

Parkinson's Disease

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April 2025

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1. Psychological stress associated with prognostic uncertainties in recently diagnosed Parkinson's disease patients: A qualitative study.

Authors: Aboelzahab, Yasmin H.;Bojmehrani, Azadeh;Ahmed, Yomna Elsheikh;Boon, Heather;Marras, Connie and Foty, Richard

Publication Date: 2025

Journal: PLoS ONE [Electronic Resource] 20(3), pp. e0319576

Abstract: BACKGROUND: Parkinson's disease (PD) is a common neurodegenerative disorder that negatively impacts thousands of patients in Canada. The unexpected nature of PD is associated with a decline in mental health. The highest level of psychological stress occurs during the early years following the diagnosis. OBJECTIVES: To understand the psychological stress associated with prognostic uncertainties in recently diagnosed PD patients, uncover the gaps in the current support systems, and recommend areas for improvement in the support services that aim to decrease the psychological stress associated with receiving the PD diagnosis. METHODS: An exploratory qualitative study was conducted using semi-structured interviews with 13 PD patients diagnosed for more than 6 months and less than 5 years. Participants were recruited from the Toronto Western Hospital Movement Disorders Clinic, Toronto, Ontario, Canada until saturation of key themes was reached. RESULTS: Five major themes were identified capturing the lived experiences of PD patients following diagnosis: 1) the circumstances of receiving the diagnosis and its psychological impact on PD patients, 2) the impact of intrapersonal factors on the PD journey, 3) the role of social relationships in PD patient's life, 4) the interaction of PD patients with different elements of the healthcare system, and 5) support services available for recently diagnosed PD patients. CONCLUSIONS: This study uncovers the psychological burden faced by PD patients due to prognostic uncertainties and insufficient support systems. It emphasizes the importance of a patient-centered approach for improving their quality of life and healthcare experiences through personalized support services. Copyright: © 2025 Aboelzahab et al. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

2. Clinical Response of Impulsive Behaviours to Deep Brain Stimulation in Parkinson's Disease (CRISP) study: A Multicentre Observational Study

Authors: Ahmed A., Shotbolt P., Okai D., Silverdale M., Sarangmat N., Misbahuddin E., Misbahuddin A., Macerollo A. and Pavese, N.

Publication Date: 2025

Publication Details: Brain Stimulation. Conference: 6th International Brain Stimulation Meeting. Kobe Japan. 18(1) (pp 535); Elsevier Inc.,

Abstract: Abstract Background: Subthalamic Nucleus (STN) is commonly targeted in Deep Brain Stimulation (DBS) in Parkinson's to treat medication resistant motor symptoms. However, STN plays an integral role in cognitive, motor, and emotional aspects of behaviours. It is still not established whether STN stimulation could lead to the worsening or development of de novo cases of Impulsive Compulsive Behaviours (ICBs). Method(s): This study is recruiting patients with Parkinson's undergoing DBS at 7 participating centres across the UK. Patients will complete a set of self-rated and clinician rated questionnaires including QUIP-RS, Parkinson's Impulse Control Scale (PICs) once before DBS activation, and three times 3, 6, 12 months after the operation. Objective(s): 1) Does DBS worsen, improve or lead to de novo cases of impulsive behaviours (QUIP-RS)? 2) Does DBS effect other psychiatric symptoms, including mood, apathy, personality traits and carer's burden? Results: Currently, 73 (50 male) patients have been recruited, of which 61 have completed the 2nd postop 6-month follow-up. 26% of patients at baseline scored above the cutoff point on QUIP-RS for impulsivity. For individual impulsive behaviours on QUIP-RS, the prevalence at baseline was 32% (n=23) hobbyism-punding, 17.8% for binge eating (n=13), 16% (n=12) dopamine dysregulation syndrome, 6.8% hypersexuality (n=5), 5.5% gambling (n=4), 4.1% compulsive shopping (n=3). At 6 months postop, the impulsivity and anxiety reduced significantly while depression remain unchanged and apathy worsened. There were 7 cases of de novo ICBs. Discussion(s): The effects of STN-DBS are generally positive for impulsive behaviours but not equal across subtypes of these behaviours. Among de novo cases, more data has to be collected to identify contributing factors. Furthermore, the role of personality traits in impulsivity in DBS candidates requires further study. Conclusion(s): At 6-month postoperative follow-up, the results are generally positive for effects of STN-DBS on psychiatric profile of patients with Parkinson's, except for apathy. Research Category and Technology and Methods Clinical Research: 1. Deep Brain Stimulation (DBS) Keywords Impulsive Behaviours, Parkinson's, Deep Brain Stimulation, carer burdenCopyright © 2025

3. Predictors of brain iron deposition in dementia and Parkinson's disease-associated subcortical regions: genetic and observational analysis in UK Biobank.

Authors: Casanova F.;Tian Q.;Williamson D.S.;Lucas M.R.;Zweibaum D.;Ding J.;Atkins J.L.;Melzer D.;Ferrucci L. and Pilling, L. C.

