Parkinson's Disease in Bangladesh: An Evaluation of the Public Knowledge and Awareness

By

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Bachelor of Pharmacy (Hons.)

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Declaration

It is hereby declared that

1. The thesis submitted is our own original work while completing degree at Brac University.
2. The thesis does not contain material previously published or written by a third party, except where this is appropriately cited through full and accurate referencing.
3. The thesis does not contain material which has been accepted, or submitted, for any other degree or diploma at a university or other institution.
4. I have acknowledged all main sources of help.

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Approval

The thesis titled “Parkinson's Disease in Bangladesh: An Evaluation of the Public Knowledge and Awareness” submitted by Amal Chowdhury (17346052) of Spring, 2017 has been accepted as satisfactory in partial fulfillment of the requirement for the degree of Bachelor of Pharmacy (Hons).

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Ethics Statement

This project did not involve any animal trial.

Abstract

Background: Parkinson's Disease poses a monumental health burden, one which is often misunderstood and underestimated by the general public.

Objective: This study was designed to assess Bangladesh's general population's knowledge and awareness pertaining to Parkinson's disease.

Methods: A cross sectional study was administered and regulated among Bangladeshis. Data were collected through a questionnaire which was validated previously and employed in other surveys evaluating similar parameters.

Results: Vast majority of the respondents inferred to PD being more common in older people and also indicated that they believe PD can affect younger generation too. Overall the motor symptoms were much more recognized: the range being from 21%-100% and that for non-motor symptoms being only 6%-19% respectively.

Conclusion: From our findings we came to the conclusion – people are mostly unaware of the non-motor symptoms of PD, many have misunderstandings about the treatment of this disease and most are unaware about the pattern and extent of prevalence of Parkinson's Disease

Keywords: Epidemiology; Knowledge; Awareness; Education; Survey

Dedication

Dedicated to my sister.

Acknowledgement

This is a research project under the supervision of Ms. Marzia Alam, Lecturer at the Department of Pharmacy, Brac University. I would like to acknowledge the contributions of Ms. Marzia Alam Ma'am. She has passed on her invaluable experience and wisdom to me regardless of my personal shortcomings. I want to thank her for her support, guidance and above all her patience.

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List of Acronyms

PD	Parkinson's Disease
KPDQ	The Knowledge of Parkinson’s Disease Questionnaire
MS	Motor Symptom
NMS	Non-motor Symptom

Chapter 1

Introduction

1.1 Background

Parkinson’s disease i.e. PD is the kind of disease which is inherently idiopathic in nature and is of the neurological system characterized by indications which pertain to both the motor and non-motor systems. It is a chronic progressive neurodegenerative disorder (Beitz, 2014). It occurs mostly in older people but younger patients cannot be disregarded since its prevalence in the younger generation has been observed to be growing in recent times (Quinn et al., 1987). Unfortunately, Parkinson's disease (PD) is a rather common and exceedingly prevalent neurological disorder, which leads to an accelerated incapacity and ailment that can be decelerated but cannot be cured by treatment (Alyamani et al., 2018). Its incidence has made it the second most common neurodegenerative disease (Sherer et al., 2012).

Despite the fact that Parkinson’s Disease is the second most prevalent neurodegenerative disease (Hague et al., 2005), the public awareness of Parkinson’s Disease is unknown, especially in the context of Bangladesh. There are leaps in scientific research being made on the quest to investigate this disease’s pathophysiology, diagnosis, and treatment (Ehsan et al., 2021). But it is speculated that the general people remains unaware of this devastating disease of subtle emergence and programs which are specifically designed to educate the general population focusing on this particular neurodegenerative disease are lacking. Hence, the Global Directive on Parkinson’s Disease by the World Health Organization entails and urges for efforts to “increase public awareness of PD as a priority health challenge” (Tan et al., 2015).

Despite there being conducted studies regarding the understanding of Parkinson’s Disease in caregivers with less than ideal results (G. B. Lee et al., 2019) even in developed countries with

exemplary healthcare systems the patient awareness regarding this unsettling disease and studies investigating it is scarce. In a research study conducted amongst the general people of Singapore it was found that 85.3% of patients lacked any undertsanding of the disease (K. S. Lee et al., 1994). Significant evidence regarding knowledge gap among PD patients and in the general population was found in some Asian countries (Viwattanakulvanid et al., 2020).

1.2 Importance of Health Literacy in Patients Health Outcome

Parkinson's disease (PD) is directly associated with worse patient outcomes due to delayed treatments as found in previous research. This could be traced to the fact that functional decline in most cases is difficult to reverse, upon the patient becoming disabled from the inflation of motor problems (Grosset et al., 2007). Multiple clinical studies support the hypothesis that early pharmacological intervention may decelerate the clinical progression of PD (Löhle et al., 2014). In order for early pharmacological intervention to be made an early diagnosis is required and this process can be accelerated by the patient engagement provided that the patient possesses knowledge and awareness regarding the signs, symptoms and treatment of PD.

It is absolutely imperative that we prioritize health literacy for patient engagement in the healthcare process particularly in health concerns such as Parkinson's Disease since it relays to important consequences on the health outcomes (Theo Raynor, 2012). Public awareness and knowledge about PD is crucial to encourage and catalyze essential health-seeking practices. But not only is the general population's access to such relevant literature limited but even the existing literature cannot be regarded as layman friendly or easily understandable for an individual without a healthcare background.

