

Parkinson's Disease Facts and Figures

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Parkinson's Disease (PD) is a neurodegenerative condition characterized by multiple systems and various symptoms (Nilashi, Abumalloh, Alyami, Alghamdi, & Alrizq, 2023; Willis et al., 2022). Currently, there are no available methods for modification or prevention (Balestrino & Schapira, 2020; Poewe et al., 2017; Willis et al., 2022). With the demographic shift towards a larger elderly population in Western countries, the public health and economic burdens associated with age-related neurodegenerative diseases have risen significantly, amounting to an estimated economic cost of \$52 billion annually in the United States alone (Willis et al., 2022). Notably, advanced age represents the primary and most significant risk factor for the development of Parkinson's disease (Reeve, Simcox, & Turnbull, 2014; Willis et al., 2022). PD is a progressive condition that tends to worsen over time (Nilashi et al., 2020; Nilashi, Ibrahim, & Ahani, 2016). While there is currently no cure for PD (Ghane, Ang, Nilashi, & Sorooshian, 2022; Olanow & Schapira, 2013), there are therapies and medications available that can help alleviate and manage its symptoms. Some of the common symptoms associated with PD include tremors, painful muscle contractions, and difficulty speaking (WHO, 2023). These symptoms can vary in severity from person to person, and treatment plans are often tailored to address the specific needs and challenges faced by individuals with PD. PD encompasses a spectrum of symptoms, including motor manifestations like slowed movements (bradykinesia), tremors, involuntary muscle movements, rigidity, gait difficulties, and balance issues (Nilashi et al., 2022; Nilashi, Abumalloh, Yusuf, et al., 2023). In addition to these motor symptoms, individuals with PD often contend with a range of non-motor challenges, including cognitive impairment, mental health disorders like depression and anxiety, potential dementia in advanced stages, sleep disturbances, various types of pain, and sensory disturbances (WHO, 2023).

A recent study (Willis et al., 2022) has uncovered that the yearly occurrence of Parkinson's disease (PD) among older adults exceeds current estimates, showing a 50% increase from the previously reported figure of 60,000 annual diagnoses. This peer-reviewed study, which examined the rate of new PD cases or the number of individuals diagnosed with PD each year, was published in the scientific journal "npj Parkinson's Disease" on December 15, 2022. The Parkinson's Foundation initiated the Parkinson's Prevalence Project with the goal of determining a precise estimate of the disease's prevalence, which measures the total number of individuals affected by Parkinson's disease at a specific point in time (Foundation, 2022). According to their findings, it was estimated that as of 2020, approximately 930,000 people were living with Parkinson's disease in the United States. This number is projected to increase significantly to 1.2 million individuals by the year 2030. Additionally, a prior study supported by the Michael J. Fox Foundation (MJFF) and various partners unveiled the substantial economic burden of Parkinson's disease in the U.S. The study revealed that Parkinson's imposes an annual cost of \$52 billion on the nation, and this financial burden is anticipated to escalate to \$80 billion annually by the year 2037 (Yang et al., 2020). These findings highlight the need for a more comprehensive understanding of PD's prevalence and the importance of continued research and awareness in addressing this neurodegenerative condition.

Diagnosing PD is a multifaceted process that does not rely on a single definitive test. Instead, it involves a thorough assessment of a patient's medical history, clinical symptoms, and various medical tests. To establish a formal PD diagnosis, an individual must exhibit bradykinesia along with at least one other motor symptom, typically rigidity and/or tremor. While additional tests, such as a response to levodopa, a dopamine transporter scan, or testing for alpha-synuclein aggregates, can support the diagnosis, they are not always required. Other assessments, including Magnetic Resonance Imaging (MRI), Computerized Tomography (CT) scans, and blood tests, may be used to rule out other conditions with similar symptoms. Cognitive tests may also be employed to assess thinking abilities, while genetic testing can identify specific mutations in a small percentage of PD cases, offering insights into prognosis and eligibility for clinical trials. Notably, smell tests may help

in detecting early signs of PD, but they lack specificity, and not everyone with a loss of smell will develop the disease. Overall, the diagnosis of PD relies on a comprehensive evaluation and a process of elimination to rule out alternative explanations for the observed symptoms.

The complexity and diversity of PD symptoms underline its multifaceted nature, requiring tailored approaches to treatment and management that may include medications, physical therapy, and comprehensive support to enhance the overall well-being of those affected by this neurodegenerative condition. In May 2022, the World Health Assembly officially approved the Intersectoral Global Action Plan for Epilepsy and Other Neurological Disorders for the period 2022-2031 (WHO, 2023). This action plan is designed to tackle the existing challenges and deficiencies in the provision of care and services for individuals affected by epilepsy and other neurological disorders, including conditions like Parkinson's disease, which are prevalent worldwide. It aims to establish a comprehensive and well-coordinated response across various sectors. The key components of this plan encompass elevating policy prioritization, enhancing governance structures, ensuring the delivery of effective, timely, and responsive diagnosis, treatment, and care, implementing strategies for promotion and prevention, encouraging research and innovation, and reinforcing information systems.