Publication Date: 2025

Journal: medRxiv (pagination), pp. Date of Publication: 12 Feb 2025

Abstract: Background Brain iron in specific subcortical regions increases risk of dementia and Parkinson's Disease (PD). Genetic and environmental factors affect iron deposition, but the underlying mechanisms are unclear. Objective Identify risk factors and diseases associated with brain iron, and assess causality using genetics. Methods 41,581 UK Biobank participants had MRI-estimated brain iron in four dementia or PD-associated subcortical regions (Caudate, Putamen, Substantia Nigra, Thalamus). We investigated common risk factors (including adiposity, blood pressure, health behaviours, and inflammation) and diseases observationally, using covariate-adjusted regression models, and genetically, with Mendelian randomization. Results Participants diagnosed with Alzheimer's disease, PD, or other diseases had higher brain iron. Anaemia, osteoporosis, and hyperparathyroidism were associated with lower brain iron. Higher BMI and blood pressure, history of smoking, and self-reported meat consumption, increased brain iron. Haematological parameters, inflammatory and kidney biomarkers, and calcium, were also associated. Genetics support causal effects of depression, type-2 diabetes, and 7 other diseases with increased iron, but not Alzheimer's disease. Evidence supports a causal effect of osteoporosis on lower iron in the substantia nigra. We found causal associations between adiposity and proteins (such as IL-6 receptor and transferrin receptor) on subcortical brain iron. Conclusions We identified causal effects for liability to type-2 diabetes, depression, and other conditions, on subcortical iron deposition, but not to Alzheimer's disease, supportive of dementia as a consequence of brain iron deposition, not a cause. The role of adiposity reducing interventions on brain iron should be investigated. Relationships between brain iron, osteoporosis, calcium, and hyperparathyroidism warrant further investigation. Copyright The copyright holder for this preprint is the author/funder, who has granted medRxiv a license to display the preprint in perpetuity. It is made available under a CC-BY-ND 4.0 International license.

4. Improving bone health assessments in Parkinson's clinic

Authors: Chisanga B., Adhi R.W. and Pugh, L.S.

Publication Date: 2025

Publication Details: Age and Ageing. Conference: British Geriatrics Society Autumn Meeting 2024. London United Kingdom. 54(Supplement 1) (pp i4); Oxford University Press,

Abstract: Introduction: People with Parkinson's disease are more likely to have osteoporosis and falls. They also have a higher risk of fractures, and their outcomes are poorer than in the general population. Despite this, only half of the patients seen in Parkinson's clinic have a bone health assessment. The aim of this project was to improve bone health assessments in

the Parkinson's clinic at Mansfield Community Hospital. Method(s): One plan-do-study-act cycle was completed with the implementation of a Parkinson's fracture risk assessment tool in the clinic. 19 clinic notes were evaluated over an 8-week period. The notes were scored on whether bone health was addressed using the assessment tool. Feedback was collected from the clinicians about utilising the assessment tool in clinic. The FRAX (Fracture risk assessment) tool was also used to calculate the risk of fractures in the patients selected. Result(s): 16/19 (84%) notes had used the risk assessment tool in clinic. There was an improvement in the bone health assessments in clinic from 5% (1/19) at baseline to 29% (5/17). The Parkinson's risk assessment tool's identification of individuals who were high risk of fractures, correlated with those identified as high risk using FRAX. The clinicians had positive reviews of the tool, but they highlighted the time constraints. Conclusion(s): Whilst the use of the assessment tool has shown some improvement in the number of bone health assessments happening in clinic; it hasn't resulted in all patients having an assessment. This is likely due to the time constraints in clinic. This project was successful in highlighting the current problem to the clinicians and has led the development of a further separate clinic, where bone heath can be addressed. The risk assessment tool plays an important role in identifying high risk patients who would be referred into this service.

5. The role of uric acid in Parkinson's disease: a UK brain bank pathology-validated case-control study.

Authors: di Biase L.; Pecoraro P.M.; Carbone S.P. and Di Lazzaro, V.

Publication Date: 2025

Journal: Neurological Sciences (pagination)

Abstract: Introduction: Uric acid has been supposed to have a protective role in Parkinson's disease with controversial findings. This relationship has not been validated with pathologyconfirmed diagnoses. This study aims to compare uric acid levels between pathologyconfirmed and clinically-misdiagnosed Parkinson's disease patients over time. Method(s): 65 patients with an in-vivo clinical diagnosis of Parkinson's disease were enrolled from the UK Brain Bank. 33 were confirmed with post-mortem pathology analysis, while 32 were clinically misdiagnosed patients. Chart review explored uric acid levels at two timepoints (NO and N1). A repeated-measures ANOVA evaluated uric acid level variation over time and determined differences between the groups, including timespan between samples, disease duration, age at death, age of onset and sex as covariates. Result(s): Average uric acid levels at N0 were 5.83 mg/dl (SD +/- 1.99) and 5.94 mg/dl (SD +/- 1.87) for respectively true and false positives. At N1, the values were 7.61 mg/dl (SD +/- 2.35) and 7.36 mg/dl (SD +/- 2.86) for respectively true and false positives. A significant main effect of time on uric acid levels was found (F(1, 58) = 4.303, p = 0.042, eta2 p = 0.069). The interaction between time and the covariates was not significant, suggesting that these variables did not influence uric acid level variation over time. No influence of the diagnostic confirmation and covariates on uric acid levels between groups was found. Conclusion(s): While uric acid levels increase over time in Parkinson's disease patients, this increase does not differ significantly between those with confirmed and unconfirmed diagnoses, nor it is influenced by disease duration, age at death, age of onset or sex.Copyright © Fondazione Societa Italiana di Neurologia 2025.

