare use and costs. PDD showed the highest inpatient, outpatient, and skilled nursing care use, driven by severe cognitive decline. DLB was linked to unplanned hospital admissions and frequent ambulance use, often due to falls and pneumonia. FTD resulted in extended hospital stays related to behavioural symptoms, while VD incurred high costs due to chronic comorbidities and long-term care needs. Conclusion(s): People with non-AD dementias have greater and distinct healthcare needs. Future research should develop standardised measures and tailored interventions to address their complex socioeconomic and clinical requirements. Copyright © The Author(s) 2025. This article is distributed under the terms of the Creative Commons Attribution 4.0 License (<https://creativecommons.org/licenses/by/4.0/>) which permits any use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the SAGE and Open Access page (<https://us.sagepub.com/en-us/nam/open-access-at-sage>).

23. 'It Would've Been Nice to Know About Allied Health Earlier': Insights From People With Parkinson's Disease.

Authors: Wong C.M.;Dennis S.M.;Allen N.E. and Paul, S. S.

Publication Date: 2025

Journal: Health Expectations : An International Journal of Public Participation in Health Care and Health Policy 28(4), pp. e70391

Abstract: INTRODUCTION: Allied health interventions can improve impairments and quality of life for people with Parkinson's disease (PwPD). However, allied health services are underutilised, and PwPD

encounter barriers when accessing allied health. This study examined the allied health referral patterns of PwPD in New South Wales, Australia, from their perspective. **METHOD(S):** Community-dwelling PwPD and their care-partners (CPs) were recruited. Participants completed a questionnaire, two-stage semi-structured interviews and a structured retrospective chart to track their PD journey. **RESULT(S):** Eighteen PwPD and five CPs participated, including six from culturally and linguistically diverse (CALD) backgrounds, two of whom required an interpreter. The Levesque model of healthcare access was utilised to describe this study's themes. The approachability and appropriateness of allied health services varied, as did participants' ability to perceive the need for services. CALD participants' fluency in English further impacted their perceptions, and they often found traditional medicine more acceptable. Health service availability was limited, particularly when accessing multidisciplinary care and in regional areas. Participants who lived alone or did not drive had limited ability to reach services. A lack of affordable services and limited ability to pay contributed to difficulties accessing allied health interventions; this could be somewhat relieved by funding packages. The ability to seek and engage in healthcare was present in all participants. **CONCLUSION(S):** PwPD recognise the need for allied health but experience barriers when accessing care, resulting in them not receiving the recommended early, regular and ongoing allied healthcare. Funding arrangements should be reviewed to enable this. **PATIENT OR PUBLIC CONTRIBUTION:** People with Parkinson's disease and their care-partners generated the findings of this study through their interviews and retrospective charts. They provided feedback on results via member checking of their transcripts. **CLINICAL TRIAL REGISTRATION:** Not applicable. Copyright © 2025 The Author(s). Health Expectations published by John Wiley & Sons Ltd.

24. Prevalence of COVID-19 in patients with parkinson's disease and the impact of parkinson's disease on COVID-19 prognosis.

Authors: Yildiz D.;Buyukkoyuncu Pekel N.;Yuksel M.;ozdemir A.;cetin kenan E. and ozturkci, M. F.

Publication Date: 2025

Journal: Acta Neurologica Belgica (pagination), pp. Date of Publication: 2025

Abstract: Objective: This study aimed to retrospectively evaluate the prevalence of COVID-19 infection among patients with Parkinson's disease (PD), along with the clinical course and factors associated with mortality. Method(s): A total of 1,786 patients diagnosed with Parkinson's disease and registered at our hospital were screened. Among these, 222 had undergone PCR testing for COVID-19, of whom 76 tested negative and 152 tested positive, indicating a COVID-19 prevalence of 8.51% in the PD population. Due to insufficient data, 63 of the COVID-19 positive patients were excluded. The final study cohort included 177 patients: 89 patients with PD (50.3%) and 88 age- and sex-matched controls (49.7%). Clinical, laboratory, and prognostic parameters were compared between groups. Result(s): The prevalence of dementia was significantly higher in the PD group. Mortality at both 28 and 90 days was also significantly increased among patients with PD. Notably, those receiving combined therapy with dopamine agonists and levodopa had lower mortality rates at both time points. In patients who died within 28 or 90 days, levels of age, neutrophil count, lymphocyte count, D-dimer, ferritin, C-reactive protein (CRP), and troponin differed significantly compared to survivors. Conclusion(s): Patients with Parkinson's disease represent a vulnerable population at increased risk for adverse outcomes from COVID-19. Close clinical monitoring, continuous dopaminergic treatment, and a personalized approach are essential for optimizing management during COVID-19 infection. Copyright © The Author(s) under exclusive licence to Belgian Neurological Society 2025.

