

Parkinson's Disease Current Awareness Bulletin August 2020

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Title: A Mixed-Methods Approach to Understanding the Palliative Needs of Parkinson's Patients.

Citation: Journal of Applied Gerontology; Aug 2020; vol. 39 (no. 8); p. 834-845 **Author(s):** Prizer ; Gay, Jennifer L.; Wilson, Mark G.; Emerson, Kerstin G.; Glass, Anne P.; Miyasaki, Janis M.; Perkins, Molly M.

Abstract: Parkinson's disease (PD) is the second-most common age-related neurodegenerative disorder. Despite recommendations for a palliative approach, little is known about what palliative needs are unmet by standard care. This study aims to (a) identify palliative needs of PD patients, (b) determine the relationship between palliative needs and health-related quality of life (HRQoL), and (c) probe into factors affecting HRQoL. PD patients and neurologists were recruited for a survey on palliative need; a subset of patients was interviewed. Significant differences between physicians and patients were found in Physical, Psychological, Social, Financial, and Spiritual domains. Physical and Psychological needs predicted HRQoL. Primary themes across interviews included (a) lack of healthcare education and (b) need for care coordination. Secondary themes included (a) the importance of support groups, (b) the role of spirituality/religion, and (c) the narrow perceived role of the neurologist. Findings highlight the importance of coordinated individualized care.

Title: Effect of Exercise on Quality of Life in Parkinson's Disease: A Systematic Review and Meta-Analysis.

Citation: Parkinson's Disease (20420080); Jul 2020 ; p. 1-10 **Author(s):** Chen ; Tan, Yan; Lu, You; Wu, Jiayan; Liu, Xueyuan; Zhao, Yanxin

Background: Exercise has an integral impact on the physical and mental wellbeing of patients with Parkinson's disease (PD), yet no comprehensive and quantitative analysis has been conducted on the effect of exercise on quality of life (QoL) in these patients. This study aimed to evaluate the effect of exercise on overall QoL and different domains of QoL in people with PD, as well as investigating the influence of factors such as the exercise type and intervention period.

Methods: Databases, such as PubMed, Embase, and Cochrane Central Register of Controlled Trials, were searched since inception to August 14, 2018 to identify randomized controlled trials that compare the effect of exercise versus no intervention on QoL in PD patients. Following the subgroup analysis, heterogeneity was further explored. The quality of eligible studies was assessed according to PRISMA guidelines.

Results: 20 studies were included with 1,143 participants in total. A meta-analysis showed a significant improvement in QoL after exercise intervention in PD patients (SMD = -0.24, 95% CI = -0.36 to -0.12, P < 0.001). A subgroup analysis of exercise types revealed significant QoL improvement with aerobic exercise, martial arts, and dance, but not anaerobic exercise and combined exercise. Interventions lasting 12 weeks or longer improved QoL significantly.

Conclusions: Exercise interventions, especially aerobic exercise, dance, and Tai Chi, significantly improve QoL in PD patients. At least 12 weeks of exercise is needed to bring about significant benefits.

Title: Self-Reported Nonadherence Predicts Changes of Medication after Discharge from Hospital in People with Parkinson's Disease.

Citation: Parkinson's Disease (20420080); Jul 2020 ; p. 1-8 **Author(s):** Feldmann ; Zipprich, Hannah M.; Witte, Otto W.; Prell, Tino

Background: Medication is often changed after hospital discharge in people with Parkinson's disease (PD).

Objective: This observational study aimed to describe changes in PD medication after discharge and explore their association with self-reported adherence and clinical parameters.

Methods: During hospitalisation sociodemographic characteristics, the Movement Disorder Society-sponsored revision of the Unified PD Rating Scale for motor function (MDS-UPDRS III), Hoehn and Yahr (H&Y) stage, levodopa equivalent daily dose (LEDD), Beck Depression Inventory II (BDI-II) score, Montreal Cognitive Assessment (MoCA) score, nonmotor symptoms questionnaire (NMSQ), and Stendal Adherence to Medication Score (SAMS) were collected in 125 people with PD. A semistructured interview was conducted 1 month after discharge to determine the extent and reasons for medication changes.