6. The Influence of Gender and Length of Therapy Use on Sleep Quality in Patients with Parkinson's Disease.

Authors: Dostovic, Zikrija;Mesic, Nermin;Suljkanovic, Nerimana and Salihovic, Denisa

Publication Date: 2025

Journal: Materia Sociomedica 37(1), pp. 58-63

Abstract: Background: Normal sleep duration is crucial for maintaining brain homeostasis. Sleep disorders in Parkinson's disease are numerous, multifactorial, and result in significant morbidity. Objective: The aim of the study was to investigate the association between gender and the duration of therapy on sleep quality in patients with Parkinson's disease. Methods: The study is prospective, and includes 40 consecutively hospitalized patients with verified Parkinson's disease. The study included subjects of both genders and all age groups. To analyze the data on the subjects, we used: medical histories, nursing documentation of patients, a questionnaire with sociodemographic data, and the Parkinson's Disease Sleep Assessment Scale. We divided all subjects into two groups: subjects who have been using therapy for up to 5 years and those who have been using therapy for more than 5 years. Results: Among subjects who have been taking medication for less than 5 years, 33.3% were female and 66.6% were male. Of the total number of respondents who have been taking therapy for more than 5 years, 36.3% are female and 63.6% are male. The duration of the therapy has a statistically significant effect on the quality of sleep in patients with Parkinson's disease (p 0.05). The interaction of gender and length of therapy use has no significant separate effect on the quality of sleep in Parkinson's disease patients (p > 0.05). The quality of sleep is better in male and female subjects who take the therapy until the age of 5. Conclusion: The duration of therapy use has a significant impact on the guality of sleep in Parkinson's disease patients. The gender of the subject has no significant independent influence on the quality of sleep in patients with Parkinson's disease. Copyright © 2025 Zikrija Dostovic, Nermin Mesic, Nerimana Suljkanovic, Denisa Salihovic.

7. Parkinson's Disease: From Bench to Bedside-Advancements in Diagnosis and Therapeutics using Pharmacogenomic Approach.

Authors: M S. and Kadiri, S. K.

Publication Date: 2025

Journal: Current Gene Therapy (pagination), pp. Date of Publication: 12 Feb 2025

Abstract: This article provides a detailed look at Parkinson's disease (PD), a neurodegenerative ailment mostly known for movement difficulties such tremor, stiffness, and bradykinesia, which affects approximately 1% of persons over the age of 60. Although the precise cause of PD is still unknown, various factors such as pesticide exposure, genetics, and lifestyle choices like smoking and caffeine consumption are thought to play a role in its development. The presence of Lewy bodies characterizes the disease, the aggregation of alpha-synuclein, the loss of dopaminergic neurons in the substantia nigra, and disruptions in basal ganglia circuitry, resulting in both motor and nonmotor symptoms. This review is

structured into several key sections, beginning with an exploration of the pathophysiological mechanisms behind PD, including how genetic mutations can lead to deficits in the Ubiquitin Proteasome System and mitochondrial function, which are linked to familial cases of the disease. Following this, the article explores diagnostic methods, such as the UK Brain Bank Criteria, advanced imaging techniques, olfactory testing, and innovative technologies like machine learning, all of which support early detection and accurate diagnosis of PD. Treatment strategies are also comprehensively reviewed, focusing on traditional pharmacological options like levodopa and dopamine agonists, as well as surgical interventions such as deep brain stimulation. Additionally, the review discusses promising new therapies, including immunotherapy aimed at neuroinflammation and gene therapy for disease modification. The impact of lifestyle changes such as exercise and diet on reducing PD risk and enhancing symptom management are also considered. In conclusion, this review highlights the complex nature of Parkinson's disease and underscores the need for a holistic approach that combines pharmacotherapy, advanced treatments, and lifestyle adjustments. By addressing both symptom management and disease modification, these strategies provide hope for improving guality of life.Copyright© Bentham Science Publishers; For any gueries, please email at epub@benthamscience.net.

8. Non-motor fluctuations in Parkinson's disease: frequency and clinical correlate.

Authors: Mujahid B.I.M.; Holla V.V.; Kamble N.; Yadav R.; Pal P.K. and Mahale, R. R.

Publication Date: 2025

Journal: Journal of Neural Transmission (pagination)

Abstract: Non-motor symptoms (NMS) occur in 60-97% of Parkinson's disease (PD) patients. NMS show fluctuations over the course of the day referred to as non-motor fluctuations (NMF). To assess the frequency, severity, predictors and effect of the NMF on the quality of life in PD patients. This was a cross-sectional, hospital based, single-centre study. A total of 150 patients with PD were recruited. NMF was assessed using the MDS-Non-motor rating scale (MDS-NMS) and the Non-motor fluctuation assessment guestionnaire (NoMoFA). The mean age at presentation and age at onset was 51.3 +/- 10.8 years and 44.6 +/- 11.1 years respectively and male predominance (75.3%). The mean duration of parkinsonism was 5.3 +/-3.7 years. Motor fluctuations (MF) were seen in 97 patients. A total of 143 patients (95.3%) had at least single NMS. Depression, cognition and pain was the most common NMS domain. NMF was seen in 57 patients (39.8%). NMF occurred in 50.5% in PD patients with MF. Pain was the most frequent NMS which showed NMF followed by fatigue, anxiety and depression. Pain had greater degree of change from ON to OFF period as compared to other NMS domains. NMF was associated with longer disease duration, higher levodopa dose and longer levodopa intake, greater motor severity, MF, higher NMS burden and poor guality of life. NMF is seen in association with MF. Pain, anxiety, depression and fatigue was the common NMS showing NMF. Pain had a large degree of fluctuation in the severity.Copyright © The Author(s), under exclusive licence to Springer-Verlag GmbH Austria, part of Springer Nature 2025.

9. Assessing and managing bone health and fracture risk in Parkinson's disease: the BONE PARK 2 protocol.

Authors: Naylor K.C.; Tenis On E.; Hardcastle S.A.; Lyell V.; Gregson C.L. and Henderson, E. J.