The nerve cells in the brain responsible to produce dopamine is the site of error in this disease, these nerve cells are affected. Changes in speech, tremors and muscle rigidity are a few of its many symptoms. (Tan et al., 2015). If the general population is aware of this concerning

disease’s causes, signs, symptoms and even just knowing some basic knowledge about a disease as highly misunderstood as Parkinson's Disease—could result in ideal health outcomes.

1.3 Purpose of the Study

We primarily aimed to evaluate the level of public knowledge and awareness pertaining to Parkinson’s Disease amongst the population of Bangladesh, helping ascertain the awareness of the disease.

Chapter 2

Methodology

2.1 Study Design and Participants

A cross sectional study was administered and regulated among Bangladeshis. Data were collected between 19th May,2021 to 19th June,2021. The Data collection process was conducted for a period of 32 days. Data were collected through a questionnaire which was validated previously and employed in other surveys evaluating similar parameters (Tan et al., 2015). The survey questionnaire did not contain any open-ended questions.

The form commenced with the question requiring the participants to give consent to participating in the survey. Upon agreeing to the aforementioned prompt the participants were directed to the first part of the Survey questionnaire. (This nature of agreement on the participant's part was deemed adequate, because the questionnaire was an inherently brief one with no personal information like the email address of the participant being collected. It was designed to be entirely anonymous to protect participant's privacy. Moreover, the demographic data being collected posed no downside or distress to the participants). The first part of the questionnaire was the part which intended to collect demographic data. The second part of the questionnaire tests recognition of PD symptoms, whilst the third portion of the questionnaire tests common understanding of PD. Demographic data of the respondents were collected. The questionnaire was uploaded as a Google form and distributed through social media.

2.2 Questionnaire

2.2.1 First Part of the Questionnaire

The questionnaire evaluates the recognition of PD symptoms and general knowledge regarding PD. The questionnaire dubbed KPDQ (The Knowledge of Parkinson's Disease Questionnaire)

was designed and developed by neurologists with expertise in PD, epidemiology and questionnaire design (Malaysian PD Association members) (Tan et al., 2015). The demographic information which were collected in the first part of the questionnaire included-- Highest Level of Education Attained, Gender, Age, Profession & City of Residence.

2.2.2 Second Part of the Questionnaire

The second part of the questionnaire assessed the recognition of symptoms associated with Parkinson's Disease amongst 14 symptoms which were listed in the form. Amongst the fourteen symptoms four were motor symptoms and ten were non-motor symptoms. The form included a prompt which instructed the participants to mark "problems experienced by people with Parkinson's Disease".

2.2.3 Third Part of the Questionnaire

In the third and final part of the google form based questionnaire, respondents were instructed to select either the option true or false according to their understanding and comprehension for ten statements. Only the parameters and aspects associated with the practical significance of Parkinson's Disease are tested and various nuances of PD are projected including diagnosis in the subsequent first and fourth statement which were presented in the questionnaire for the participants' to mark as true or false. The etiology of Parkinson's Disease, pertaining to the set of causes of the disease were assessed in the second and third statements. The occurrence determinants and the genetic pattern i.e. epidemiology awareness of PD was assessed in the statements fifth, sixth and seventh. The latter, eighth and ninth statements were regarding knowledge about the treatment of PD and lastly the perceived psychosocial impact of the PD was evaluated by the tenth statement.

2.3 Statistical Analyses

The data which were obtained from forms filled by the participants were entered using Microsoft Excel. Then the acquired data were exported for analysis to IBM SPSS software trial version (IBM SPSS Statistics 28.0). The subsequent results which were obtained were interpreted using descriptive statistics. Those descriptive statistics were namely the measures of central tendency (mean) and that of dispersion (standard deviation). Also, the distribution of frequencies had been measured. A chi-square test or Fisher's exact test was performed to compare categorical variables. P values <0.05 were considered significant. Pearson's chi-square was conducted to explore statistical significance regarding public awareness of Parkinson's Disease among different age groups, gender, or education level.

Chapter 3

Result

3.1 Demographics for the study

In the study, of the 100 participants included in the analysis 57% were female and 43% were male. In regards to age, 43% of the population belonged to the age group 18-24 years old, 42% were within the age group 25-34 years old. Also, 8% of the entire population was of the age group 35-44 years old and only 7% were older than 45 years.