Results: Thirty-eight patients (30.4%) changed their PD medication after discharge. Most changes (20.8%) were performed by physicians while 9.6% of patients changed their medication by themselves due to side effects, missing effect of the medication, missing knowledge about the indication, running out of medication, or nonspecific reason. This led to decreased doses while changes by physicians resulted in both increase and decrease of doses as well as new drug prescription. Patients without changes, patients with changes performed by them, and patients with changes performed by physicians did not differ in age, disease duration, MDS-UPDRS III, LEDD, NMSQ, MoCA, BDI-II, gender, marital status, or education. However, patients who themselves made the changes were more likely to be nonadherent according to baseline SAMS. Patients who made changes after discharge had higher SAMS modification and forgetting subscores than patients without changes or with changes made by physicians.

Conclusion: Both intended and unintended nonadherence occur in patients who change medication after discharge. The use of an adherence questionnaire during inpatient treatment may help detect patients with higher risk of changing medication after discharge.

Title: Patients' and communication partners' experiences of communicative changes in Parkinson's disease.

Citation: Disability & Rehabilitation; Jul 2020; vol. 42 (no. 13); p. 1835-1843 **Author(s):** Johansson ; Samuelsson, Christina; Müller, Nicole

Purpose: The aim of the present study was to investigate the experiences of people with Parkinson's disease and their close communication partners regarding disease-related communicative changes and participation in everyday conversations.

Materials and Methods: Semi-structured qualitative interviews were conducted with six dyads consisting of a person with Parkinson's disease and a close communication partner. The interview material was analysed through thematic analysis.

Results: The main theme was the experiences of barriers and facilitators for participation in conversations. Subthemes were experiences related to changes in voice and articulation, language and cognition, body language and facial expressions, fatigue, self-image,

communicative initiative, and familiarity with conversation partner. The results show individual variation. A change observed in almost all dyads was the person with Parkinson's disease participating less in conversations.

Conclusions: Assessment and interventions should be based on a broad perspective on communication, and individuals' priorities should be foregrounded in intervention planning. Both the person with Parkinson's disease and communication partners need to make adjustments for communication to work. Therefore, close communication partners should be included in assessment and intervention of communication in Parkinson's disease from an early stage. Interventions targeting communication in Parkinson's disease should be individually tailored and be based on a holistic perspective on communication. Communicative functions and participation should be assessed already at an early stage of the disease in order to minimize and slow down adverse effects, and to enable the development of effective, personalized strategies. Since changes in communicative abilities might affect self-perception and self-confidence, these aspects need to be taken into account when assessing and planning interventions targeting communication. Close communication partners should be included early in both assessment and intervention.

Title: Parkinson Disease Bootcamp: An Education Program for Individuals With Parkinson Disease and Their Families.

Citation: Perspectives of the ASHA Special Interest Groups; Jun 2020; vol. 5 (no. 3); p. 654-657

Author(s): Parveen

Purpose: A strong social support system for individuals with Parkinson disease (PD) and their families often include awareness of existing resources, involvement in the community, and access to supportive relationships. Community-based education programs are one such avenue for building a strong social support system and improving the quality of life of people with PD and their family members. This viewpoint article presents the conceptualization and efficacy of a 3-day multidisciplinary educational program for individuals with PD and their families.

Method: A total of 52 people attended the event, including individuals with PD and their family members. The 3-day event included presentations by different health care professionals and activities aimed to increase the knowledge of individuals with PD and their families regarding possible effects of PD and available resources within the local community.

Results: A vast majority of participants shared extremely positive responses and expressed a strong interest in attending similar events in the future.

Conclusion: The success of the educational program led to new partnerships and the creation of community- based programs for individuals with PD and their families.

Title: Test the Best: Classification Accuracies of Four Cognitive Rating Scales for Parkinson's Disease Mild Cognitive Impairment.

Citation: Archives of clinical neuropsychology : the official journal of the National Academy of Neuropsychologists; Jul 2020

Author(s): Mazancova, Adela Fendrych; Růžička, Evžen; Jech, Robert; Bezdicek, Ondrej

Objective: A progressive cognitive impairment is one of the frequent non-motor symptoms during Parkinson's disease (PD) course. A short and valid screening tool is needed to detect

an incipient cognitive deficit at the mild cognitive impairment stage in Parkinson's disease (PD-MCI).