Publication Date: 2025

Journal: Age and Ageing 54(3) (pagination), pp. Article Number: afaf052. Date of Publication: 01 Mar 2025

Abstract: Background: In Parkinson's disease (PD), the propensity to fall and the higher risk of osteoporosis converge yielding a high fracture risk. Updated National Osteoporosis Guideline Group (NOGG) guidance recommends that PD should trigger a risk assessment, for example using the FRAX tool, yet clinical pathways remain sub-optimal. To address this, we generated an algorithm for the assessment and management of bone health specifically in PD. Method(s): Within the Proactive and Integrated Management and Empowerment in Parkinson's Disease randomised controlled trial (PRIME-UK RCT), bone-health metrics were collected, and all participants were offered a dual X-ray absorptiometry scan. The FRAX tool was used to obtain the 10-year probability of hip and major osteoporotic fracture (MOF), and the resulting NOGG risk-category recorded. Probabilities were recalculated including femoralneck bone mineral density (FN-BMD) and/or with numeric adjustment for recurrent falls, and results compared. Result(s): Among 182 people with parkinsonism (mean age 73.8 years, 65% male, median disease duration 5 years), 28% reported a prior fragility fracture, and 40.7% recurrent falls over the previous year. 28.6% had MOF above NOGG intervention thresholds (IT); whilst 12.1% had a FN-BMD T-Score Result(s): Among 182 people with parkinsonism (mean age 73.8 years, 65% male, median disease duration 5 years), 28% reported a prior fragility fracture, and 40.7% recurrent falls over the previous year. 28.6% had MOF above NOGG intervention thresholds (IT); whilst 12.1% had a FN-BMD T-Score Conclusion(s): This 2024 BONE-PARK algorithm is informed by both the latest NOGG Guidelines and novel findings in a 'real-world' population. The algorithm will aid bone health assessment for people with PD.Copyright © 2025 The British Geriatrics Society.

10. A decision aid is not the quick fix for improving shared decision-making in advanced Parkinson's disease: results of a mixed methods feasibility study.

Authors: Nijhuis, Frouke A. P.;Schippers, Bas;Bloem, Bastiaan R.;Post, Bart and Meinders, Marjan J.

Publication Date: Mar 13,2025

Journal: Journal of Neurology 272(4), pp. 269

Abstract: BACKGROUND: Choosing a device-assisted treatment for persons with Parkinson's disease (PwPD) is a complex decision. We developed a shared decision-making (SDM) intervention to facilitate this decision. In this study, we evaluate the feasibility of this intervention from the patients' perspective. METHODS: We performed a multi-center, mixed-methods feasibility study with an uncontrolled pre-post-intervention design. Five neurologists and seven Parkinson nurse specialists from five Dutch hospitals participated. We aimed to

enroll 20 PwPD in the usual-care group receiving decision support as usual, and 20 PwPD receiving the SDM intervention. The intervention consisted of a patient decision aid and a training for professionals. We evaluated feasibility by measuring acceptability, level of implementation, efficacy and the study procedures. For data collection, we used questionnaires, interviews, cognitive testing, consultation recordings, fieldnotes, and usage of the patient decision aid. RESULTS: We included 19 PwPD in the usual-care group and 13 in the intervention group. Acceptability was good and implementation levels at the patient level were adequate: 92% of the participants used the patient decision aid, of which 77% the website and 69% the value clarification tool. The intervention improved PwPD's knowledge on treatment options, however, it did not improve SDM. The SDM intervention was not used as intended and the initial treatment preference of either the PwPD or the professional directed the information exchange. CONCLUSIONS: Inclusion of PwPD for the study was limited. Acceptability of the SDM intervention was good, however, the patient decision aid should be used in collaboration between physicians and patients to enhance SDM. TRIAL REGISTRATION: NTR6649, registered 28-08-2017 (available through ICTRP search portal). Copyright © 2025. The Author(s).

11. Correlation between levodopa equivalent daily dose (LEDD) and sleep quality in Parkinson's disease patient as weighed by Parkinson's disease sleep scale-2 (PDSS-2).

Authors: Nugraha P.;Soedjono H.K.;Islamiyah W.R. and Hamdan, M.

Publication Date: 2025

Journal: Journal of Neurosciences in Rural Practice 16(1), pp. 96–98

Abstract: Parkinson's disease (PD) is the most prevalent movement disorder that affects the central nervous system. The main non-motor symptoms of PD are sleep disturbances. One reason for sleep impairments in PD is the impact of dopaminergic medications. Given the variability in each patient's medication regimen, a standardized measure like levodopa equivalent daily dose (LEDD) is used. The purpose of this observational cross-sectional analytical study is to determine the association between LEDD and sleep quality in PD patients, as weighed by the PD sleep scale-2. There are 50 participants in the walk-in patient and inpatient wards in Dr. Soetomo General Academic Hospital and Airlangga University Hospital Surabaya. Spearman analysis showed a non-significant result (P = 0.15). Bivariate analysis of anxiety against sleep quality revealed a significant relationship (P = 0.017). After performing a stratified analysis, there is no correlation (P = 0.863) in the non-anxiety group.Copyright © 2025 Published by Scientific Scholar on behalf of Journal of Neurosciences in Rural Practice.

12. Investigation of the Impact of Motor, Nonmotor, Cognitive, and Psychometric Features on Freezing of Gait in Parkinson's Disease.

