Effect of Continuous Nursing Mode on Negative Emotions and Self-Management of Patients With Parkinson's Disease

Pingli Chen
Xiulan Liu
Pengfei Xiao
Liu Wu

Pingli Chen[#] Department of Rehabilitation Medicine, Brain Hospital of Hunan Province, Changsha, 410007, China, Xiulan Liu[#] Department of Emergency Medicine, Brain Hospital of Hunan Province, Changsha 410007, China, Pengfei Xiao Department of Emergency Medicine, Brain Hospital of Hunan Province, Changsha 410007, China, Liu Wu[*] Department of Emergency Medicine, Brain Hospital of Hunan Province, Changsha 410007, China, [#]These authors contributed equally to this work as co-first author, [*]Corresponding author: Department of Emergency Medicine, Brain Hospital of Hunan Province, No .427, No .3 Furong Road, Yuhua District, Changsha 410007, China

This research aims to explore the influence of continuous nursing mode on negative emotions and self-management of patients with Parkinson's disease (PD).Seventy-two PD patients admitted to our hospital from February 2017 to March 2019 were collected in this experiment. Among them, those treated by routine nursing were divided into the control group (CG) (35 cases), and those with continuous nursing were included into the research group (RG) (37 cases). Self-perceived burden scale (SPBS) was used as an evaluation standard for patients; The higher the score, the more serious the self-perceived burden is. Before nursing and one month after nursing, the depression scores were evaluated by the Hamilton Depression Scale (HAMD); The higher the score, the more serious the depression is. The sleep quality of patients before and after nursing was assessed by the Pittsburgh Sleep Quality Index (PSQI), 21 scores in total; The higher the score, the lower the sleep quality of patients after delivery is. The function of patients' activities of daily living (ADL) was measured by the Barthel index (BI), totally 100 scores; The higher the score, the stronger the ADL is. The limb function of patients was analyzed by the Fugl-Meyer assessment of motor function (FAM), 100 scores in total; The higher the score, the stronger the limb function is. The quality of life of patients was evaluated by the quality of life scale (GQOL-74). There are four dimensions, 100 points for each; The higher the score, the better the quality of life is. The patients' nursing satisfaction of our hospital were assessed by the self-made Nursing Satisfaction Questionnaire, 5 points for each question. The total score < 70 was dissatisfied, 70-89 was satisfied, and ≥ 90 was very satisfied. Satisfaction = (very satisfied+satisfied)/total cases ×100%. There was no difference in SPBS and HAMD scores between both groups before nursing intervention ($P > 0.05$), but the scores in the RG were lower than those in the CG after nursing intervention ($P < 0.05$). There was no marked difference in PSQI scores between the two groups before nursing ($P > 0.05$), but the scores of the RG decreased after nursing compared with the CG ($P < 0.05$). The FAM and BI scores of both groups showed no difference before nursing intervention ($P > 0.05$), but the scores in the RG increased after nursing compared with the CG ($P < 0.05$). Complications occurred in both groups 6 months after discharge; The total incidence in the RG was 2.70%, dramatically lower that of the CG (22.86%) ($P < 0.05$).The GQOL-74 scores (physical function, mental function, social function and material life) of patients in the RG were higher than those in the CG ($P < 0.05$). The nursing satisfaction of patients in the RG was 97.30%, higher than that in the CG (77.14%) ($P < 0.05$).Continuous nursing can improve the negative emotions and self-management of PD patients, reduce the occurrence of complications, and perfect their quality of sleep and life.

Keywords: Parkinson's disease, continuous nursing, negative emotions, self management
Tob Regul Sci.™ 2021;7(5-1): 2678-2686
DOI: doi.org/10.18001/TRS.7.5.1.38

Parkinson's disease (PD) is one of the most familiar age-related brain diseases [1]. Mainly defined as dyskinesia, it has the typical symptoms such as resting tremor, stiffness, bradykinesia and postural instability, with degeneration of nigral dopaminergic neurons and existence of Louis body (LB) (misplaced α-synuclein) in surviving neurons [2]. Although the non-motor manifestations of PD were noticed when it was first described in 1817, early studies focused on motor symptoms. Decades of research have improved the management of motor performance of PD, and also revealed the changeable non-motor symptoms. Among them, sleep disorder stands out because of its high prevalence and serious impact on quality of life [3]. In the study of Westman and others [4], cognitive decline is the most common type of PD. Compared with age-matched non-PD patients, PD patients show faster decline in many cognitive fields, especially in the areas of execution, attention, visual space and memory.

