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The Impact Of Educational Module On Knowledge Regarding Parkinson's Disease And Its Prevention Among Adults

Dr. Smriti G. Solomon
Principal, Index Nursing College, Malwanchal University, Indore,
Madhya Pradesh, India.

ABSTRACT

Background: Parkinson's disease is one of the main contributory factor that affect adult's quality of life. **Aim:** To evaluate the impact of the educational module on knowledge regarding Parkinson's disease and its prevention among adults. **Method and Materials:** A quantitative research approach with a pre-experimental one-group pre-test and post-test design was used for the study. The setting of the study was selected village in Indore. By using the non-probability purposive sampling technique 150 adults were selected. A self-structured questionnaire was used to assess the demographic data and knowledge regarding Parkinson's disease and its prevention among adults. The pretest knowledge was evaluated on day 1 and educational module was administered regarding Parkinson's disease and its prevention to the samples. On the 7th day after intervention post-test knowledge was evaluated. The data analysis was done using descriptive and inferential statistics. **Result:** In the pretest, 137 (91%) adults obtained poor grade, 8 (5%) participants obtained average grade, 5(4%) obtained good grade and none of the participants obtained excellent grade. In the posttest, none of the participant obtained poor grade, 5 (3%) participants obtained average grade, 33 (22%) participants obtained good grade and 112 (75%) participants obtained excellent grade. The intervention was very helpful in increasing the knowledge grade of the participants. A statistically significant association was found between marital status and any information about Parkinson's Disease and pretest knowledge grade (P>0.05), showing that the pretest knowledge grade is dependent on marital status and any information about Parkinson's Disease. **Conclusion:** The findings of the study showed information module was effective in increasing the knowledge of adults regarding Parkinson's disease and its prevention. **Keywords:** Knowledge, adults, Parkinson's disease, prevention.

Introduction

Parkinson's disease, commonly referred to as "shaking palsy," was initially documented by James Parkinson in 1817 [1,2]. Parkinson's disease is a progressive neurodegenerative disorder that primarily affects movement. It is caused by the loss of dopamine-producing neurons in the brain, that primarily impacts the central nervous system, influencing both motor and non-motor functions. The onset of symptoms is usually gradual, with non-motor complications becoming increasingly noticeable as the condition advances. The motor symptoms, collectively known as parkinsonism, encompass tremors, rigidity, and postural instability, which refers to challenges in maintaining balance. As the disease progresses, non-motor symptoms emerge, including changes in behavior and neuropsychiatric issues such as sleep disturbances, psychosis, and fluctuations in mood. Other contributing factors may include genetic predispositions, environmental influences, medications, lifestyle choices, and pre-existing health conditions[3].

In 2021, approximately 11.77 million individuals globally were diagnosed with Parkinson's disease. The age-standardized incidence, prevalence, and disability-adjusted life years (DALYs) rates rose to 15.63 per 100,000, 138.63 per 100,000, and 89.59 per 100,000, respectively. The impact of Parkinson's disease was more pronounced in males compared to females, exhibiting an initial increase followed by a slight decline with advancing age. Over the past 32 years, the global burden of

Parkinson's disease has escalated, highlighting the necessity to concentrate on specific populations and enhance health policies aimed at the prevention and treatment of this condition [4].

Need of the study

It is characterized by both motor and non-motor symptoms including tremor, slow movement, unsteady gait, constipation and urinary incontinence. As the disease progresses, individuals living with the disease are likely to lose their independence and autonomy, subsequently affecting their quality of life. People with PD should be supported to live well within their communities but there has been limited research regarding what the public know about PD.

Parkinson's disease (PD) is a debilitating neurodegenerative disorder that affects millions of people worldwide, with incidence projected to increase in the coming decades as populations age [5,6]. PD imposes a heavy burden on patients, families, and society in terms of quality of life, healthcare costs, and lost productivity [7,8]. Despite extensive research efforts, the precise causes and mechanisms of PD pathogenesis remain incompletely understood, and current treatments can only alleviate symptoms but do not halt or slow disease progression[9].