Method: The present study aims to evaluate the classification accuracies of four cognitive screenings: Montreal Cognitive Assessment (MoCA), Mattis Dementia Rating Scale second edition (DRS-2), Mini-Mental State Examination (MMSE) and Frontal Assessment Battery (FAB) in a cohort of PD patients (PD-MCI, n = 46; and Parkinson's disease with normal cognition, PD-NC, n = 95) and Controls (n = 66). All subjects underwent a standard neuropsychological battery as recommended by the International Parkinson and Movement Disorder Society and underwent all four screening tools.

Results: In the detection of PD-MCI versus PD-NC, the MoCA showed a sensitivity of 84% and a specificity of 66% with a screening cutoff score at \leq 25 points. The MoCA's AUC was 86% (95% CI 78.7-93.1). In the detection of PD-MCI versus Controls, the FAB displayed 84% sensitivity and 79% specificity with a cutoff \leq 16 points, to screen. The FAB's AUC was 87% (79.0-95.0).

Conclusions: Our results show that the MoCA is the most discriminative tool for screening MCI in the PD population.

Title: Get Parkinson's medications on time: the Leeds QI project.

Citation: Age and ageing; Jul 2020

Author(s): Corrado, Joanna; Jackson, Oliver; Baxandall, David; Robson, Jeremy; Duggan-Carter, Philippa; Throssell, Jane; Westgarth, Tracy; Chhokar, Gurjit; Alty, Jane; Cracknell, Alison

Abstract: Parkinson's disease (PD) is a common neurodegenerative disease. Delayed administration of PD medications is associated with increased risk of life-threatening complications including choking, aspiration pneumonia and neuroleptic malignant syndrome. In 2016, the spouse of a patient with PD wrote to Leeds Teaching Hospitals Trust (LTHT) to highlight that multiple medication delays and omissions had occurred during his recent admission. In response, LTHT formed a PD quality improvement (QI) Collaborative of multidisciplinary members committed to ensuring timely PD medication administration. The faculty used Institute for Healthcare Improvement Model for Improvement QI methodology. Interventions were tested on pilot wards and the most successful were scaled up and spread across all 90 adult inpatient wards as an 'intervention bundle'. Between January 2016 and June 2020 mean delays in the time from admission to first dose of medication dropped from over 7 to under 1 h. The mean percentage of omitted PD medications reduced from 15.1 to 0.6%. Project success was multifactorial but due to: Simplicity of interventions. Multiprofessional ownership by frontline teams to make changes and take prompt action. The spouse of the patient taking a leading role in the Collaborative, bringing her unique personal insight and experience, which facilitated behavioural change.

Title: A double-blind, randomized controlled trial of duloxetine for pain in Parkinson's disease.

Citation: Journal of the neurological sciences; Jul 2020; vol. 414 ; p. 116833 **Author(s):** Iwaki, Hirotaka; Ando, Rina; Tada, Satoshi; Nishikawa, Noriko; Tsujii, Tomoaki; Yamanishi, Yuki; Miyaue, Noriyuki; Yabe, Hayato; Nagai, Masahiro; Nomoto, Masahiro

Background: Duloxetine proved effective for treating pain in people with Parkinson's disease in a single-arm, open-label study.

Objective: To evaluate the efficacy of duloxetine in a double-blind, randomized, placebocontrolled trial.

Methods: We randomly assigned 46 patients with Parkinson's disease with pain to either the duloxetine 40 mg/day arm or the placebo arm. After 10 weeks, we tested the change from baseline in 24-hour average pain severity measured by a visual analogue scale.

Results: We could not confirm the effect of duloxetine on pain. Exploratory analyses indicated that treatment with duloxetine was associated with improved scores on the Unified Parkinson's Disease Rating Scale Part III and 3 domains of the Parkinson's Disease Questionnaire - 39.

Conclusions: The study failed to provide evidence for the use of duloxetine for treating pain in people with Parkinson's disease.

Title: Visual Impairment Is More Common in Parkinson's Disease and Is a Risk Factor for Poor Health Outcomes.

Citation: Movement disorders : official journal of the Movement Disorder Society; Jul 2020 **Author(s):** Hamedani, Ali G; Abraham, Danielle S; Maguire, Maureen G; Willis, Allison W

Background: Visual impairment is associated with hip fracture, depression, anxiety, and dementia in the general population, and many causes of visual impairment are preventable or treatable with early detection. However, the prevalence, outcomes, and healthcare utilization patterns associated with visual impairment have not been examined in Parkinson's disease (PD).