With the development of society, PD patients and their families have higher requirements and expectations for the treatment process and nursing after admission [5]. However, the conventional nursing mode cannot meet the needs and expectations of most patients, such as poor information transmission and nursing quality [6]. Thus, it is suggested that this intervention mode with poor nursing quality should be improved [7]. PD is characterized by a wide range of motor and non-motor symptoms, including bradykinesia, tremor, stiffness, gait disorder, mental symptoms, autonomic nerve and cognitive dysfunction [8].So, it is inevitable that patients will have anxiety and depression.At this time, high-quality nursing measures play a vital role [9]. Some studies have shown that improving the cooperation between doctors and nurses may lead to more comprehensive care, thus obtaining higher quality. In fact, more and more evidence shows that nursing provided by trained nurses may produce similar or possibly better health outcomes for a wide range of diseases [10]. This experiment explores the influence of continuous nursing mode on negative emotions, self-management, activities of daily living (ADL), sleep and complications of PD patients, so as to provide reference for future clinical practice.

MATERIALS AND METHODS

Clinical Data

Seventy-two PD patients admitted in our hospital from February 2017 to March 2019 were collected. Those treated by routine nursing, 19 males and 16 females, were divided into the control group (CG) (35 cases); They were 60-85 years old, (68.1±3.2) years old on average. While those with continuous nursing, 21 males and 16 females, were included into the Research group (RG) (37 cases); They were 61-85 years old, (68.2±3.3) years old on average. This experiment has been approved by the Medical Ethics Committee of our hospital.

Inclusion and Exclusion Criteria

Inclusion criteria are as follows: The patients meet the requirements and the diagnosis related to clinical diagnosis is confirmed as PD [11]; Patients are conscious, able to complete the questionnaire independently; They're 60-85 years old; The general clinical data are complete; the informed consent form is signed by patients or their immediate family members.

Exclusion criteria are as follows: those who quit the experiment halfway, complicated with malignancy or severe organ dysfunction; People with infectious diseases; Poor treatment compliance; Patients with other neurological diseases such as neurasthenia, cerebral palsy and epilepsy; Patients with secondary Parkinson's syndrome and Parkinsonism-plus syndrome.

Nursing Methods

Patients in the CG received routine nursing:

They were intervened according to the routine nursing process, with routine drug therapy and deep brain stimulation physical therapy. When discharged from hospital, they were only given discharge health guidance, emphasizing the precautions for oral medication and the time for reexamination in hospital, without nursing intervention and follow-up.

Those in the RG adopted continuous nursing:

Communication and psychological adjustment: The nursing staff actively and enthusiastically communicate with patients, thus establishing a good nurse-patient relationship; They fully respect patients, meet their reasonable needs as much as possible, and give them family-like warmth; According to the different psychological states of patients, targeted psychological intervention is need to help them eliminate anxiety, depression and other bad emotions.

Relaxation nursing and rehabilitation training: The nursing staff massage patients' head, face, shoulders and limbs to help them relax, once a day, each time for 30 min; In view of their recovery, the rehabilitation training plan is made; Nurses guide and assist them from the side during the training process, and give verbal encouragement and support at the end of training.

Training of ADL and daily aftercare: Nurses make a life ability training plan in real time according to patients' functional recovery of limbs, and guide them to independently complete simple actions in daily life, such as dressing, eating, washing, etc; When the patients successfully complete the action training, the nursing staff should reward and praise them verbally, and encourage them to gradually increase the difficulty and amount of training; Nurses encourage patients to accompany other patients for outdoor leisure activities, such as walking and sunbathing; If patients are inconvenient to move, nurses can use wheelchairs to assist them in outdoor activities. Nurses should unite the families to participate in patients' health recovery and nursing programs, learning to give emotional support.