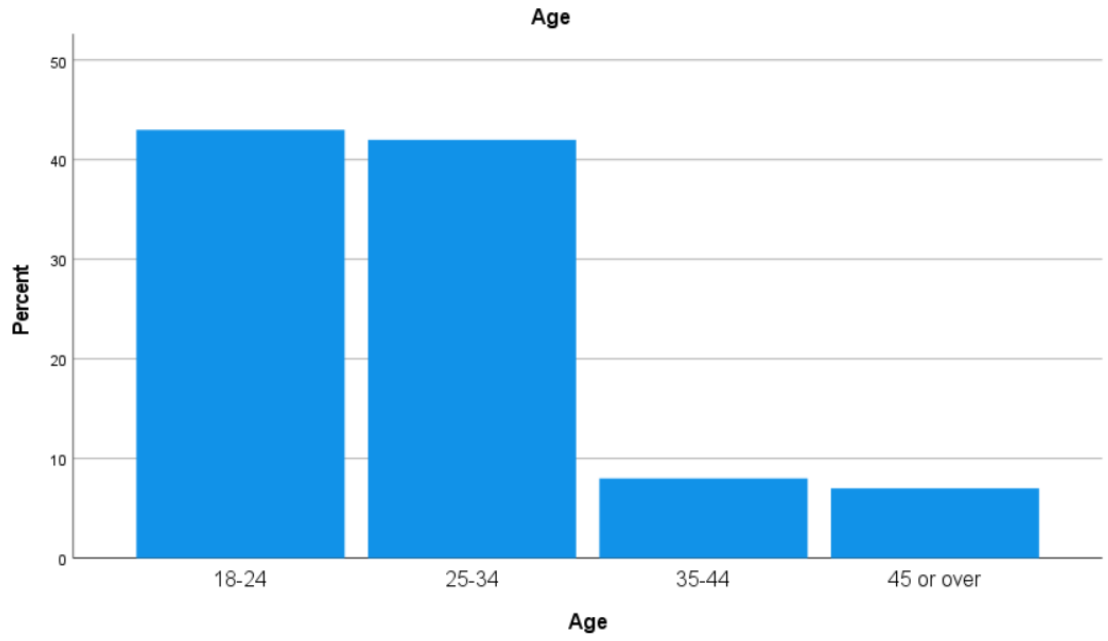

Figure 1 Age of Participants

In case of city of residence, the population included participants from Dhaka, Chittagong, Sylhet and Khulna. 79% were from Dhaka, 16% from Chittagong, 2% from Sylhet and only 3% of the entire population resided in Sylhet.

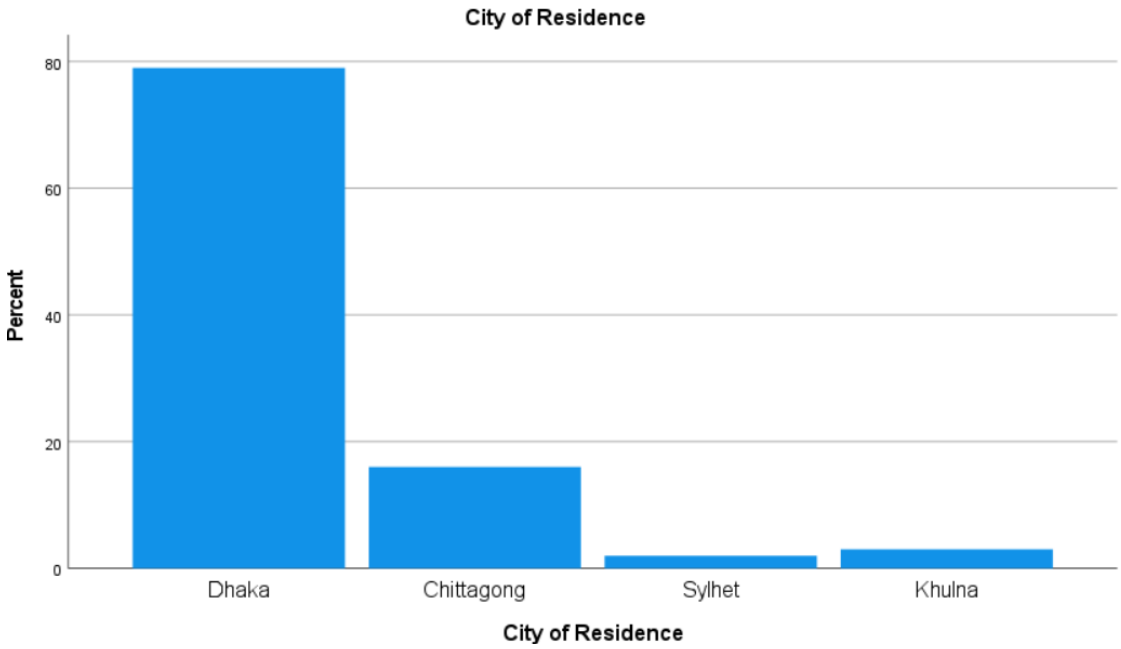

Figure 2 City of Residence of Participants

Amongst the population, 57% had attained an undergraduate degree which implies they had over at least 14 years of education. 14% had attained a post graduate degree, 5% completed diploma and 1% of the population was a PhD. holder which would also mean they had attained at least 14 years of education too. 21% had completed high school and 2% had middle school level of education. So, these group of participants had less than 14 years of education(*Question: What Is the Highest Grade or Level of School the Participant Has Completed or the Highest Degree They Have Received | NIDA CTN Common Data Elements*, n.d.).