Methods: We performed a cross-sectional analysis of all Medicare beneficiaries with complete data in 2014 and longitudinal analysis of beneficiaries with PD from 2010 to 2014. We used diagnosis and procedure codes to identify PD, visual impairment, eye exams, hip fracture, and neuropsychiatric disorders. We compared the prevalence of visual impairment using logistic regression and used Cox proportional hazards regression to examine visual impairment and incident hip fracture, depression, anxiety, dementia, and death. We also examined the frequency of eye exams in PD using repeated-measures logistic regression.

Results: Among 26,209,997 Medicare beneficiaries in 2014, visual impairment was significantly more prevalent in PD (1.7%) than non-PD (0.71%) (adjusted odds ratio, 1.60; 95% confidence interval [CI], 1.56-1.65). In a longitudinal cohort of 542,224 Medicare beneficiaries with PD, less than 60% had a yearly eye exam. Visual impairment associated with increased hazard of depression (hazard ratio [HR], 1.23; 95% CI, 1.14-1.32), anxiety (HR, 1.34; 95% CI, 1.24-1.43), dementia (HR, 1.28; 95% CI, 1.21-1.36), and death (HR, 1.49; 95% CI, 1.44-1.55).

Conclusion: Visual impairment is more common in PD than the general population and is associated with negative PD-related outcomes. Understanding the mechanisms for these relationships is important for guiding future interventions to improve health outcomes in PD. © 2020 International Parkinson and Movement Disorder Society.

Title: Effects of interactive video-game-based exercise on balance in older adults with mild-to-moderate Parkinson's disease.

Citation: Journal of neuroengineering and rehabilitation; Jul 2020; vol. 17 (no. 1); p. 91 **Author(s):** Yuan, Rey-Yue; Chen, Shih-Ching; Peng, Chih-Wei; Lin, Yen-Nung; Chang, Yu-Tai; Lai, Chien-Hung **Background:** This study aimed to evaluate the effectiveness of a customized interactive video game-based (IVGB) training on balance in older adults with mild-to-moderate Parkinson's disease (PD).

Methods: In this 12-week crossover trial, PD patients ≥65 years of age were randomly divided into Group A (a 6-week intervention phase followed by a 6-week control phase) and Group B (a 6-week control phase followed by a 6-week intervention phase). Participants received IVGB exercise training during the intervention phase and no exercise during the control phase. Functional outcomes were measured using behavioral evaluation scales and questionnaires at baseline, week 6 and week 12.

Results: Twenty-four PD patients were included in this study, and were evenly divided into two groups. After Bonferroni adjustment, the changes in Modified Falls Efficacy Scale (MFES) and two subscales of Multi-Directional Reach Test were significantly different between two groups in the first 6-week period. In addition, the changes in Berg Balance Scale, MFES, and two subscales of Maximum Step Length were significantly different between two groups in the second 6-week period. Compared to controls, 6-week IVGB exercise intervention significantly improved different but overlapping functional outcomes in two groups of PD patients.

Conclusions: The customized IVGB exercise training improves balance, postural stability and confidence in preventing falls in older adults with mild-to-moderate PD. However, this IVGB exercise doesn't have a significant impact on quality of life.TRIAL REGISTRATIONClinicalTrials.gov. NCT03689764 . Registered 27 September 2018, retrospectively registered.

Title: Diagnosing Parkinson Disease Through Facial Expression Recognition: Video Analysis.

Citation Journal of medical Internet research; Jul 2020; vol. 22 (no. 7); p. e18697 **Author(s):** Jin, Bo; Qu, Yue; Zhang, Liang; Gao, Zhan

Background: The number of patients with neurological diseases is currently increasing annually, which presents tremendous challenges for both patients and doctors. With the advent of advanced information technology, digital medical care is gradually changing the medical ecology. Numerous people are exploring new ways to receive a consultation, track their diseases, and receive rehabilitation training in more convenient and efficient ways. In this paper, we explore the use of facial expression recognition via artificial intelligence to diagnose a typical neurological system disease, Parkinson disease (PD).

Objective: This study proposes methods to diagnose PD through facial expression recognition.