A prevalence rate of 67.71 out of 105 for Parkinson's disease (PD) has been reported among individuals in northern India. The progression of PD has been linked to factors such as depression and arterial blood pressure [10]. The condition profoundly affects patients, their families, and caregivers due to its progressive and degenerative impact on mobility and muscle coordination [11]. The total cost in the UK has been estimated to be between pound 449 million and pound 3.3 billion annually, depending on the cost model and prevalence rate used. Management strategies that minimize the impact of disease progression and maximize quality of life should help ensure optimal resource utilization [12].

Parkinson's disease is a chronic, progressive neurodegenerative disorder affecting 2–3% of the population ≥65 years. It has long been characterized by motor impairment, autonomic dysfunction, and psychological and cognitive changes [13]. Nearly one million Americans are affected by this condition, a figure projected to increase to 1.2 million by the year 2030. Globally, over 10 million people are living with Parkinson's disease. Men are 1.5 times more likely to be diagnosed with this disease compared to women [14].

In 2021, the age-standardized prevalence rate (ASPR) of Parkinson's disease (PD) in India was estimated at 138.63 cases per 100,000 individuals. There was a significant difference between the genders, with males showing a prevalence of 168.24 per 100,000 and females reporting a prevalence of 114.47 per 100,000. The global burden of Parkinson's disease has risen over the past 32 years, and there is a need to focus on key populations, as well as to improve health policies to prevent and treat Parkinson's disease [15].

After the age of 60, PD is prevalent in 1-2% of the population, with no apparent racial differences, though it is more common in men than women [16]. Negative attitudes were associated with perceived stigma, younger age, and limited knowledge of the disease and its sufferers. This perceived stigma and lack of understanding are likely to adversely impact the psychosocial well-being of those living with PD, especially those with early-onset [17]. Age, household income, and education level were independently associated with awareness and knowledge of Parkinson's disease (PD Younger subjects (under 40) exhibited the least knowledge about PD compared to those aged 40-59 and over 60 [18].

Racial/ethnic groups identified unique barriers to care, such as mistrust in the healthcare system among African-Americans and language difficulties among Chinese-Americans. Overall, 80% of participants had little to no knowledge of PD. This diverse sample demonstrated low PD knowledge through both qualitative and quantitative methods, and several barriers to PD care were identified[19].

The review included a total of 23 studies, representing global research using quantitative (n = 12) and mixed methods approaches (n = 11). All 23 studies employed a cross-sectional design. Three key themes emerged from the studies. The first theme revealed a lack of public understanding about the symptoms, causes, and treatment of Parkinson's disease (PD). The second theme identified public attitudes towards PD, highlighting the social consequences of the disease, such as the association

between PD and depression, isolation, and loss of independence. The third theme indicated a paucity of educational resources available to improve public understanding of PD [20].

The most widely recognized symptom was tremor (86.10%), while weight loss was the most recognized non-motor symptom (24%). Over half the respondents (56%) could identify imbalance as a symptom of Parkinson's disease (PD), but only 4.10% recognized reduced sense of smell as a symptom. Motor symptoms were significantly better recognized (31.30%–86.10%) compared to non-motor symptoms (4.10%–24%). This suggests that educational campaigns may be warranted to improve public awareness and understanding of the full range of PD symptoms, including less recognized non-motor symptoms [21].

The findings suggest a need for targeted community outreach and education efforts that provide information about PD and how to access care. A deeper understanding of these factors and mechanisms could lead to the development of more effective strategies for prevention, early diagnosis, disease-modifying therapies, and personalized treatments that are urgently needed to reduce the growing burden of this devastating disease. Advances in areas such as biomarker discovery, brain imaging, stem cell technology, and therapeutic development hold promise, but will require sustained, collaborative research efforts and funding. Studying PD is therefore of utmost importance to improve the lives of affected individuals and families, and to inform healthcare strategies and resource allocation as the number of cases continues to rise globally in the future.

