Parkinson’s Disease  
– Fast Facts –

Parkinson’s disease is a degenerative disorder of the central nervous system (a neurodegenerative disorder) that often impairs motor skills and speech. Parkinson’s belongs to a group of conditions called movement disorders. It is characterised by muscle rigidity, tremor, a slowing of physical movement (bradykinesia) and, in extreme cases, a loss of physical movement (akinesia). As a consequence, people with Parkinson’s have increasing difficulty with controlling their body movements.

Less well known, but of equal importance, are non-motor symptoms related to Parkinson’s. These symptoms do not affect movement but can have a profound impact on quality of life. Non-motor symptoms can include, among others, loss of sense of smell, depression, sleep problems and incontinence. They can occur at any stage of the disease and many precede a formal diagnosis of Parkinson’s by several years.1, 2

These symptoms can come to dominate the condition as the disease progresses, having an enormous impact on quality of life. Parkinson’s is both a chronic and progressive illness, which results in a marked decrease in the health-related quality of life of people with Parkinson’s and their carers and places a tremendous economic burden on society.

The facts

- It has been estimated that, across Western Europe’s five and the world’s ten most populous nations, there were between 4.1 and 4.6 million people over 50 years of age with Parkinson’s in 2005. This total is expected to double to between 8.7 and 9.3 million by 2030.3
- Parkinson’s disease is the second most common neurodegenerative disorder, after Alzheimer’s disease.4
- Parkinson’s disease can shorten life expectancy. The estimates of life expectancy for people with Parkinson’s in the UK show that they have a decreased life expectancy compared with the general population within all age groups, but is most severely decreased with young age at onset.5
- Some non-motor symptoms, including olfactory abnormalities (changes in the sense of smell), constipation and depression, can precede the motor symptoms by more than a decade.1, 2
- Overall cost estimates for Parkinson’s disease vary from country to country, but the largest component of direct cost is typically inpatient care and nursing home costs, while prescription drugs are the smallest contributor. Indirect costs arising from lost productivity and carer burden tend to be high. The total cost in the UK has been estimated to be between £449million and £3.3billion annually, depending on the cost model and prevalence rate used.6
Epidemiology, genetics and mortality

- The mean age of onset of Parkinson’s is approximately 60 years. It usually occurs in people over the age of 50 years, but can sometimes present in younger adults in their 30s to 50s (and rarely even younger).\(^7,8\)
- Parkinson’s disease shows a clear age-relationship, with incidence rising with increasing age, i.e. more people are diagnosed with Parkinson’s in older age groups.\(^9\)
- Disease prevalence estimates vary from country to country around the world: both genetic predisposition and environmental factors may play a role. Caucasians in Europe appear to have the highest prevalence.\(^10\)

Diagnosis

Parkinson’s disease (sometimes referred to as primary parkinsonism or idiopathic Parkinson’s disease) corresponds to parkinsonism where no cause is found. Other forms of Parkinsonism can be classified according to whether the cause is known or suspected, e.g. exposure to drugs, head/brain injury (secondary Parkinsonism), or whether the disorder occurs as part of another primary neurological disorder.

Due to this range of symptoms and wide differential diagnosis, Parkinson’s disease can be difficult to diagnose. Many of the prominent features of Parkinson’s may also occur as a result of normal ageing or from other medical conditions.\(^7\)

Symptoms

- Parkinson’s disease progresses slowly. A loss of 50-60% of dopaminergic neurones or a reduction in dopamine concentration of approximately 80% occurs before clinical symptoms are observed:\(^11\) muscle rigidity, tremor, a slowing of physical movement (bradykinesia) and, in extreme cases, a loss of physical movement (akinesia).
- Parkinsonian tremor is worse at rest – 4-7Hz (times/second). It is often unilateral, affects about 70% of people with Parkinson’s and is the presenting feature in most cases.\(^8\)
- Up to 10% of people with Parkinson’s experience no tremor or rigidity.\(^8\)
- Up to 90% of people with Parkinson’s will experience muscle rigidity, this is a resistance to passive movement.\(^12\)
- Over 50% of people with Parkinson’s will develop uncontrollable, irregular movements (dyskinesias) after 5 years of standard therapy.\(^13\)

Non-motor symptoms and co-morbidities

- While the motor symptoms have long been thought of as the fundamental symptoms of Parkinson’s, the non-motor symptoms are now increasingly recognised as common and important components of the condition.\(^1,7\)
- Recent surveys have revealed that close to 90% of people with Parkinson’s have at least one non-motor symptom, with about 10% having up to five non-motor symptoms.\(^12\)
In the early stages of Parkinson’s it may be difficult to tell whether an individual symptom is associated with Parkinson’s, particularly if there are no apparent motor symptoms. Many other factors, including medication side effects and other medical conditions, may cause symptoms that are similar to the non-motor symptoms of Parkinson’s.