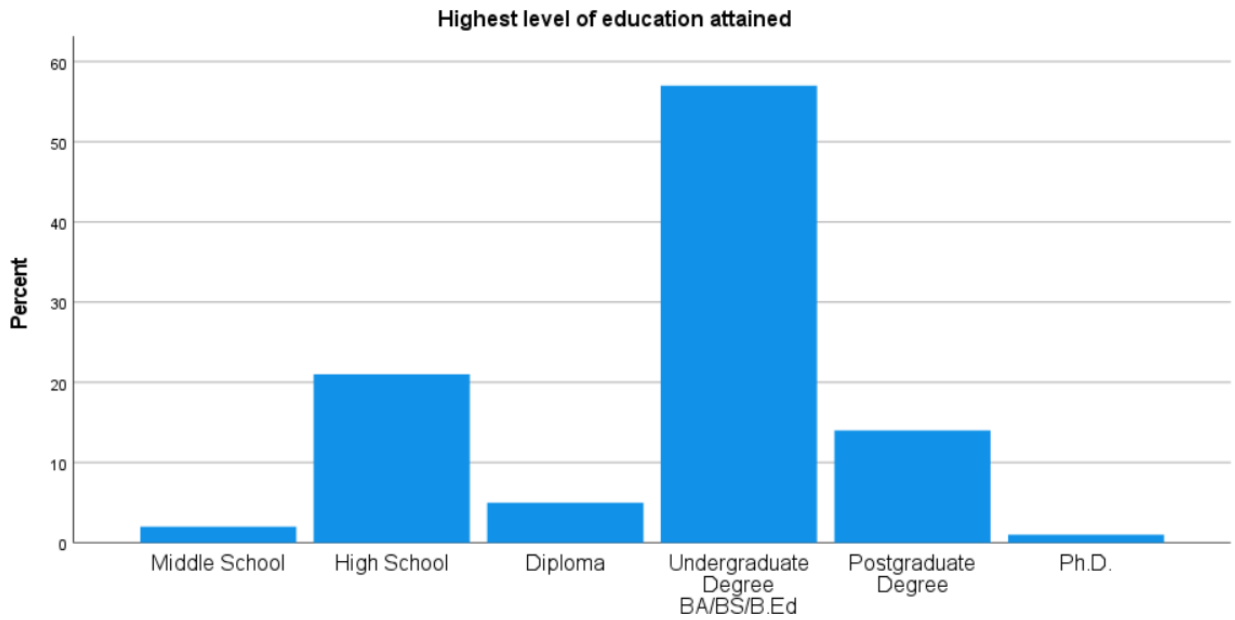

Figure 3 Highest Level of Education Attained by Participants

3.2 Assessment of Participants' Recognition of Symptoms Associated with Parkinson's Disease

Amongst the fourteen symptoms which included four motor symptoms and ten non-motor symptoms of PD the one symptom which was recognized by a 100% of the population was involuntary shaking movement (tremors). The least recognized symptom was reduced sense of smell, which was recognized by only 6% of the population. Amongst the four motor symptoms namely involuntary shaking movement (tremors), imbalance/ tendency to fall, muscle stiffness and slowness of movement the least recognized symptom was muscle stiffness (rigidity), will only 21% of the population having recognized it. The other two symptoms—imbalance/tendency to fall and slowness of movement were each recognized by 49% and 32% of the total respondents.

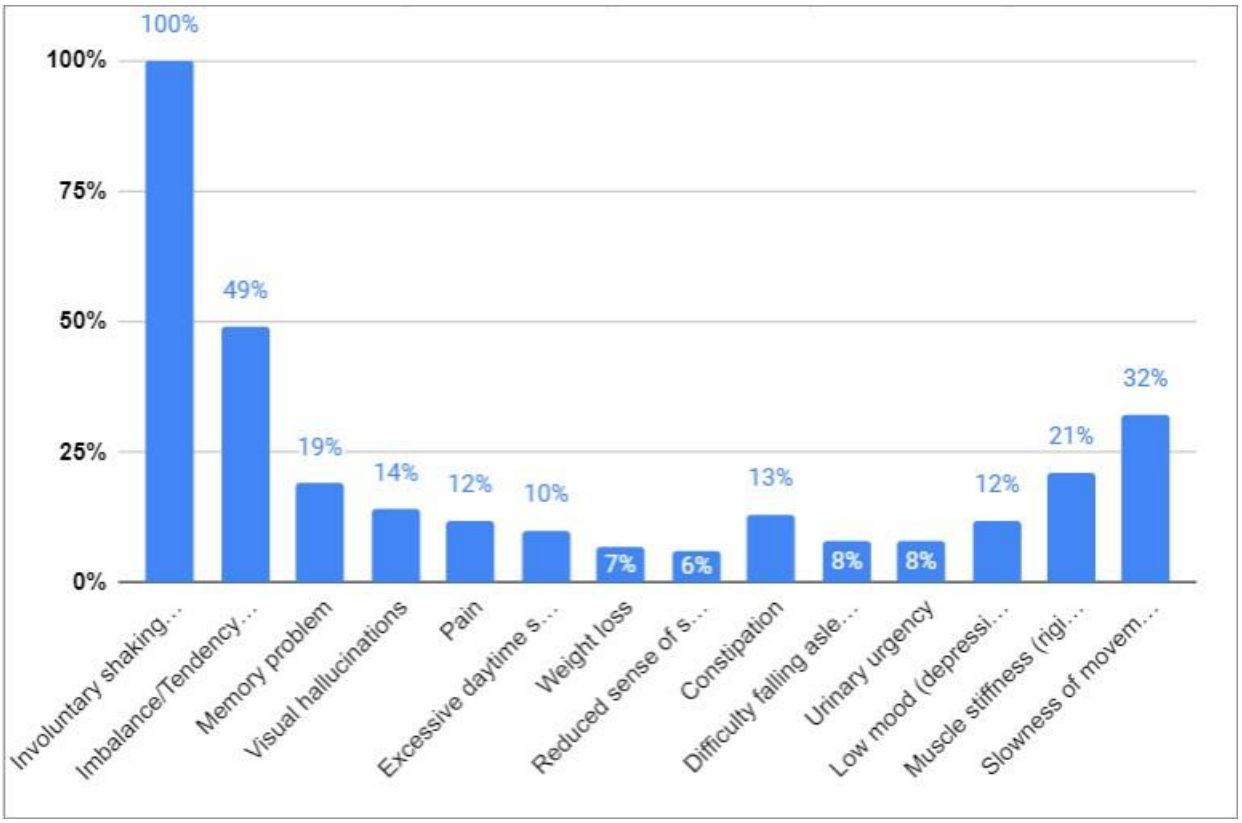

Figure 4 Recognition of Symptoms Associated with Parkinson's Disease

In case of non-motor symptoms, the most recognized symptom was memory problems with 19% of the entire population indicating it to be a symptom of PD. Subsequently, the NMS namely visual hallucinations, constipation, pain and low mood (depression) were picked out by 14%, 13%, 12% and also 12% of the population respectively. Other less spotted non-motor symptoms included excessive daytime sleepiness which was spotted out by 10% of participants respectively. The least identified NMS included difficulty falling asleep, urinary urgency, weight loss and reduced sense of smell— each being identified by only 8%, 8%, 7% and 6% of the total population of participants. Overall the motor symptoms were much more recognized: the range being from 21%-100% and that for NMS being only 6%-19%.