In former research studies it was found that there is still a knowledge gap among adults regarding Parkinson's disease. Hence, the researcher found important to assess the effect of information module on knowledge regarding Parkinson's disease among adults. This strategy was empirically evaluated for its efficacy in increasing the knowledge regarding Parkinson's disease among adults.

PROBLEM STATEMENT

"A quasi experimental study to evaluate the impact of educational module on knowledge regarding Parkinson's disease and its prevention among adults of rural community, Indore, Madhya Pradesh".

OBJECTIVES

- To assess the pre - intervention knowledge regarding Parkinson's disease and its prevention among adults of rural community in Indore, Madhya Pradesh".
- To assess the post - intervention knowledge regarding Parkinson's disease and its prevention among adults of rural community in Indore, Madhya Pradesh".
- To evaluate effectiveness of educational module on knowledge regarding Parkinson's disease and its prevention among adults of rural community in Indore, Madhya Pradesh".
- To find association between the pre- test knowledge score of adults with their selected socio - demographic variables.

HYPOTHESIS

H_1-There will be a significant increase in post test knowledge score after intervention regarding Parkinson's disease and its prevention among adults of rural community at $P \leq 0.05$ level of significance.
H_2- There will be significant association between pre-test knowledge score regarding Parkinson's disease and its prevention among adults of rural community with their selected socio - demographic variables at $P \leq 0.05$ level of significance.

Method and Materials: The present study was aimed to evaluate the effectiveness of educational module on knowledge regarding Parkinson's disease and its prevention among adults of rural community. Quantitative approach was used. A pre experimental one group pretest - posttest design was adopted for the study. The setting of the study was selected village Indore Madhya Pradesh. The samples were selected from village who fulfilled the designated set criteria of interest to the researcher from

selected village of Indore, Madhya Pradesh. The sample size comprised of 150 adults and was selected using non-probability purposive sampling technique. Self structured questionnaire was used to measure the knowledge regarding Parkinson's disease and its prevention of adults. The pretest knowledge was evaluated on the day 1 and educational module was administered regarding Parkinson's disease and its prevention to the participants and on the 7th day after intervention post test knowledge was evaluated. The data collection technique used was paper and pencil test. The data analysis was done using descriptive and inferential statistics.

Result and Discussion

Section I: Distribution of participants according to socio-demographic variables

Majority of the participants 46 (30.6%) were in the age group 35-36 years, 98(65.33%) were female, 150 (100%) were Hindus. 48 (32%) participants were higher secondary school educated and 117 (78%) were labor. Majority of the participants were from joint family i.e. 127 (84.66%), 61(40.666%) had 8-10 family members, 41 (27%) had family income Rs. 20000- 25000 per month, and 184 (98.6%) were married.

None of the participant had family history of Parkinson's Disease. None of the participant's family member had Parkinson's Disease. Majority of the participant 137(91.33%) had no prior information about Parkinson's disease and its prevention.

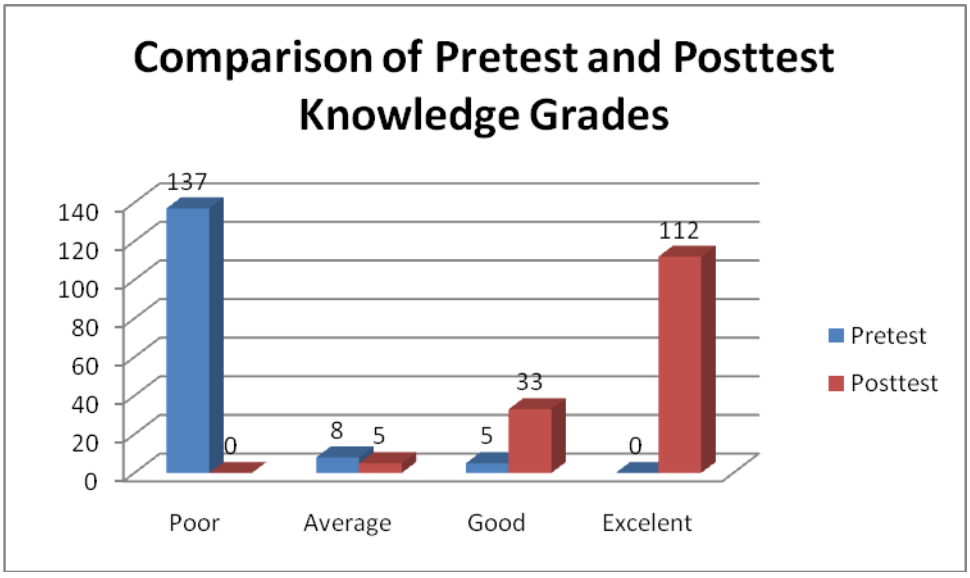
Section II- Distribution of participants according to pretest and posttest knowledge grades.