Authors: Onder, Halil;Aydogan, Ali;Ulker, Aycan Cemil and Comoglu, Selcuk

Publication Date: Mar ,2025

Journal: European Journal of Neuroscience 61(5), pp. e70044

Abstract: There are still debates regarding the pathophysiology of freezing of gait (FOG) in Parkinson's disease (PD). This study aims to investigate the potential contribution of the nonmotor symptoms in the pathophysiology of FOG. This was a cross-sectional observational cohort study where we enrolled all consecutive PD patients who applied to our movement disorders outpatient clinics at Etlik City Hospital, Ankara, Turkey, between January 2024 and August 2024. We performed comprehensive assessments including scales to evaluate both motor and nonmotor features, psychometric properties, and cognitive characteristics. In the hierarchical regression analyses, we sought to examine the contributory role of the motor, nonmotor, neuropsychological, and cognitive symptom load on FOG one by one. We included 45 PD patients with a mean age of 61.9 +/- 8.6. The median disease duration was 5 years (range: 20), the median MDS-UPDRS-3-off score was 33 (range: 20.5). The comparative analyses between patients with (n = 21) and without FOG (n = 24) revealed that the scores regarding the MDS-UPDRS-1 (p = 0.04), MDS-UPDRS-3 (p = 0.00), MDS-UPDRS-3-axial subscore (p = 0.00), NMSS (p = 0.017), SMMSE (p = 0.02), forward counting (p = 0.044), backward counting (p = 0.015), JLO (p = 0.033), HAM-A (p = 0.006), and HDRS (p = 0.006) were all higher in the FOG (+) group. In the hierarchical regression analyses, the MDS-UPDRS-3-off score was the only predictive factor of FOG severity in the model evaluating the motor factors (B = 0.251, p = 0.000) and also the other models which we included the other nonmotor features one by one. Our findings showed that nonmotor symptoms, cognitive functions, and psychometric properties do not provide a contributory effect to the motor severity on the FOG severity. Copyright © 2025 Federation of European Neuroscience Societies and John Wiley & Sons Ltd.

13. Physiotherapy treatment at home for patients with parkinsonian disorders, effects on disability, pain and gait: a cross-sectional study.

Authors: SousaFraguas M.C.; Conejo N.M.; LastraBarreira D. and RodriguezFuentes, G.

Publication Date: 2025

Journal: European Journal of Physiotherapy (pagination), pp. Date of Publication: 2025

Abstract: Background: Parkinsonian disorders lead to functional impairment that requires appropriate physiotherapy treatment. Home physiotherapy is presented as a possible treatment option. Objective(s): To describe the sociodemographic and clinical characteristics in patients with parkinsonian disorders referred to a home rehabilitation service. To know the degree of therapeutic adherence. To evaluate how the applied physiotherapy treatment influences pain, functional recovery and walking ability. Method(s): The medical records of patients with parkinsonian disorders admitted to a home rehabilitation service were retrospectively analysed. The main outcome measures were disability assessed by the Barthel Index (BI), pain with the Visual Analogue Scale and walking ability through Holden's functional ambulation categories. Result(s): 189 medical records were analysed; 54.5% had idiopathic Parkinson's disease, 38.1% secondary parkinsonism and 7.4% atypical parkinsonism. 24.42% of the men and 29.13% of the women showed improvements of more than 20% in the BI after the physiotherapy treatment. The therapeutic adherence rate was 94.21%. Conclusion(s): This home-based intervention helps to prevent functional deterioration and reduces the risk of potential complications in the evolution of the disease, such as the risk of falls or those derived from the progressive loss of mobility, with the associated hospital care costs.Copyright © 2025

14. Haploinsufficiency of ITSN1 is associated with a substantial increased risk of Parkinson's disease.

Authors: Spargo, Thomas P.;Sands, Chloe F.;Juan, Isabella R.;Mitchell, Jonathan;Ravanmehr, Vida;Butts, Jessica C.;De-Paula, Ruth B.;Kim, Youngdoo;Hu, Fengyuan;Wang, Quanli;Vitsios, Dimitrios;Garg, Manik;Middleton, Lawrence;Tyrlik, Michal;Messa, Mirko;Del Angel, Guillermo;Calame, Daniel G.;Saade, Hiba;Robak, Laurie;Hollis, Ben, et al

Publication Date: Mar 25 ,2025

Journal: Cell Reports 44(3), pp. 115355

Abstract: Despite its significant heritability, the genetic basis of Parkinson's disease (PD) remains incompletely understood. Here, in analyzing whole-genome sequence data from 3,809 PD cases and 247,101 controls in the UK Biobank, we discover that protein-truncating variants in ITSN1 confer a substantially increased risk of PD ($p = 6.1 \times 10^{-7}$; odds ratio [95% confidence interval] = 10.5 [5.2, 21.3]). We replicate this association in three independent datasets totaling 8,407 cases and 413,432 controls (combined $p = 4.5 \times 10^{-12}$). Notably, ITSN1 haploinsufficiency has also been associated with autism spectrum disorder, suggesting variable penetrance/expressivity. In Drosophila, we find that loss of the ITSN1 ortholog Dap160 exacerbates alpha-synuclein-induced neuronal toxicity and motor deficits, and in vitro assays further suggest a physical interaction between ITSN1 and alpha-synuclein. These results firmly establish ITSN1 as a PD risk gene with an effect size exceeding previously established loci, implicate vesicular trafficking dysfunction in PD pathogenesis, and potentially open new avenues for therapeutic development. Copyright © 2025 The Authors. Published by Elsevier Inc. All rights reserved.

15. Efficacy of virtual reality-based cognitive behavioral group therapy in enhancing emotional well-being and quality of life in Parkinson's disease: A randomized controlled trial.

Authors: Tayyebi, Gooya;Asadiof, Farnaz;Hashempour, Bahar;Lotfi, Mohsen;Taheri, Mostafa and Naeim, Mahdi

Publication Date: 2025

Journal: Clinical Parkinsonism & Related Disorders 12, pp. 100316

Abstract: Objective: This study evaluates the effectiveness of virtual reality-based cognitive behavioral group therapy (VR-CBGT) in improving emotional well-being and quality of life in individuals with Parkinson's disease. Methods: A randomized controlled trial was conducted in 2023 at Roozbeh Hospital, Tehran, with 90 Parkinson's patients. Participants were randomly assigned to an intervention group receiving 12 VR-CBGT sessions over three months with a control group receiving standard medical care without psychological intervention. Emotional well-being was assessed using the Hospital Anxiety and Depression Scale (HADS), and

quality of life was measured with the Parkinson's Disease Questionnaire-39 (PDQ-39) before and after the intervention. Data were analyzed using Multivariate Analysis of Covariance (MANCOVA) in SPSS-25. Results: The intervention group demonstrated a significant improvement in emotional well-being (HADS-total score reduction of 7.2 points, P : The intervention group demonstrated a significant improvement in emotional well-being (HADStotal score reduction of 7.2 points, P Conclusion: These findings highlight VR-CBGT as an effective complementary intervention for enhancing psychological health and overall quality of life in Parkinson's patients. The immersive nature of VR fosters engagement and facilitates cognitive and emotional processing, supporting its integration into multidisciplinary treatment approaches. Copyright © 2025 The Author(s).

