

## Assessment of causes, knowledge and risk factors of Parkinson's disease among general population in Wasit Province, Iraq

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### Abstract

**Background:** Millions of individuals worldwide are afflicted by the widespread, progressive neurological condition known as Parkinson's disease. This study sought to identify the causes, risk factors, and general public understanding of Parkinson disease in Wasit, Iraq.

**Methods:** This cross-sectional research in Iraq involved 484 people in total. The period of data collection is from December 1, 2021, to April 15, 2022. A face-to-face interview and an electronic platform made public on social media were used to fill out a pre-tested questionnaire. Both descriptive and analytical statistics were used to analyze the data.

**Result:** According to the individuals' sociodemographic characteristics, there were 305 females (63%) and 179 men (37%) among them. 307 respondents, or 63.2%, were from Wasit. The majority of participants are aware that the brain is the organ most commonly impacted, and they also ask additional questions.

**Conclusion:** The patients and medical student may have acceptable knowledge about the disease.

**Keywords:** Parkinson's disease(PD); Knowledge; Central nervous system(CNS); Risk factors; Electronic platform

### 1. Introduction

James Parkinson initially identified Parkinson's disease (PD) as a central nervous system neurodegenerative condition in his 1817 research article, The Shaking Palsy<sup>[1]</sup>. Parkinson's disease, which is included in a spectrum of movement disorders, is the second most prevalent neurodegenerative disorder<sup>[2]</sup>. Different Parkinson's disease (PD) signs and symptoms, such as tremor (trembling in the head, hands, legs, arms, and jaw), solidity (stiffness of the limbs and trunk), bradykinesia (slowness of movement), and postural instability, developed as a result of the absence of dopamine and its related neurotransmitter, norepinephrine (impaired balance). These symptoms appear when 60 to 80 % or more of the substantia nigra's dopamine-producing cells are lost<sup>[1,2]</sup>.

Parkinson's disease can be sporadic or inherited, however at the moment; sporadic instances make up roughly 90% of all cases. However, it is well recognized that the intricate interaction of genetic and environmental risk factors determines the likelihood of sporadic Parkinson's disease (PD). The environmental risk factors for PD have been covered in a number of studies <sup>[3]</sup>. While smoking, caffeine, and alcohol intake have an unfavorable relationship with PD, factors including head injury, pesticide exposure, and anxiety diary products have a positive link with PD <sup>[4]</sup>.

The etiology of the disease may be due to increased oxidative stress, which is a significant factor in PD and severe depression<sup>[5,6]</sup>. Dopamine content decreases with chronic stress but dopamine release increases with acute stress. <sup>[7]</sup>.

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Therefore, the depletion of dopamine and emergence of PD may be caused by long-term stress. PD may develop as a result of a person's stressful life, including emotional stress. Depression is a condition that affects PD patients at all stages<sup>[7]</sup>. Therefore, the purpose of this study was to assess the prevalence of Parkinson disease in Wasit City, Iraq, as well as its causes, risk factors, and knowledge.

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## **2. Material and Methods**

### **2.1. Study design and setting**

In the governorate of Wasit, a cross-sectional observational research was carried out. To perform this study, one government hospitals in Wasit were chosen at random.

### **2.2. Study time and duration**

Data were gathered for around five months beginning on December 1 and ending on April 15, 2022.

### **2.3. Sampling method and sample size**

The total number of samples collected was 484. The samples came from one government hospital and were randomly selected (Alzahara teaching hospital ). A Google form was used to host and disseminate the questionnaire, and respondents were also provided with the URL via Facebook groups. 484 people in total, of both sexes, participated in the study.

### **2.4. Data Collection**

The interview was done by the researcher utilizing a structured questionnaire form, both directly with patients through social media platforms and indirectly through the use of the electronic form.

Three components make up the questionnaires.

Part 1: Questions related to sociodemographic data:

\*Gender

\*Age

\*Educational level

\*Address

Social status

Part 2: Parkinson disease causes and risk factors in Iraqi society as a whole. Five "yes" or "no" questions were used to evaluate the causes and risk factors.

Part 3: Questions to gauge public understanding about Parkinson's illness. Six questions measuring their knowledge were each followed by a single-choice response.

### **2.5. Ethical consideration**

Before beginning the trial, the health department and hospital administrators gave their official clearance. All participants were informed of the study's purpose, and their agreement was acquired. A doctor conducted an interview with the willing patients following their consultation. By not requesting names or contact information, the questionnaire guaranteed the responders' anonymity. To prevent anyone from overhearing the interviews, they were held in a private area away from other people.

### **2.6. Statistical Analysis**

SPSS version 26 was used for computer-aided data analysis. While qualitative factors were presented using frequencies, Chi-square and MacNemar tests, quantitative data were shown as means and standard deviations (SD).