Methods: We collected videos of facial expressions of people with PD and matched controls. We used relative coordinates and positional jitter to extract facial expression features (facial expression amplitude and shaking of small facial muscle groups) from the key points returned by Face++. Algorithms from traditional machine learning and advanced deep learning were utilized to diagnose PD.

Results: The experimental results showed our models can achieve outstanding facial expression recognition ability for PD diagnosis. Applying a long short-term model neural network to the positions of the key features, precision and F1 values of 86% and 75%, respectively, can be reached. Further, utilizing a support vector machine algorithm for the facial expression amplitude features and shaking of the small facial muscle groups, an F1 value of 99% can be achieved.

Conclusions: This study contributes to the digital diagnosis of PD based on facial expression recognition. The disease diagnosis model was validated through our experiment. The results can help doctors understand the real-time dynamics of the disease and even conduct remote diagnosis.

Title: Young Onset Parkinson's Disease: A Modern and Tailored Approach.

Citation: Journal of Parkinson's disease; Jul 2020

Author(s): Post, Bart; van den Heuvel, Lieneke; van Prooije, Teije; van Ruissen, Xander; van de Warrenburg, Bart; Nonnekes, Jorik

Abstract: In people with young onset Parkinson's disease (YOPD), onset of symptoms is between 21 and 40 years of age. The distinction between YOPD and late-onset Parkinson's disease is supported by genetic differences (a genetic etiology is more common in people with YOPD) and clinical differences (e.g., dystonia and levodopa-induced dyskinesias are more common inYOPD). Moreover, people with YOPD tend to have different family and societal engagements compared to those with late-onset PD. These unique features have implications for clinical management, and call for a tailored multidisplinary approach involving shared-decision making.

Title: What People with Parkinson's Disease Want.

Citation: Journal of Parkinson's disease; Jul 2020 **Author(s):** Andrejack, John; Mathur, Soania

Abstract: Parkinson's disease is an incurable, progressive neurodegenerative disease. This condition is complicated by the varying symptoms in individuals who differ in age of onset, symptoms, progression of disease, response to treatment and prognosis. In this paper, we focus on quality of life achieved through a combination of comprehensive health care, continuous support, and self care. Determining what people with Parkinson's disease want is like assembling multiple puzzles simultaneously. While we surmise that patient centered care, support programs, access to comprehensive health care, and relevant symptom control are pieces of this puzzle, more longitudinal studies- which are observational in nature and correlate the impact of symptoms with patients' reported needs- are necessary.

Title: Moving towards home-based community-centred integrated care in Parkinson's disease.

Citation: Parkinsonism & related disorders; Jul 2020; vol. 78 ; p. 21-26

Author(s): Fabbri, Margherita; Caldas, Ana Castro; Ramos, Joana B; Sanchez-Ferro, Álvaro; Antonini, Angelo; Růžička, Evžen; Lynch, Timothy; Rascol, Oliver; Grimes, David; Eggers, Carsten; Mestre, Tiago A; Ferreira, Joaquim J

Abstract: People living with Parkinson's disease (PwP) experience a wide range of motor and non-motor symptoms associated with increasing complexity of care delivery. A multispecialty approach has been presented as an intuitive solution for tailored and comprehensive care delivery. Nevertheless, past trials of both multidisciplinary or interdisciplinary care models in PD suggested no measurable change to a small benefit in quality of life (QoL) and failed to show economic sustainability. We propose a home-based community-centred integrated care (iCARE-PD) for PwP as a pragmatic solution to harness the potential of existing care resources using an integrated care strategy, enable self-management support and implement technology-enabled care. The iCARE-PD model is based on Freeman's concept of continuity of care and the expanded Chronic Care Model for organization of care strategies. A home-based community-centred integrated care has immediate implications for clinical practice, with potential benefits in rural areas or lower-income countries, by enhancing access to care with optimized costs. There is a need to establish which and how interventions may be used as an instrument of care in each local deployment of the iCARE-PD model. We put forward a multidisciplinary framework to generate the evidence supportive of its implementation as the standard of care in the future and delineate the core strategies to secure the implementation of this care approach across different health care systems to ensure feasibility and economic sustainability. We envision this model becoming a paradigm of personalized care transferable to people with atypical forms of neurodegenerative parkinsonism.

Sources Used:

The following databases are searched on a regular basis in the development of this bulletin: Amed, British Nursing Index, Cinahl, Medline

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