3.3 Assessment of General Knowledge Regarding Parkinson's Disease and its Diagnosis

Table 1 Assessment of Participants' General Knowledge Regarding Parkinson's Disease and its Diagnosis according to Age

Serial No.	Statement Number	Variable	True	False	P Value
1	First Statement	Parkinson's disease and Alzheimer's disease are different names for the same disease.	**22%**	**78%**	**0.216**
2	Fourth Statement	All patients with Parkinson's disease experience tremor (involuntary shaking movements)	**91%**	**9%**	**0.260**

In response to the first statement relating to general knowledge about PD— 78 respondents had correctly identified the statement to be false and 22 respondents had inaccurately identified the statement to be true. Among the respondents who had correctly ticked false 29 were of the age group 18-24 years old, 37 were of the age group 25-34 years old, 6 were within the ages of 35-44 years old and the rest 6 were older than 45 years of age. Amongst the respondents, 37.18% (18-24 years), 47.44% (25-34 years), 7.69% (35-44 years) and 7.69% (45 years<) accurately ticked off the statement to be false. However, the correlation between this knowledge and age is not significant since P is not <0.05 (Table 1).

On the other hand, in response to the fourth statement relating to PD — 91 respondents had inaccurately ticked true and only 9 respondents had correctly identified the statement to be false. Among the respondents who had correctly identified the statement to be true 35 were of age group 18-24 years old, 42 belonged to the age group 25-34 years old, 7 were aged between 35-44 years old and 7 were older than 45 years of age. Amongst the participants 38.46% (18-24 years), 46.15% (25-34 years), 7.69% (35-44 years) and 7.69% (45<) accurately ticked off

the statement to be true. In this case, the correlation between this knowledge and age is found to be not significant since P<0.05 and the observed P value was .356 (Table 2).

Table 2 Assessment of Participants' General Knowledge Regarding Parkinson's Disease and its Diagnosis according to Highest Level of Education Attained

Serial No.	Statement Number	Variable	True	False	P Value
1	First Statement	Parkinson's disease and Alzheimer's disease are different names for the same disease.	**22%**	**78%**	**0.216**
2	Fourth Statement	All patients with Parkinson's disease experience tremor (involuntary shaking movements)	**91%**	**9%**	**0.260**

Amongst the respondents who had correctly identified the first statement to be false 19 had less than 14 years of education and 59 had either equivalent to or more than 14 years of education. That is, 24.36% of the population who had accurately regarded the statement to be false had less than 14 years of education and 75.64% had either equivalent to or more than 14 years of education. However, the correlation between this knowledge and level of education attained by the respondents is not significant since P<0.05 (Table 2).

On the other hand, in response to the fourth statement relating to the diagnosis and also pertaining to general knowledge about PD— 91 respondents had ticked true and only 9 respondents had correctly identified the statement to be false. Among the respondents who had correctly identified the statement to be false, 2 had less than 14 years of education and 7 had attained educational degrees which transgressed 14 years or equal to 14 years. That is, 22.22% had less than 14 years of education and 77.78 had attained an educational level which was equal to 14 years or more. However, the correlation between this knowledge and level of education is not significant since P<0.05 (Table 2).

3.4 Assessment of Knowledge Regarding Etiology of Parkinson's Disease

Table 3 Table 3 Assessment of Participants' Knowledge Regarding Etiology of Parkinson's Disease According to Age

Serial No.	Statement Number	Variable	True	False	P Value
1	Second Statement	Parkinson's disease is a degenerative disease of the brain (associated with loss of brain cells)	**89%**	**11%**	**0.518**
2	Third Statement	In Parkinson's disease, the level of a chemical (neurotransmitter) in the brain called dopamine is reduced	**91%**	**9%**	***0.020**

In response to the second statement relating to the etiology PD—89 respondents had correctly ticked true and 11 respondents had identified the statement to be false. Among the respondents who had correctly identified the statement to be true 37 were aged between 18-24 years, 37 were within 25-34 years of age, 8 belonged to age group 35-44 years old and the rest 7 were above the age of 45 years. Hence, amongst the respondents 47.57% (18-24 years), 47.57% (25-34 years), 8.99% (35-44 years) and 7.87% (45 years<) of age accurately ticked off the statement to be false. However, the correlation between this knowledge and age is not significant since $P<0.05$ (Table 3).

On the other hand, in response to the third statement relating to the etiology of PD— 91 respondents had accurately ticked true and only 9 respondents had incorrectly identified the statement to be false. Among the respondents -- 35 (18-24 years), 42 (25-34 years), 7 (35-44 years old) and 7 (45 years<) had correctly identified the statement to be true. Hence, amongst the respondents who accurately ticked off the statement to be true 38.46% were aged between 18-24 years, 46.15% were between the ages of 25-34 years, 7.69% were in between 35-44 years old and 7.69% were older than the age of 45. In this case, the correlation between this

knowledge and age is found to be significant since P<0.05 and the observed P value was 0.020 (Table 3).