Physicians may not recognise non-motor symptoms in up to 50% of cases.¹⁴

Many symptoms, including olfactory abnormalities, depression, constipation, certain psychiatric and sleep disorders, can precede motor symptoms and the diagnosis of Parkinson’s by many years.¹⁵

Symptoms such as dementia, cognitive impairment (slowness in thought, reasoning and perception) and orthostatic hypotension (a sudden drop in blood pressure while standing up) are more frequently seen in later stages of the disease.¹⁵

The most common non-motor symptoms include: olfactory dysfunction (affecting 70%-100% of people with Parkinson’s), dementia (20%-80%), depression (up to 50%), daytime somnolence (50%), pain and fatigue.¹²

In a study, over 80% of people with Parkinson’s described their health as fair to poor, versus 46% of the control group (who were matched for age and co-morbidity).¹⁶

The cause of death in Parkinson’s is most commonly a secondary, co-morbid disorder, for example pneumonia.¹⁷

The following non-motor symptoms may be experienced by people with Parkinson’s. Not all symptoms will necessarily be encountered; the symptom profile will be different for each person:

Neuropsychiatric symptoms
- Anhedonia
- Anxiety
- Apathy
- Attention deficit
- Confusion
- Delirium (possibly drug induced)
- Dementia
- Depression
- Hallucinations, illusions, delusions
- Impulsive and obsessional behaviour (usually drug induced)
- Panic attacks
- Repetitive behaviour (punding)

REM (Rapid Eye Movement) behaviour disorder and non-REM sleep-related movement disorders
- Restless legs and periodic limb movements
- Sleep-disordered breathing
- Vivid dreaming

Autonomic symptoms
- Bladder disturbances (frequency, urgency)
- Dribbling of saliva (sialorrhea)
- Dry eyes (xerophthalmia)
- Dry mouth (xerostomia)
- Erectile dysfunction (impotence)
- Orthostatic hypotension
- Falls related to orthostatic hypotension
- Hypersexuality (likely to be drug induced)

Sleep disorders
- Excessive daytime somnolence (sleepiness)
- Insomnia

- Dry eyes (xerophthalmia)
- Dry mouth (xerostomia)
- Erectile dysfunction (impotence)
- Orthostatic hypotension
- Falls related to orthostatic hypotension
- Hypersexuality (likely to be drug induced)
- Need to get up to urinate during the night (nocturia)
- Excessive Sweating (hyperhidrosis)

**Gastrointestinal symptoms**
- Constipation / severe constipation (obstipation)
- Dysphagia / choking
- Faecal incontinence
- Loss of taste functions of the tongue (ageusia)
- Nausea
- Reflux, vomiting
- Unsatisfactory voiding of bowel

**Sensory symptoms**
- Olfactory disturbance (senses of smell and taste)
- Pain
- Sensation of tingling (paraesthesia)

**Other non-motor symptoms**
- Blurred vision
- Double vision (diplopia)
- Fatigue
- Scaly, flaky, itchy, red skin (seborrhoea)
- Weight gain (possibly drug induced)
- Weight loss

**Socioeconomic impact of PD**
- Overall cost estimates for Parkinson’s disease vary from country to country. The total cost in the UK has been estimated to be between £449 million and £3.3 billion annually, depending on the cost model and prevalence rate used.  
- The UK study examined NHS costs, social service costs and private Parkinson’s-related expenditure. NHS costs accounted for the largest proportion (38% of the total), followed by social service costs (35%) and private expenditure (27%).
- In the UK, inpatient care and nursing home costs make up the greater proportion of NHS and social service costs, while prescription drugs are the smallest contributor.
- In Italy, the total cost of Parkinson’s to an individual was an average of €8,640 over a 6-month period. Direct costs accounted for 70% of the total costs. This includes drug therapies, which was one of the most expensive components.
- Similarly in Germany, where mean annual costs totalled €20,095 per person, the highest direct costs to an individual were for drug therapies. Inpatient care, including nursing homes, was the next highest contributor to direct costs. Costs of home care provided by family accounted for 20% of direct costs.
- The economic burden of the disease increases dramatically as the condition progresses and people with Parkinson’s use more healthcare resources as symptoms become more severe. Disease severity is the most important factor driving the cost of care, for example, direct costs for drug therapy increases significantly with clinical progression of symptoms.
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References