16. Analysis of C9orf72 repeat length in progressive supranuclear palsy, corticobasal syndrome, corticobasal degeneration, and atypical parkinsonism.

Authors: Vaughan, David P.;Real, Raquel;Jensen, Marte Theilmann;Fumi, Riona G.;Hodgson, Megan;Jabbari, Edwin;Lux, Danielle;Wu, Lesley;Warner, Thomas T.;Jaunmuktane, Zane;Revesz, Tamas;Rowe, James B.;Rohrer, Jonathan and Morris, Huw R.

Publication Date: Mar 26 ,2025

Journal: Journal of Neurology 272(4), pp. 293

Abstract: BACKGROUND: Pathogenic hexanucleotide repeat expansions in C9orf72 are the commonest genetic cause of frontotemporal dementia and/or amyotrophic lateral sclerosis. There is growing interest in intermediate repeat expansions in C9orf72 and their relationship to a wide range of neurological presentations, including Alzheimer's disease, Parkinson's disease, progressive supranuclear palsy, corticobasal degeneration, and corticobasal syndromes. AIMS: To assess the prevalence of intermediate C9orf72 repeat expansions in a large cohort of prospectively-recruited patients clinically diagnosed with progressive supranuclear palsy (PSP), corticobasal syndrome (CBS), and atypical parkinsonism (APS), compared with healthy controls. We also sought to replicate the association between C9orf72 repeat length and CBD in neuropathologically confirmed cases. METHODS: 626 cases, including PSP (n = 366), CBS (n = 130), and APS (n = 53) from the PROSPECT study, and 77 cases with pathologically confirmed CBD were screened for intermediate repeat expansions in C9orf72 using repeat-primed PCR. These were compared to controls from the PROSPECT-M-UK study and from the 1958 Birth Cohort. RESULTS: There was no difference in the mean or largest allele size in any affected patient group compared with controls. A higher proportion of our affected cohort had large C9orf72 repeat expansions compared to controls, but there was no difference when comparing the frequency of intermediate expansions between affected patients and controls. There was no relationship between repeat length and age at onset, level of disability, or survival. CONCLUSIONS: Intermediate expansions in C9orf72 do not appear to be a genetic risk factor for PSP, CBS, CBD, or atypical parkinsonism. They are not associated with age at onset, disability, or survival in our study. Copyright © 2025. The Author(s).

17. Autonomic dysfunction in progressive supranuclear Palsy: A retrospective study.

Authors: Wang, Yichun; Xie, Manqing; Xu, Dan; Wang, Yanhong and Wang, Han

Publication Date: 2025

Journal: Clinical Parkinsonism & Related Disorders 12, pp. 100310

Abstract: Objectives: This study aims to investigate the characteristics of autonomic dysfunction in progressive supranuclear palsy (PSP) compared to Parkinson's disease (PD) and multiple system atrophy-parkinsonian type (MSA-P). Methods: We retrospectively reviewed 128 patients who underwent multidisciplinary team (MDT) intervention at Peking Union Medical College Hospital between March 31, 2021, and November 22, 2023. A total of 16 PSP, 27 MSA-P, and 11 PD patients were included. Autonomic dysfunction was assessed using the SCOPA-AUT scale and medical record data, analyzed with IBM SPSS Statistics 26. Results: SCOPA-AUT revealed varying degrees of autonomic dysfunction across all groups. The total SCOPA-AUT score was lower in PSP (16.88 +/- 6.70) than in MSA-P (23.33 +/- 8.80) (p = 0.019), but not significantly different from PD (18.64 +/- 9.80). All five SCOPA-AUT subscales were affected in PSP, though significant differences were found only in urinary control (p = 0.006) and urinary storage (p = 0.008) scores between PSP and MSA-P. Orthostatic hypotension was clinically identified in 7.7 % of PSP, 66.7 % of MSA-P, and 27.3 % of PD patients, with a significant difference between PSP and MSA-P (p : SCOPA-AUT revealed varying degrees of autonomic dysfunction across all groups. The total SCOPA-AUT score was lower in PSP (16.88 +/- 6.70) than in MSA-P (23.33 +/- 8.80) (p = 0.019), but not significantly different from PD (18.64 +/- 9.80). All five SCOPA-AUT subscales were affected in PSP, though significant differences were found only in urinary control (p = 0.006) and urinary storage (p = 0.008) scores between PSP and MSA-P. Orthostatic hypotension was clinically identified in 7.7 % of PSP, 66.7 % of MSA-P, and 27.3 % of PD patients, with a significant difference between PSP and MSA-P (p : SCOPA-AUT revealed varying degrees of autonomic dysfunction across all groups. The total SCOPA-AUT score was lower in PSP (16.88 +/- 6.70) than in MSA-P (23.33 +/- 8.80) (p = 0.019), but not significantly different from PD (18.64 +/-9.80). All five SCOPA-AUT subscales were affected in PSP, though significant differences were found only in urinary control (p = 0.006) and urinary storage (p = 0.008) scores between PSP and MSA-P. Orthostatic hypotension was clinically identified in 7.7 % of PSP, 66.7 % of MSA-P, and 27.3 % of PD patients, with a significant difference between PSP and MSA-P (p : SCOPA-AUT revealed varying degrees of autonomic dysfunction across all groups. The total SCOPA-AUT score was lower in PSP (16.88 +/- 6.70) than in MSA-P (23.33 +/- 8.80) (p = 0.019), but not significantly different from PD (18.64 +/- 9.80). All five SCOPA-AUT subscales were affected in PSP, though significant differences were found only in urinary control (p = 0.006) and urinary storage (p = 0.008) scores between PSP and MSA-P. Orthostatic hypotension was clinically identified in 7.7 % of PSP, 66.7 % of MSA-P, and 27.3 % of PD patients, with a significant difference between PSP and MSA-P (p Conclusions: Our findings indicate that PSP presents with various forms of autonomic dysfunction, as assessed by SCOPA-AUT, with similarities to both MSA-P and PD. Objective measures, such as orthostatic blood pressure assessments and residual urine ultrasound, can provide additional insights into autonomic dysfunction in PSP. Copyright © 2025 The Authors. Published by Elsevier Ltd.