Table No.1

Comparison of pretest and posttest grades

(N=150)

S. No.	Knowledge Grades		Pretest		Posttest	
			No.	%	No.	%
1.	Poor	(0-8)	137	91	0	0
2.	Average	(9-16)	8	5	5	3
3.	Good	(17-24)	5	4	33	22
4.	Excellent	(23-32)	0	0	112	75
	Total		150	100.0	150	100.0



Graph 1: Bar diagram showing comparison of pretest and posttest knowledge grades

The above table and graph shows the distribution of participants according to pretest and posttest knowledge grades. In the pretest, 137 (91%) participants obtained poor grade, 8 (5%) participants obtained average grade, 5(4%) obtained good grade and none of the participants obtained excellent grade.

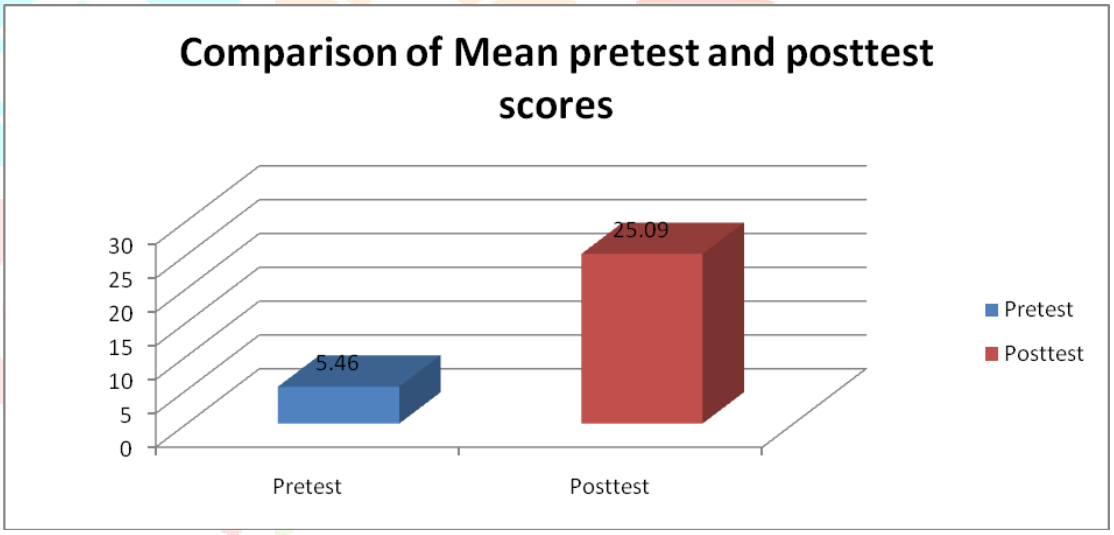
In the posttest, none of the participant obtained poor grade, 5 (3%) participants obtained average grade, 33 (22%) participants obtained good grade and 112 (75%) participants obtained excellent grade. The intervention was very helpful in increasing the knowledge grade of the participants.