### 3. Results

Table 1 illustrates the sociodemographic details of the individuals. 484 people completed the google form to participate in the study. 38 (7.9%) of the sample's participants were over the age of 30, 354 (73.1%) were between 20 and 20, and 92 (19%) were under 20. Males formed 37% (179 respondents) of the population overall, while females made up 63% (305 respondents). The bulk of the respondents, 307 (63.4%), resided in Wasit, while 177 (36.6%) were from other regions. There were 359 responders from universities (74.2%), 99 from secondary schools (20.5%), and 26 from the general population (5.4%). About 379 (78.3%) were single people and 105 (21.7%) were married. As shown in (Table 1)

**Table 1** Demographics of survey participants (n = 484)

Variables	N	%
Gender		
Male	179	37
Female	305	63
Educational level		
Secondary school	99	20.5
University	359	74.2
Master	26	5.4
Address		
Wasit	307	63.4
Thi Qar	107	22.1
Baghdad	26	5.4
Al-Qadisiyah	16	3.3
Babil	12	2.5
Basrah	11	2.2
Karbala	5	1.0
Social status		
Single	379	78.3
Married	105	21.7
Age group		
below 20	92	19.0
20-30	354	73.1
above 30	38	7.9

Table 2 shows some risk factors and their relation to Parkinson's disease, there is a strong association between Parkinson's disease and previous history of stroke ( $p=0.005$ ) and there is a significant difference with using drugs for CNS disorders ( $p<0.001$ ), while there is no significant between Parkinson disease and head trauma ( $p=0.146$ ) or insecticides exposure ( $p=0.108$ ). As we see below.

**Table 2** Risk factors that associated with Parkinson disease (n=214)

Variable	Relative diagnosed with Parkinson		P value
	Yes	No	
Previous history of stroke			
No	25	432	0.65
Yes	6	21	
drugs for CNS disorder			
No	15	379	<0.0001
Yes	16	74	
Living nearby factories			
No	28	362	<0.0001
Yes	3	91	
Exposed to pesticides			
No	25	310	<0.0001
Yes	6	143	
Previous head trauma			
No	21	352	<0.0001
Yes	10	101	

Table 3 shows the general knowledge of the population about Parkinson's disease. more than three-quarters of the sample (377 ) thought that the brain was the affected organ. more than 80% believed there is neural damage that leads to causes Parkinson's disease. 66% of the sample believed elderly people are suitable for Parkinson's disease. 77% of the sample believed males are most common than females. only 21% of the sample thought Parkinson's disease may affect the quality of jobs. 301 of the sample believed Parkinson's disease can increase the risk of depression in their patients.

**Table 3** Knowledge of people about Parkinson disease

Variables	N	%	P-value
Effected organ			<0.0001
Brain	377	77.9	
Heart	29	6.0	
Kidney	8	1.7	
Don't know	70	14.5	
Cause of disease			<0.0001
Inflammation	11	2.3	
Neural damage	395	81.6	
Tumor	14	2.9	
Don't know	64	13.2	
Risky age group			<0.0001

Childhood	54	11.2	
Adult	30	6.2	
Elderly	320	66.1	
Don't know	80	16.5	
Effect on job			<0.0001
No	206	42.6	
Yes	103	21.3	
Don't know	175	36.2	
Increase risk of depression			<0.0001
No	56	11.6	
Yes	301	62.2	
Don't know	127	26.2	
Risky gender			<0.0001
Female	104	21.5	
Male	380	78.5	

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#### 4. Discussion

Parkinson's disease (PD) is a central nervous system neurodegenerative condition. Symptoms appear when the substantia nigra in the brain loses 60–80% or more of its dopamine-producing cells. In this research, we will discuss the knowledge of people in Iraq about Parkinson's disease and study some risk factors. The study comprised a total of 484 respondents who answer the google form. 307 (63.4%) of the respondents, who made up the majority, resided in Wasit province. Males made up 37% (179 respondents) of the sample. More than three-quarters of the sample thought that the brain was the affected organ compared with another study that showed 97% thought the brain was the affected organ (8), this simple difference may be due to the educational level of studies. More than 80% were known the pathology of the disease. In the previous study, the number of people who know the pathology of the disease was higher (90%) (8), incidence of PD in males and females increased with age (9) so two third of our sample answered about suitable age for PD correctly.

Parkinson's disease and pesticide exposure are unrelated ( $p=0.108$ ), however other research found that the length of pesticide exposure was connected with a higher risk (10). Parkinson's sufferers were 1.61 times more likely than their unaffected relatives to admit to having ever been directly exposed to pesticides (11). This discrepancy can be the result of an unremembered period of prior pesticide exposure.

Head trauma is not related to an increased risk of PD ( $p=0.146$ ). However, some studies suggested Head trauma carries an increased risk of Parkinson's disease, especially in those with repeated head trauma (12).

There were a few limitations to our study. first, people had poor medical knowledge so we complained about some difficulties in dealing with them. second, there were some difficulties in data collection due to the COVID-19 pandemic. third, there were some problems because of the difficulty of our college and many exams that synchronized with the data collection period. fourth, data was not involved all social groups in Iraq.

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#### 5. Conclusion

The patients and medical student may have acceptable knowledge about the disease. Research is required to understand how the general public feels, thinks, and acts about Parkinson's disease. Studies should correct our limitations and study other risk factors. Further educational initiatives are suggests need for future preventive strategies.

## Compliance with ethical standards

### *Acknowledgments*

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### *Disclosure of conflict of interest*

The authors declare no conflict of interest.

### *Statement of ethical approval*

Ethical approval for this study was done.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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