Keywords: Parkinson's Disease, Statistics, Symptoms, Disease's Prevalence

Appendix A

Table 1

Current number of cases of Parkinson's Disease per 100,000 people, in both sexes aged age-standardized (Data, 2019)

Country or region	Cases			
	1990	2019	Absolute Change	Relative Change
Afghanistan	71.7	69.3	-2.4	-3%
Albania	89.9	97.9	+8.0	+9%
Algeria	72.9	80.4	+7.4	+10%
American Samoa	144.8	138.0	-6.7	-5%
Andorra	107.1	114.8	+7.7	+7%
Angola	53.6	59.1	+5.5	+10%
Antigua and Barbuda	87.1	104.6	+17.4	+20%
Argentina	90.4	86.4	-4.0	-4%
Armenia	75.3	80.4	+5.1	+7%
Australia	133.6	138.7	+5.1	+4%
Austria	107.6	128.3	+20.7	+19%
Azerbaijan	74.6	88.6	+14.1	+19%
Bahamas	87.5	96.2	+8.7	+10%
Bahrain	83.5	94.0	+10.5	+13%
Bangladesh	65.8	66.9	+1.1	+2%
Barbados	82.1	100.3	+18.2	+22%
Belarus	82.1	84.8	+2.7	+3%
Belgium	108.8	121.8	+13.0	+12%
Belize	80.6	92.0	+11.4	+14%
Benin	65.0	71.9	+6.9	+11%
Bermuda	108.5	114.9	+6.4	+6%
Bhutan	61.5	73.7	+12.2	+20%
Bolivia	83.5	92.2	+8.7	+10%
Bosnia and Herzegovina	91.6	92.5	+0.9	+1%
Botswana	54.4	70.5	+16.1	+30%
Brazil	73.4	87.5	+14.1	+19%
Brunei	77.0	91.6	+14.7	+19%
Bulgaria	99.4	90.9	-8.5	-9%
Burkina Faso	61.8	69.3	+7.4	+12%
Burundi	53.2	56.0	+2.8	+5%
Cambodia	83.4	89.6	+6.2	+7%
Cameroon	70.0	80.9	+10.9	+16%
Canada	80.5	120.8	+40.4	+50%
Cape Verde	59.3	73.9	+14.5	+24%
Central African Republic	52.8	53.0	+0.2	+0%
Chad	60.0	67.6	+7.5	+13%
Chile	84.6	93.2	+8.6	+10%
China	107.4	145.8	+38.5	+36%
Colombia	73.9	85.7	+11.8	+16%
Comoros	57.1	59.9	+2.8	+5%
Congo	58.3	64.0	+5.8	+10%
Cook Islands	152.2	143.8	-8.4	-5%
Costa Rica	85.6	97.3	+11.8	+14%
Cote d'Ivoire	72.3	78.8	+6.5	+9%

Table 1
Current number of cases of Parkinson's Disease per 100,000 people, in both sexes aged age-standardized (Cont.)