25. Constipation preceding stroke, dementia and Parkinson's disease in middle-aged and older adults: A population-based cohort study.

Authors: Yun Q.;Wang S.;Li B.;Wei C.;Yuan J.;Hu J.;Li Y.;Yang Z.;Sha F. and Tang, J.

Publication Date: 2025

Journal: Age and Ageing 54(9) (pagination), pp. Article Number: afaf257. Date of Publication: 01 Se 2025

Abstract: Background Previous research indicates that constipation may be an early symptom of Parkinson's disease (PD). However, it remains uncertain whether constipation is a unique symptom prior to PD or to other major neurological disorders as well. This study aimed to explore the association between premorbid constipation and three major neurological disorders: stroke, dementia and PD. Methods We conducted a retrospective cohort study using data from UK Biobank. Constipation was defined based on diagnosed cases in electronic health records, self-reported instances or regular laxative use. The primary outcome was defined as the first onset of any of three neurological disorders: stroke, dementia and PD. Cox regression was used to adjust for socio-demographic characteristics, lifestyle factors, medical conditions and regular medication use. Results Out of 462,327 eligible participants, those with constipation were associated with higher incidence of three outcome diseases (1415/20,263 [7.0%]) than those without (18,848/442,064 [4.3%]), with adjusted hazard ratio (HR) being 1.35 [1.27-1.42]. Specifically, those with constipation had a 20%, 50% and 56% higher risk of stroke, dementia and PD, respectively. Both self-reported and diagnosed constipation were associated with a higher risk of these conditions, with HR being 1.31 (1.23-1.40) and 1.44 (1.30-1.59), respectively. Interestingly, the association between constipation and neurological disorders was stronger within the first 2 years from baseline. Discussion These findings support the biological link between constipation and neurological disorders. Given its potential role as a prodromal symptom for these diseases, both diagnosed and self-reported constipation should be considered in risk prediction models. Copyright © 2025 The Author(s). Published by Oxford University Press on behalf of the British Geriatrics Society. All rights reserved. For commercial re-use, please contact reprints@oup.com for reprints and translation rights for reprints. All other permissions can be obtained through our RightsLink service via the Permissions link on the article page on our site - for further information please contact journals.permissions@oup.com.

26. Differences in Writing and Drawing may Help Differentiate Parkinson's Disease from Essential Tremor.

Authors: Ferreira D.;Soares C.;Damas C.;Rosas M.J. and Araujo, R.

Publication Date: 2024

Journal: Sinapse 24(1), pp. 6–11

Abstract: Introduction: The ability to draw figures requires preserving visuospatial functions and motor pathways. The floating door sign (FDS) reflects the inability to join the vertical lines of a door with the floor when a patient is asked to draw a house. This signal was described as a positive predictive factor for Parkinson's Disease (PD), but not essential tremor (ET). Nevertheless, conflicting literature has emerged recently. We aim to evaluate the features of the FDS and other graphomotor tasks in patients with PD and ET. Method(s): Patients recruited from 2 hospital centers were asked to draw 3 pictorial elements (house, flower, and sun), write a sentence and perform 2 cognitive evaluations (pentagons copy and clock drawing test). Clinical and demographic characteristics from both groups were obtained. Result(s): A total of 54 patients (PD: 38; ET: 16) were included. FDS was more prevalent in PD patients (PD: 45% vs ET: 6%; $p = 0.005$), who also drew a significantly smaller house. PD patients drew a sun with a significantly smaller diameter, increased number of smaller sunbeams and a higher distance sun-sunbeam. Additionally, a significantly smaller flower and lower, flatter petals, with an increase distance petals-flower were also found in the PD patients' group. Comparing PD patients with positive versus negative FDS, we found that those with a positive FDS scored less on the pentagons copy (4.1 ± 1.8 vs 5.2 ± 1.2 ; $p=0.025$), with no significant differences in the UPDRS motor or micrographia-related scores. Conclusion(s): Graphomotor tasks, including the FDS, can be useful in the distinction of patients with PD and ET. The presence of the FDS could be associated to a mild visuospatial cognitive dysfunction. This potential interplay warrants further exploration in future studies. Copyright © Author(s) (or their employer(s)) and Sinapse 2024

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