Table 4 Assessment of Participants' Knowledge Regarding Etiology of Parkinson's Disease According to Highest Level of Education Attained

Serial No.	Statement Number	Variable	True	False	P Value
1	Second Statement	Parkinson's disease is a degenerative disease of the brain (associated with loss of brain cells)	**89%**	**11%**	***0.014**
2	Third Statement	In Parkinson's disease, the level of a chemical (neurotransmitter) in the brain called dopamine is reduced	**91%**	**9%**	**0.598**

Amongst the respondents who had correctly identified the second statement to be true 16 had less than 14 years of education and 73 had either equivalent to or more than 14 years of education. That is, 17.98% of the population who had accurately regarded the statement to be false had less than 14 years of education and 82.02% had either equivalent to or more than 14 years of education. Consequently, the correlation between this knowledge and level of education attained by the respondents is significant since P<0.05 (Table 4).

On the other hand, in response to the third statement relating to the diagnosis and also pertaining to general knowledge about PD— 91 respondents had correctly ticked true and only 9 respondents had identified the statement to be false. Among the respondents who had correctly identified the statement to be false, 19 had less than 14 years of education and 72 hadattained educational degrees which transgressed 14 years or equal to 14 years. That is, 20.88%had less than 14 years of education and 79.12 had attained an educational level which was equal to 14 years or more. However, the correlation between this knowledge regarding etiologyand level of education attained is not significant since P<0.05 (Table 4).

3.5 Assessment of Knowledge Regarding Epidemiology of Parkinson's Disease

Table 5 Assessment of Participants' Knowledge Regarding Epidemiology of Parkinson's Disease According to Age

Serial No.	Statement Number	Variable	True	False	P Value
1	Fifth Statement	Parkinson's disease is more common in older persons	**93%**	**7%**	**0.643**
2	Sixth Statement	Parkinson's disease can also affect young adults	**93%**	**7%**	**0.181**
3	Seventh Statement	Parkinson's disease usually affects multiple members of the same family	**90**	**10**	**0.467**

In response to the fifth statement relating to the epidemiology PD—93 respondents had correctly ticked true and 7 respondents had identified the statement to be false. Among the respondents who had correctly identified the statement to be true 41 were within the 18-24 years, 38 were aged between 25-34 years old, 7 were of the age 35-44 years and the remaining 7 were aged older than 45 years. Hence, amongst the respondents 44.09% (18-24 years), 40.86% (25-34 years), 7.53% (35-44 years) and 7.53% (45 years<) accurately ticked off the statement to be true. However, the correlation between the knowledge of epidemiology and age is not significant since $P<0.05$ (Table 5).

On the other hand, in response to the sixth statement relating to epidemiology of PD— 93 respondents had ticked the accurate option which was true and only 7 respondents had incorrectly identified the statement to be false. Among the respondents 41 (8-24 years), 39 (25-34 years), 6 (35-44 years old) and 7 (45 years<) had correctly identified the statement to be true. However, the correlation between this knowledge and age is not significant since $P<0.05$ (Table 5).

Additionally, in the case of the seventh statement relating to the epidemiology PD—90 respondents had incorrectly identified the statement to be true and only 10 respondents had correctly identified the statement to be false. Among the respondents who had correctly identified the statement to be false 4 were aged between 18-24 years, 3 aged between 25-34 years, 2 were in between the ages 35-44 years and the 1 over 45 years of age. Hence, amongst the respondents 40% (18-24 years), 30% (25-34 years), 20% (35-44 years) and the rest 10% (45 years) accurately ticked off the statement to be true. However, the correlation between the knowledge of epidemiology and age is not significant since P<0.05 (Table 5).

Table 6 Assessment of Participants' Knowledge Regarding Epidemiology of Parkinson's Disease According to Highest Level of Education Attained

Serial No.	Statement Number	Variable	True	False	P Value
1	Fifth Statement	Parkinson's disease is more common in older persons	**93%**	**7%**	**0.850**
2	Sixth Statement	Parkinson's disease can also affect young adults	**93%**	**7%**	***0.016**
3	Seventh Statement	Parkinson's disease usually affects multiple members of the same family	**90**	**10**	**0.349**

In response to the fifth statement relating to the epidemiology PD—93 respondents had correctly ticked true and 7 respondents had identified the statement to be false Amongst the respondents who had correctly identified the fifth statement to be true-- 21 had less than 14 years of education and 72 had either equivalent to or more than 14 years of education. That is, 22.58% of the population who had accurately regarded the statement to be true had less than 14 years of education and 77.42% had either equivalent to or more than 14 years of education. Consequently, the correlation between this knowledge of epidemiology of PD and level of education attained by the respondents is not significant since P<0.05 (Table 6).

Amongst the respondents who had correctly identified the sixth statement to be true 22 respondents had less than 14 years of education and 71 respondents had either equivalent to or more than 14 years of education. That is, 23.66% of the population who had accurately regarded the statement to be true had less than 14 years of education and 76.34% had either equivalent to or more than 14 years of education. Consequently, the correlation between this knowledge and level of education attained by the respondents is significant since P <0.05 and the observed value is .016 (Table 6).

On the other hand, in response to the seventh statement relating to the epidemiology of PD—90 respondents had incorrectly ticked true and only 10 respondents had correctly identified the statement to be false. Among the respondents who had correctly identified the statement to be false, all 10 respondents had attained educational degrees which transgressed 14 years or equal to 14 years. However, the correlation between this knowledge regarding epidemiology and level of education attained is not significant since P<0.05 (Table 4).

