



Original Research

Quality of life of patients with Parkinson's disease and neurodegenerative dementia: A nationally representative study

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Abstract

Background: The disability inherent to Parkinson's disease and dementia would suggest poor health-related quality of life for patients with these neurodegenerative conditions; however, the extent of disability from a nationally representative data has not been previously available.

Objectives: This study examined factors associated with the health-related quality of life in patients with Parkinson's disease and dementia using nationally representative samples.

Methods: The study used data from 2002 to 2011 Medical Expenditure Panel Survey (MEPS), a nationally representative survey of households in the United States. The quality of life of patients was captured based on Physical Component Summary (PCS), Mental Component Summary (MCS), Activities of Daily Living (ADL) and Instrumental Activities of Daily Living (IADL). Multivariate regression models were used to compare PCS, MCS, ADL and IADL across the two neurodegenerative conditions after controlling for various sociodemographic and clinical characteristics.

Results: The weighted study population included 0.80 million (95% Confidence Interval, CI: 0.75–0.85) patients; those with Parkinson's disease accounted for 40.23% and remaining 59.77% were diagnosed with dementia. Mean age of the study population was 74.32 years (Standard Deviation, SD = 11.36). Most of the Parkinson's patients were male (57.70%), whereas most of the dementia patients were females (58.10%). The unadjusted mean PCS was 33.66 and 35.31 in Parkinson's and dementia patients, respectively ($P < 0.01$). Patients with Parkinson's disease were less likely to seek help for IADL than neurodegenerative dementia (Odds Ratio, OR = 0.68, $P = 0.02$). Various other individual, biological and environmental factors were also associated with quality of life in patients with Parkinson's disease and neurodegenerative dementia.

Conclusions: This study found that patients with Parkinson's disease had lower PCS and were less likely to seek help for IADL when compared to the patients with neurodegenerative dementia. Knowledge of these factors can be helpful in improving quality of life of patients with neurodegenerative diseases.

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Introduction

Neurodegenerative disorders are characterized by the gradual loss of neurons in the central nervous system. They have various manifestations such as cognitive impairment in Alzheimer's disease; and movement symptoms in Parkinson's disease. Alzheimer's disease and Parkinson's disease are the most common neurodegenerative disorders with prevalence rates ranging from 1% and 0.5% to 1% among patients aged 65–69 years for Parkinson's and Alzheimer's disease, respectively.¹ The prevalence rates of Parkinson's disease and dementia increase among persons 70 years of age and older, as these neurodegenerative conditions gradually become symptomatic with aging.¹ Parkinson's disease and dementia are the leading cause of mental and physical disabilities and impose heavy burden on quality of life.^{2–4} These neurodegenerative disorders are associated with a diverse spectrum of clinical manifestations that could have major impact on different dimensions of Health-Related Quality of Life (HRQoL).⁵ However, few studies have evaluated the quality of life in Parkinson's disease and neurodegenerative dementia.

Gage et al. (2003) found that veterans with Parkinson's disease had lower Physical Component Summary (PCS), Mental Component Summary (MCS) on Short Form (SF) 36 than the veterans with coronary heart disease, arthritis, chronic low back pain, congestive heart failure, diabetes, and stroke. Patients with depression had lower MCS than the patients with Parkinson's disease.⁶ Boström et al. (2007) found that patients with Lewy Body dementia had lower quality of life when compared to patients with Alzheimer's disease irrespective of the instrument used to measure quality of life.⁷ Lawson et al. (2014) used Parkinson's Disease Questionnaire (PDQ-39) and found that cognitive limitation was an important indicator for poor quality of life in Parkinson patients.⁸ Wu et al. (2014) found that mobility and Activities of Daily Living (ADL) domains were significantly associated with Parkinson's disease severity scales and duration in Chinese population.⁹ A pilot study comparing Instrumental Activities of Daily Living (IADL) between Parkinson's disease and Alzheimer's disease patients did not find any difference in IADL disability between the two groups.¹⁰ Although these studies are valuable regarding individual diseases, limited comparative data exists regarding the most prevalent neurodegenerative disorders.

Physical and mental disabilities caused by Parkinson's disease and dementia can have significant impact on different dimensions of quality of life and activities of daily living.¹¹ However, little is known about the impact of Parkinson's and Alzheimer's disease on HRQoL of patients with these neurodegenerative conditions. The present study attempts to fill this gap by: (1) assessing health-related quality of life in Parkinson's disease and neurodegenerative dementia; (2) identifying predictors of PCS and MCS in patients with neurodegenerative conditions; and (3) identifying predictors of ADL and IADL in patients with neurodegenerative conditions. The study findings can be helpful in improving quality of life of patients suffering from Parkinson's and Alzheimer's diseases.

Methods

Data source

This study used 2002–2011 Medical Expenditure Panel Survey (MEPS), a nationally representative, longitudinal survey data. The MEPS collects detailed data on health status, medical conditions, use of health care services, frequency, cost of use, insurance, and payment for health care services. It is designed to continually provide researchers with a timely and broad array of data to address practice- and policy-related questions. The MEPS uses similar methods so multiple years of data in MEPS can be combined to increase the sample size. The MEPS uses a stratified, multistage probability design to generate a nationally representative sample of non-institutionalized persons.

This study used the MEPS Household Component (HC) including the Full Year Consolidated Data and the Medical Condition files. The MEPS-HC collects information on respondents' health status, demographic and socioeconomic characteristics.^{12,13} Data are collected from a series of computer assisted interviews targeting individual household members. These interviews are conducted in five rounds over a 2-year period. The interviews include information on demographics, health conditions, health status, use of medical care and prescription medications, detailed charges and payment, insurance coverage, income and employment. Additional information related to the definitions, data coding and technical considerations in the MEPS can be

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