Country or region	Cases		Absolute Change	Relative Change
	1990	2019		
Croatia	87.2	96.7	+9.5	+11%
Cuba	73.5	93.5	+20.0	+27%
Cyprus	123.9	126.3	+2.5	+2%
Czechia	80.3	88.4	+8.1	+10%
Democratic Republic of Congo	55.2	57.4	+2.1	+4%
Denmark	90.2	115.2	+25.0	+28%
Djibouti	54.8	60.7	+5.9	+11%
Dominica	87.5	95.0	+7.5	+9%
Dominican Republic	68.0	87.8	+19.8	+29%
East Timor	79.2	89.5	+10.3	+13%
Ecuador	73.2	102.1	+28.9	+39%
Egypt	71.9	84.4	+12.5	+17%
El Salvador	73.4	91.4	+18.0	+24%
Equatorial Guinea	52.4	67.0	+14.6	+28%
Eritrea	50.3	57.9	+7.6	+15%
Estonia	97.0	91.7	-5.3	-5%
Eswatini	56.4	64.0	+7.5	+13%
Ethiopia	53.8	55.7	+1.9	+4%
Fiji	141.3	130.6	-10.7	-8%
Finland	103.8	128.9	+25.1	+24%
France	103.3	120.3	+17.0	+16%
Gabon	65.9	73.0	+7.1	+11%
Gambia	64.4	75.7	+11.3	+18%
Georgia	81.2	74.6	-6.5	-8%
Germany	101.6	130.5	+28.9	+28%
Ghana	61.4	70.2	+8.7	+14%
Greece	106.8	115.9	+9.1	+9%
Greenland	101.3	111.0	+9.7	+10%
Grenada	75.9	95.2	+19.3	+25%
Guam	148.0	124.6	-23.4	-16%
Guatemala	71.9	79.4	+7.5	+10%
Guinea	63.2	74.3	+11.1	+18%
Guinea-Bissau	65.6	70.2	+4.6	+7%
Guyana	79.5	88.7	+9.2	+12%
Haiti	68.1	81.2	+13.2	+19%
Honduras	75.1	87.9	+12.8	+17%
Hungary	77.2	83.8	+6.6	+8%
Iceland	127.2	147.5	+20.3	+16%
India	62.0	73.9	+11.9	+19%
Indonesia	84.2	89.9	+5.8	+7%
Iran	75.3	85.1	+9.8	+13%
Iraq	70.6	74.2	+3.6	+5%
Ireland	110.6	131.6	+21.0	+19%
Israel	115.9	115.5	-0.3	-0%
Italy	166.1	131.4	-34.7	-21%
Jamaica	76.6	88.7	+12.1	+16%
Japan	61.9	77.3	+15.4	+25%
Jordan	74.7	77.0	+2.2	+3%
Kazakhstan	75.8	84.2	+8.3	+11%
Kenya	54.3	56.4	+2.1	+4%
Kiribati	119.4	112.9	-6.6	-5%
Kuwait	78.0	71.4	-6.6	-9%
Kyrgyzstan	67.8	64.5	-3.3	-5%
Laos	81.5	89.6	+8.1	+10%
Latvia	88.4	85.5	-2.9	-3%
Lebanon	71.0	77.6	+6.6	+9%
Lesotho	50.5	55.8	+5.3	+10%
Liberia	64.5	70.6	+6.1	+10%
Libya	74.1	84.1	+10.0	+13%
Lithuania	81.0	85.4	+4.5	+6%
Luxembourg	117.6	135.5	+17.9	+15%
Madagascar	49.6	52.2	+2.6	+5%
Malawi	55.1	56.8	+1.7	+3%
Malaysia	97.1	108.0	+10.9	+11%
Maldives	106.4	113.3	+6.9	+7%
Mali	60.1	68.9	+8.7	+15%
Malta	109.4	128.3	+18.9	+17%

Table 1
Current number of cases of Parkinson's Disease per 100,000 people, in both sexes aged age-standardized (Cont.)

Country or region	Cases			
	1990	2019	Absolute Change	Relative Change
Marshall Islands	145.1	148.0	+2.9	+2%
Mauritania	63.9	68.9	+5.0	+8%
Mauritius	104.2	108.2	+4.0	+4%
Mexico	76.9	93.0	+16.1	+21%
Micronesia (country)	133.4	139.7	+6.2	+5%
Moldova	90.6	72.0	-18.6	-21%
Monaco	119.7	143.0	+23.3	+19%
Mongolia	73.3	66.4	-6.9	-9%
Montenegro	92.0	98.6	+6.6	+7%
Morocco	61.0	73.7	+12.6	+21%
Mozambique	51.9	56.4	+4.5	+9%
Myanmar	88.3	101.8	+13.5	+15%
Namibia	57.7	68.2	+10.5	+18%
Nauru	144.1	139.3	-4.7	-3%
Nepal	52.9	64.2	+11.3	+21%
Netherlands	132.3	128.4	-3.9	-3%
New Zealand	109.6	126.3	+16.6	+15%
Nicaragua	67.7	80.8	+13.1	+19%
Niger	60.6	66.2	+5.6	+9%
Nigeria	61.7	71.2	+9.4	+15%
Niue	142.5	147.6	+5.1	+4%
North Korea	112.4	101.8	-10.6	-9%
North Macedonia	87.4	97.4	+10.0	+11%
Northern Mariana Islands	173.4	158.2	-15.2	-9%
Norway	64.8	122.0	+57.2	+88%
Oman	87.8	112.5	+24.6	+28%
Pakistan	61.2	69.4	+8.2	+13%
Palau	160.1	156.3	-3.8	-2%
Palestine	76.7	78.3	+1.6	+2%
Panama	81.7	102.3	+20.6	+25%
Papua New Guinea	104.3	100.4	-3.9	-4%
Paraguay	72.9	87.7	+14.9	+20%
Peru	82.3	102.0	+19.7	+24%
Philippines	84.9	94.0	+9.1	+11%
Poland	108.4	107.5	-0.9	-1%
Portugal	90.1	111.2	+21.1	+23%
Puerto Rico	87.8	98.6	+10.8	+12%
Qatar	99.2	119.3	+20.1	+20%
Romania	72.6	84.7	+12.0	+17%
Russia	84.5	82.4	-2.1	-2%
Rwanda	53.9	56.9	+3.0	+6%
Saint Kitts and Nevis	103.7	111.8	+8.0	+8%
Saint Lucia	89.2	100.8	+11.6	+13%
Saint Vincent and the Grenadines	77.7	87.9	+10.2	+13%
Samoa	133.4	131.0	-2.5	-2%
San Marino	101.8	105.6	+3.8	+4%
Sao Tome and Principe	65.0	76.4	+11.4	+18%
Saudi Arabia	84.3	107.6	+23.3	+28%
Senegal	63.8	74.3	+10.5	+16%
Serbia	82.5	86.8	+4.3	+5%
Seychelles	119.4	131.0	+11.6	+10%
Sierra Leone	58.3	68.0	+9.8	+17%
Slovakia	79.8	81.7	+1.9	+2%
Slovenia	92.4	92.5	+0.2	+0%
Solomon Islands	129.1	127.0	-2.1	-2%
Somalia	50.2	49.5	-0.7	-1%
South Africa	55.6	65.6	+10.0	+18%