3.6 Assessment of Knowledge & Awareness Regarding Treatment of Parkinson's Disease

Table 7 Assessment of Participants' Knowledge &Awareness Regarding Treatment of Parkinson's Disease According to Age

Serial No.	Statement Number	Variable	True	False	P Value
1	Eight Statement	There are new treatments that can cure Parkinson's disease	**84%**	**16%**	**0.615**
2	Ninth Statement	There are treatments that can improve the symptoms of Parkinson's disease	**95%**	**5%**	**0.381**

In regards to the eight statement relating to the general knowledge awareness about treatment of PD— 84 respondents had inaccurately identified the statement to be true and 16 respondents had correctly identified the statement to be false. Among the respondents who had correctly identified the statement to be false 5 had been of the age 18-24 years, 8 belonged to the age group 25-34 years old, 1 was between 35-44 years of age and the remaining 2 were older than 45 years of age. Hence, amongst the respondents 31.25% (18-24 years), 50% (25-34 years), 16.25% (35-44 years) and 12.5% (45 years<) accurately ticked off the statement to be false. However, the correlation between this knowledge and age is not significant since P<0.05 (Table 7).

On the other hand, in response to the ninth statement relating to PD— 95 respondents had accurately chosen the option true and only 5 respondents had identified the statement to be false. Among the respondents who had correctly identified the statement to be true 76 were aged between18-24 years and 19 were aged between 25-34 years. Hence, amongst the respondents 80% (18-24 years), 20% (25-34 years). But, the correlation between this knowledge of PD treatment and age is not significant since P<0.05 (Table 7).

Table 8 Assessment of Participants' Knowledge & Awareness of Treatment of PD according to Highest Level of Education Attained

Serial No.	Statement Number	Variable	True	False	P Value
1	Eight Statement	There are new treatments that can cure Parkinson's disease	**84%**	**16%**	**0.623**
2	Ninth Statement	There are treatments that can improve the symptoms of Parkinson's disease	**95%**	**5%**	**0.989**

Amongst the respondents who had correctly identified the eighth statement to be false 21 respondents had less than 14 years of education and 63 had either equivalent to or more than

14 years of education. That is, 25% of the population who had accurately regarded the statement to be false had less than 14 years of education and 75% had either equivalent to or more than 14 years of education. However, the correlation between this knowledge and level of education attained by the respondents is not significant since P<0.05 (Table 8).

On the other hand, in response to the ninth statement relating to the treatment to general knowledge about PD— 95 respondents had accurately ticked true and only 5 respondents had incorrectly identified the statement to be false. Among the respondents who had correctly identified the statement to be true, 22 had less than 14 years of education and 73 had attained educational degrees which transgressed 14 years or equal to 14 years. That is, 23.16% had less than 14 years of education and 76.84% had attained an educational level which was equal to 14 years or more. However, the correlation between this knowledge and level of education is not significant since P<0.05 (Table 8).

3.7 Assessment of Knowledge & Awareness Regarding Psychosocial Impact of Parkinson's Disease

Table 9 Assessment of Knowledge Awareness Regarding Psychosocial Impact of Parkinson's Disease According to Age & Highest Level of Education Attained

According to	Statement Number	Variable	True	False	P Value
Age	Tenth Statement	Patients with Parkinson's disease often feel socially isolated	**95%**	**5%**	**0.517**
Highest Level of Education Attained	Tenth Statement	Patients with Parkinson's disease often feel socially isolated	**95%**	**5%**	***0.013**

In regards to the tenth statement which assesses awareness about the Psychosocial impact which PD patients face— 95 respondents were accurate to agree on the statement that Patients with Parkinson's disease often do feel socially isolated, but 5 respondents inaccurately identified the statement to be false and disagreed with the fact that Patients with Parkinson's disease often feel socially isolated. Among the respondents 40 (18-24 years old), 41 (25-34 years), 7 (35-44 years) and the rest 7 (45 years <) had correctly identified the statement to be true. Hence, amongst the respondents who accurately ticked off the statement to be false 42.11% had been of the ages 18-24 years, 43.16% were of the age 25-34 years, 7.37% were aged 35-44 years old and the remaining 7.37% were aged more than 45 years. However, the correlation between this knowledge about the Psychosocial impact which PD patients face and age is not significant since $P<0.05$ (Table 9).

In contrast, the correlation between this knowledge about the Psychosocial impact which PD patients face and the highest level of education attained by the respondents is significant with the obtained P value being 0.013 (Table 9). Among the respondents who had correctly identified the statement to be true, 22 had less than 14 years of education and 73 had attained educational degrees which transgressed 14 years or equal to 14 years. That is, 23.16% had less than 14 years of education and 76.84% had attained an educational level which was equal to 14 years or more.

Chapter 4

Discussion

Parkinson's Disease is an anomaly of a disease-- of which we still have much to explore, since most of the information mustered from decades of epidemiological investigations have broadened our previously sparse understanding of the cause of Parkinson's disease by only a short range (Marttila & Rinne, 1981). Now we know impaired motor functioning in PD is the direct result of shortage of dopamine. The scarcity of dopamine emerges as an effect of neural degeneration. (Buchwitz et al., 2020)

This study evaluates the knowledge of the general population towards Parkinson's Disease and its precipitating factors. This study was also designed to assess the population's attitude and awareness towards Parkinson's disease and whether or not the demographic factors of certain parameters of the participants' individuality have had an impact on their perception of PD. Additionally, this study was the first of its kind to evaluate aforementioned factors in the context of Bangladesh. However, the study was unable to reflect on the entire population of Bangladesh since the population size of the study was not in proportion to the actual population of the country Bangladesh.