Table No. 2
Comparison of Mean pretest and posttest scores

(N=150)

Pretest / Posttest	No.	Mean	SD	't' value, df	P value
Pretest	150	5.46	16.85	37.77, df=149	0.05*
Posttest	150	25.09	33.89		

Paired 't' test applied., p < 0.05 – Significant, p < 0.001 – Highly Significant



Graph 2: Bar diagram showing comparison of mean pretest and posttest knowledge scores

The above table and graph shows the comparison of mean pretest and posttest knowledge scores. The mean pretest knowledge score was 5.46 ± 16.85 and mean posttest knowledge score was 25.09 ± 33.89. and the "t" value 37.77. The difference was found to be statistically significant (p=0.05), showing a significantly higher mean posttest score in comparison to the mean pretest score. The intervention was effective in increasing the knowledge grade of the participants.

The difference was found to be statistically significant (p=0.5), showing a significantly higher mean posttest score in comparison to the mean pretest score. The intervention was effective in increasing the knowledge grade of the participants. Hence **hypothesis H_1 is accepted**.

Section III: Association between pretest knowledge grade and socio - demographic variables

A statistically significant association was found between marital status and any information about Parkinson's Disease and pretest knowledge grade (p>0.05), showing that the pretest knowledge grade is dependent on marital status and prior information about Parkinson's disease and its prevention.

A statistically significant association was not found between age, gender, religion, education, occupation, type of family, total number of family members family income per month in rupees, family history of Parkinson's disease, is any one suffering from Parkinson's disease in family and pretest

knowledge grade (p>0.05), showing that the pretest knowledge grade is independent of these socio-demographic variables.

Discussion:

Majority of the participants 46 (30.6%) were in the age group 35-36 years, 98(65.33%) were female, 150 (100%) were Hindus. 48 (32%) participants were higher secondary school educated and 117 (78%) were labor. Majority of the participants were from joint family i.e. 127 (84.66%), 61(40.66%) had 8-10 family members, 41 (27%) had family income Rs. 20000- 25000 per month, and 184 (98.6%) were married. None of the participant had family history of Parkinson's Disease, none of the participant's family member had Parkinson's Disease and 137(91.33%) had no prior information about Parkinson's disease and its prevention.

In the pretest, 137 (91%) participants obtained poor grade, 8 (5%) participants obtained average grade, 5(4%) obtained good grade and none of the participants obtained excellent grade. In the posttest, none of the participant obtained poor grade, 5 (3%) participants obtained average grade, 33 (22%) participants obtained good grade and 112 (75%) participants obtained excellent grade. The intervention was very helpful in increasing the knowledge grade of the participants.

The study is supported by a research study conducted by Nery et al. (2018) demonstrated that structured educational programs significantly improved the knowledge of individuals about chronic diseases like Parkinson's Disease (22). Similarly, a review by Evans et al. (2020) emphasized that education programs designed specifically for adult learners can result in significant improvements in understanding complex conditions such as neurodegenerative disorders (23).

In present study there was a statistically significant association between marital status and prior information about Parkinson's disease and its prevention and pretest knowledge grade (p>0.05), showing that the pretest knowledge grade is dependent on marital status and prior information about Parkinson's Disease.

Similarly study is supported by a research study conducted by Chien et al. (2019) found that individuals who had a family member diagnosed with Parkinson's Disease exhibited greater health literacy and a deeper understanding of the condition compared to those without such a personal connection. It is possible that marital status may serve as a proxy for the level of exposure individuals have had to Parkinson's Disease-related information, with married individuals more likely to have encountered such information, either through caregiving roles or support networks (24).

Limitation

The limitation of the present study were:

1. The study was limited to 150 adults which constrains the ability to generalize the findings beyond this specific group.
2. Knowledge was evaluated using a questionnaire.

Conclusion

The results of the study demonstrated that the information module successfully improved adults' knowledge regarding Parkinson's disease and its prevention. This highlights the critical necessity to increase public awareness regarding Parkinson's disease and its prevention. Therefore, it is recommended to implement awareness programs aimed at educating the public on promoting healthier habits to mitigate the risk of developing Parkinson's Disease.

Conflict of interest -The author declare no conflict of interests.

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