18. Polypharmacy and its association with dementia, Parkinson's disease, and mortality risk in UK adults: a multistate modeling approach.

Authors: Weiss J.;Beydoun M.A.;Georgescu M.F.;Maldonado A.I.;Beydoun H.A.;Noren Hooten N.;Tsai J.;Song M.;Nieva A.;Evans M.K. and Zonderman, A. B.

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Abstract: Polypharmacy is common among older adults and has been linked to adverse outcomes such as dementia, Parkinson's disease (PD), and mortality. However, its influence on transitions between these health states remains understudied in large, population-based cohorts. Using data from 361,970 UK Biobank participants aged 50 and older with up to 15 years of follow-up, we examined the association between polypharmacy, defined as the use of five or more medications, and transitions between health states: healthy, dementia, PD, and mortality. Multistate parametric models, including Weibull regression, were employed to estimate these associations, adjusting for demographics, socioeconomic status, cardiovascular health, and comorbidities. Latent class analysis was used to identify specific medication combinations associated with health transitions. Polypharmacy was significantly associated with higher risks of transitioning from healthy to dementia (hazard ratio [HR], 1.15; 95% CI, 1.07-1.23) and from healthy to death (HR, 1.11; 95% CI, 1.08-1.09). Women exhibited better cardiovascular health but higher polypharmacy prevalence compared to men. Latent class analysis revealed that certain medication combinations, such as omega-3 fatty acids and multivitamins, were inversely associated with dementia and mortality, independent of polypharmacy status. These findings highlight the complex relationship between polypharmacy and health transitions in older adults. Careful medication management may mitigate risks associated with polypharmacy, particularly among individuals at risk for neurodegenerative diseases. Further research is warranted to investigate the potential protective effects of specific medication combinations on health outcomes.Copyright © This is a U.S. Government work and not under copyright protection in the US; foreign copyright protection may apply 2025.

19. Using Healthcare Redesign to Identify Medication Management Issues in Parkinson's Disease.

Authors: Williams S.; lannuzzi M.A. and Prior, S. J.

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Journal: Pharmacy 13(1) (pagination), pp. Article Number: 13. Date of Publication: 01 Feb 2025

Abstract: Background: Parkinson's disease (PD) is a neurodegenerative disorder that is predominantly controlled through pharmacotherapy. People with PD have highly complex medication regimens that are often poorly managed during hospital admissions. This project aims to understand the issues experienced by patients with PD and healthcare staff that impacted their medication management during their hospital admission at a tertiary metropolitan hospital in New South Wales, Australia. Method(s): This project focuses on the mixed-methods diagnostics phase of the healthcare redesign approach to health service improvement, utilising organisational data, online surveys, interviews, and focus groups. Result(s): The findings from this project highlight key areas to address to improve the medication management of patients with PD admitted to hospital. The organisational data (n = 222) showed that the identification of PD patients, untimely medication reviews, prescribing

errors, and untimely medication administration all contributed to poor patient experience. The staff surveys (n = 81) highlighted that a lack of knowledge of PD medications and poor patient identification impacted patient experience. The patient surveys (n = 18) and patient interviews (n = 16) suggested that confidence around medication management and administration timing could be improved. Conclusion(s): Poor PD medication management in hospital impacts the patient experience and should be improved to ensure better outcomes for patients and the health services.Copyright © 2025 by the authors.

20. 'I'm Not Sure Who to Refer You to': Experiences of Clinicians Accessing Allied Health for Their Patients With Parkinson's Disease.

Authors: Wong, Cassandra Meishan; Dennis, Sarah May; Allen, Natalie Elizabeth and Paul, Serene Sulyn

Publication Date: Mar ,2025

Journal: Journal of Evaluation in Clinical Practice 31(2), pp. e70044

Abstract: RATIONALE: Allied health interventions have been shown to improve impairments and quality of life in people with Parkinson's disease (PwPD). However, globally allied health is underutilised, and referrals tend to be reactive and occur in moderate to advanced disease. Currently little is known about the referral patterns of PwPD to allied health in Australia. AIMS: This study examined the allied health referral patterns of neurologists, general practice physicians (GP) and Parkinson's disease nurse specialists (PDNS) treating PwPD in New South Wales (NSW), Australia. METHODS: Four neurologists, three GPs and four PDNSs each completed a demographic questionnaire and a semi-structured interview. Interview data were analysed using inductive thematic analysis. RESULTS: All clinicians experienced difficulties locating approachable, available, affordable, and appropriate allied health services. Clinicians also perceived that patient ability to interact impacted their involvement in allied health therapies. Referrals were typically made in response to symptom progression. The most common individual disciplines referred to were physiotherapy and/or exercise physiology, followed by speech pathology and occupational therapy. Multidisciplinary teams (MDT) were generally not available, so referrals to MDTs occurred less frequently. CONCLUSION: Clearer guidelines regarding when to refer to individual allied health disciplines and to MDTs are needed to facilitate more proactive referrals by clinicians treating PwPD. Establishing an MDT model for PwPD throughout Australia would improve the approachability, availability and appropriateness barriers, and could improve quality of life for PwPD. Copyright © 2025 The Author(s). Journal of Evaluation in Clinical Practice published by John Wiley & Sons Ltd.