Right off the bat one of the most alarming finding of the study was how almost a quarter of the respondents had the misconception of Alzheimer's and Parkinson's Disease being the same disease. Amongst this almost half of them had at least fourteen years of education. And a majority of the population had misjudged the symptom tremor to be universal symptom faced by every PD patient.

In regards to etiology of PD, the results obtained such indications which implied the younger generation belonging to the age group 18-24 and people with at least 14 years of education had more content information about this aspect of Parkinson's Disease.

Vast majority of the respondents inferred to PD being more common in older people and also indicated that they believe PD can affect younger generation too. This accurate understanding of the epidemiology of PD was observed across all ages regardless of level of education attained.

In case of treatment two-third of the respondents had the wrong perception of PD being a curable disease. This encompassed respondents of younger age mostly and also people who had less than 14 years of education. And when psychosocial impact of PD was assessed two third of the respondents acknowledged it and a majority of these people had higher education.

No hierarchical gradient was observed regarding awareness and knowledge of Parkinson's Disease with respect to the age and level of education attained unlike the findings in the study conducted in South Korea (Youn et al., 2016).

Even though PD had previously been slotted as a movement disorder, and majority of the public perception is such as well, the non-motor symptoms of PD are just as significant as the motor ones (Buchwitz et al., 2020). Overwhelming majority of the participants had been able to identify most of the motor symptoms of PD regardless of their age or educational status. Although different level of education had different level of understanding and ability of recognizing the non-motor symptoms of PD, the motor symptom namely involuntary shaking was identified by all of the participants. But non-motor symptoms like difficulty falling asleep, urinary urgency, weight loss and reduced sense of smell were identified by less than 10% of the respondents (Figure 4). Besides these the symptom 'pain' was recognized by only 12% of the respondents even though this is one of the symptoms of PD which is regarded to be heterogeneous (Tai & Lin, 2020). This indicates the public misperception of this disease and the need in implementing tools for public education which enunciates on motor as well as non-motor symptoms of PD. And a more consequential fact is how the effect of the inherent

individualistic inconsistencies in the temporal progression of such symptoms contribute to more pronounced layers and nuances to this very heterogeneity of PD (Heinzel et al., 2017). This helps us understand why an updated and content public knowledge and perception about Parkinson's Disease is so crucial and integral.

The conducted study may have some limitations which includes the bias contributed from use of social media to circulate the form since a significant portion of the population of Bangladesh don't have access to such platforms, sampling errors and since the average education level obtained in the study is much higher than the average education level of Bangladesh the projected knowledge and awareness found in this study will be an exaggerated depiction of the current scenario.

Chapter 5

Conclusion

Sufficient sources and interventions are required to design an easily accessible awareness system which provides education and awareness about PD. This is absolutely integral in the process of diagnosing and treating PD. This is because the later the diagnosis, the more complications and uncertainty will occur when conducting an appropriate treatment plan for the patient. If the general public is aware of what this disease encompasses, if they are aware of the symptoms which are not commonly known and if they are aware of the mental and social impact which a PD patient has to face, then early diagnosis would be facilitated, certain misconceptions of PD can be corrected and lastly people can empathize with the distress that comes with suffering from this disease. From our findings we came to the conclusion – people are mostly unaware of the non-motor symptoms of PD, many have misunderstandings about the treatment of this disease and most are unaware about the pattern and extent of prevalence of Parkinson's Disease.

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Annexure

First Part of the Questionnaire

City of Residence

_____

Age

_____

Gender

1. Female
2. Male
3. Third Gender
4. Prefer not to say
5. Other

What is the highest level of education that you have attained?

1. Elementary School
2. Middle School
3. High School
4. Diploma
5. Undergraduate Degree BA/BS/B.Ed
6. Postgraduate Degree
7. Double Postgraduate Degree
8. Ph.D.

Profession

_____

Second Part of the Questionnaire

Parkinson's disease and Alzheimer's disease are different names for the same disease.

1. True
2. False

Parkinson's disease is a degenerative disease of the brain (associated with loss of brain cells)

1. True
2. False

In Parkinson's disease, the level of a chemical (neurotransmitter) in the brain called dopamine is reduced

1. True
2. False

All patients with Parkinson's disease experience tremor (involuntary shaking movements)

1. True
2. False

Parkinson's disease is more common in older individuals

1. True
2. False

Parkinson's disease can also affect young adults

1. True
2. False

Parkinson's disease usually affects multiple members of the same family

1. True
2. False

There are new treatments that can cure Parkinson's disease

1. True
2. False

There are treatments that can improve the symptoms of Parkinson's disease

1. True
2. False

Patients with Parkinson's disease often feel socially isolated

1. True
2. False

Third Part of the Questionnaire

Problems experienced by people with Parkinson's disease include (you can tick more than 1 box)

1. Involuntary shaking movement (tremors)
2. Imbalance/Tendency to fall
3. Memory problem
4. Visual hallucinations
5. Pain
6. Excessive daytime sleepiness
7. Weight loss
8. Reduced sense of smell
9. Constipation
10. Difficulty falling asleep (insomnia)
11. Urinary urgency
12. Low mood (depression)

13. Muscle stiffness (rigidity)

14. Slowness of movement