Table 1
Current number of cases of Parkinson's Disease per 100,000 people, in both sexes aged age-standardized (Cont.)

Country or region	Cases			
	1990	2019	Absolute Change	Relative Change
South Sudan	55.4	55.4	+0.1	+0%
Spain	119.1	124.7	+5.6	+5%
Sri Lanka	102.5	117.4	+14.9	+14%
Sudan	68.2	69.7	+1.5	+2%
Suriname	67.6	81.2	+13.7	+20%
Sweden	108.4	125.2	+16.8	+15%
Switzerland	115.1	119.2	+4.0	+3%
Syria	73.1	81.6	+8.5	+12%
Taiwan	132.9	151.1	+18.1	+14%
Tajikistan	79.5	102.2	+22.7	+29%
Tanzania	52.8	55.8	+3.0	+6%
Thailand	105.2	103.2	-2.0	-2%
Togo	63.9	70.4	+6.5	+10%
Tokelau	126.2	133.1	+6.9	+5%
Tonga	123.9	117.9	-6.0	-5%
Trinidad and Tobago	76.4	86.0	+9.6	+13%
Tunisia	69.2	79.6	+10.5	+15%
Turkey	71.1	86.9	+15.8	+22%
Turkmenistan	65.5	73.0	+7.5	+11%
Tuvalu	118.9	128.6	+9.7	+8%
Uganda	54.4	56.5	+2.1	+4%
Ukraine	90.5	90.9	+0.4	+0%
United Arab Emirates	103.8	116.0	+12.2	+12%
United Kingdom	135.6	126.9	-8.7	-6%
United States	93.7	106.1	+12.4	+13%
United States Virgin Islands	107.3	120.9	+13.6	+13%
Uruguay	85.6	88.1	+2.5	+3%
Uzbekistan	78.0	92.4	+14.4	+18%
Vanuatu	136.0	130.3	-5.6	-4%
Venezuela	72.3	88.0	+15.8	+22%
Vietnam	90.2	108.5	+18.3	+20%
Yemen	58.0	63.6	+5.6	+10%
Zambia	58.8	61.5	+2.6	+4%
Zimbabwe	63.2	64.0	+0.8	+1%
African Region (WHO)	59.5	65.7	+6.2	+10%
East Asia & Pacific (WB)	96.8	126.5	+29.7	+31%
Eastern Mediterranean Region (WHO)	67.4	77.8	+10.4	+15%
England	140.2	128.3	-11.9	-9%
Europe & Central Asia (WB)	104.9	109.9	+5.0	+5%
European Region (WHO)	105.0	109.9	+5.0	+5%
G20	95.7	112.3	+16.6	+17%
High Income (WB)	101.7	109.2	+7.5	+7%
Latin America & Caribbean (WB)	78.0	90.1	+12.1	+16%
Low Income (WB)	63.6	65.9	+2.2	+4%
Lower Middle Income (WB)	71.6	78.8	+7.2	+10%
Middle East & North Africa (WB)	74.3	83.7	+9.4	+13%
Middle Income (WB)	94.9	122.4	+27.5	+29%
North America (WB)	92.5	107.7	+15.3	+17%
Northern Ireland	115.9	127.0	+11.1	+10%
OECD Countries	100.2	107.3	+7.2	+7%
Region of the Americas (WHO)	86.9	99.6	+12.7	+15%
Scotland	109.0	116.2	+7.2	+7%
South Asia (WB)	63.5	73.6	+10.1	+16%
South-East Asia Region (WHO)	71.8	79.2	+7.3	+10%
Sub-Saharan Africa (WB)	59.0	64.5	+5.5	+9%
Wales	114.2	121.5	+7.3	+6%
Western Pacific Region (WHO)	97.3	130.6	+33.2	+34%
World	91.7	106.3	+14.5	+16%

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