21. The efficacy of levodopa/carbidopa/entacapone on cognitive function in moderate to advanced Parkinson's disease and its relationship with peripheral inflammatory cytokines.

Authors: Xu D.; Fang Y.; Hu M.; Shen Y.; Li H.; Wei L. and He, J.

Publication Date: 2025

Journal: BMC Neurology 25(1) (pagination), pp. Article Number: 116. Date of Publication: 01

Dec 2025

Abstract: Background: Entacapone has been widely used in the treatment of moderate to advanced Parkinson's disease (PD), and its efficacy for motor symptoms has been well-known from several clinical trials and long-term clinical use. The efficacy of Levodopa/Carbidopa/Entacapone (LCE) on neuropsychological functions in moderate to advanced PD has not been validated yet, and little is known about the effect of LCE on peripheral inflammatory cytokines. Objective(s): The aim of this study was to investigate the efficacy of LCE on neuropsychological functions in moderate to advanced PD and to explore its relationship with the changes in peripheral inflammatory cytokine levels. Method(s): All patients were randomly assigned to the experimental group receiving treatment of LCE or the control group receiving treatment of Levodopa/Carbidopa (LC). All patients were clinically evaluated using the Unified Parkinson's Disease Rating Scale part III (UPDRS III), the total score of the Parkinson's Disease Questionnaire-39 (PDQ-39), the Mini-Mental State Examination (MMSE), the Montreal Cognitive Assessment (MoCA), the Hamilton Anxiety Scale (HAMA), and the Hamilton Depression Scale (HAMD), and serum homocysteine (HCY) as well as serum inflammatory cytokines were measured at baseline and after 8 weeks. Result(s): The moderate to advanced PD patients treated with LCE had more significant improvement in MMSE scores (P = 0.004) and MoCA scores (P = 0.001), as well as a greater decline in IL-6 levels (P = 0.002) than those treated with LC. There were no significant differences in the changes of the UPDRS III, PDQ39, HAMA, and HAMD scores between the two treatment groups. Linear correlation analysis revealed that there was a significant negative correlation between the improvement of MoCA scores (DELTAMoCA) and the reduction of IL-6 levels (DELTAIL-6) (correlation coefficient: -0.252; P = 0.024). Conclusion(s): The ability of LCE to improve cognitive function and to downregulate the peripheral inflammatory cytokine IL-6 levels in moderate to advanced PD is superior to the traditional dopamine preparation-LC. LCE may improve cognitive function by suppressing the levels of inflammatory cytokines like IL-6. Trial registration: The full name of the registry: Dongyang People's Hospital, Affiliated to Wenzhou Medical University. The trial registration number (TRN): ChiCTR2400091631. The date of registration: October 31, 2024 (Retrospectively registered).Copyright © The Author(s) 2025.

22. Profile of Independence in Activities of Daily Living Among Patients With Parkinson's Disease: A Retrospective Observational Study.

Authors: Yokoi, Kayoko;Kawasaki, Iori;Takeda, Atsushi;Eakman, Aaron M. and Hirayama, Kazumi

Publication Date: May 01 ,2025

Journal: American Journal of Occupational Therapy 79(3)

Abstract: IMPORTANCE: Persons with Parkinson's disease (PD) become more dependent in activities of daily living (ADL) as the disease progresses. Occupational therapy practitioners aware of the stages of PD can design interventions to promote and maintain occupational performance. OBJECTIVE: To evaluate the ADL independence and dependence profiles of patients with PD on the basis of disease stages. DESIGN: Retrospective observational study. SETTING: Hospital in Japan. PARTICIPANTS: Patients with PD (N = 209; 75 men and 134

women), with a mean age of 73.3 yr (SD = 7.7). OUTCOMES AND MEASURES: The Hoehn and Yahr (H-Y) stage was used to determine patients' disease severity. The Barthel Index (BI) was used to determine independence in performing ADLs. RESULTS: In the H-Y Stage 2 group, the prevalence of independence in mobility and stairs was low, whereas that in other ADLs was high. In the H-Y Stage 3 group, more than half of the patients had limitations in bathing, mobility, and navigating stairs, although most patients remained independent in other ADLs. In the H-Y Stage 4 group, more than half of the patients required assistance with most ADLs, except feeding and bowel control. In the H-Y Stage 5 group, the prevalence of independence during feeding and grooming was relatively high. CONCLUSIONS AND RELEVANCE: Dependence in ADL domains differs by PD stage, with direct implications for occupational therapy intervention. Plain-Language Summary: Parkinson's disease (PD) is a progressive neurodegenerative disorder characterized by motor symptoms and nonmotor symptoms. The disease progression can gradually affect activities of daily living (ADLs), which can lead to decreased independence and guality of life as well as increased caregiver distress. This study evaluated the ADL independence and dependence of patients with PD based on each patient's disease stage. The study found that ADL dependence differs based on the PD stage (mild, moderate, severe), with direct implications for occupational therapy intervention. Occupational therapists can design interventions to improve and maintain the occupational performance of people with PD. Interventions that target ADLs should be based on the patient's PD stage. Copyright © 2025 by the American Occupational Therapy Association, Inc.

Sources Used:

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