Continuous nursing intervention was given for patients after discharge:

An intervention group was set up, consisting of two supervisor nurses and three general nurses. The members of the group were trained in the concept, function, purpose, communication skills, assessment, and the formulation and implementation of discharge plans. According to patients' family environment, psychological problems and health needs, the group gave psychological nursing and health education to build their self-confidence. Patients were guided to eat correctly, with an appropriate way in light of the swallowing function. Those who could not eat by mouth at all or those who were at risk of aspiration should be given nasal feeding as early as possible; It was demonstrated to their families until they mastered it.Patients who could eat orally should be instructed to take sitting and half-sitting positions. After eating, the bedside should be raised by 30-40 for 1 h, so that the food can smoothly enter the duodenum, with an interval of not less than 2 h each time, so as to facilitate gastric emptying and prevent aspiration pneumonia caused by food reflux. The group visits the patients by telephones once a week after they are discharged from hospital, including the completion of the established health goals and encouraging them to achieve the goals. The follow-up is not less than 10 mineach time. Family follow-up of patients should be conducted once every two weeks, so as to understand their compliance and problems, guide their families to learn to observe the changes of their illness in time, and urge them to take medicine on time.

Scoring Criteria

Before nursing and one month after nursing, the self-perceived burden scale (SPBS) was used as a standard to evaluate patients' self-perceived burden. The scale includes 3 dimensions (physical burden (3 items), economic burden (2 items), emotional burden (5 items)) and 10 items, 5 scores for each one; The higher the score, the more serious the self-perceived burden is. Before nursing and one month after nursing, the depression of patients was evaluated by the Hamilton Depression Scale (HAMD), 24 items in total; The higher the score, the more serious the depression is. Patients' sleep quality before and after nursing was assessed by the

Pittsburgh Sleep Quality Index (PSQI). The score consists of 5 others' assessments and 19 ones, totally 21 points; The higher the score, the lower the sleep quality after delivery is. The function recovery of patients' ADL was measured by the Barthel index (BI), with a total score of 100; The higher the score, the stronger the ADL is. The limb function of patients is evaluated by the Fugl-Meyer assessment of motor function (FAM), 100 scores in total; The higher the score, the stronger the limb function is. The quality of life of patients was assessed by the quality of life scale (GQOL-74). There are four dimensions, each for 100 points; The higher the score, the better the quality of life of patients is. Patients' nursing satisfaction of our hospital was assessed based on the self-made Nursing Satisfaction Questionnaire in our hospital. There were 20 questions, each 5 points. The total score < 70 was dissatisfied, 70-89 was satisfied, and ≥ 90 was very satisfied. Satisfaction = (very satisfied+satisfied)/total cases ×100%.

Outcome Measures

Main outcome measures--SPBS, HAMD, PSQI, FAM and BI scores were observed.

Secondary outcome measures--whether there are complications after patients return to the hospital for reexamination 6 months after discharge, the GQOL-74 scores, and the scores of the Nursing Satisfaction Questionnaire made by our hospital, were observed.

Statistical Methods

In this research, the collected data were statistically analyzed via the SPSS20.0 (IBM Corp, Armonk, NY, USA) software package. The required pictures were drawn vis the GraphPad 7 software package. The distribution of dose data was analyzed by the K-S test, in which normal one was expressed by mean±standard deviation (Meas±SD). Data between two groups were assessed by the independent-samples T test, and those within groups were analyzed by the paired-t test. The utilization rate of counting data (%) was analyzed by the chi-square test, expressed as $\chi 2$. $P < 0.05$ indicates that there is a statistical difference.

RESULTS

Clinical Data

There was no obvious difference between the RG and the CG in terms of age, BMI, history of hypertension, smoking and drinking, place of residence, diet preference, exercise habits and course of disease, which proves to be comparable ($P > 0.05$) (Table I).

Table I.
Basic data [n(%)]

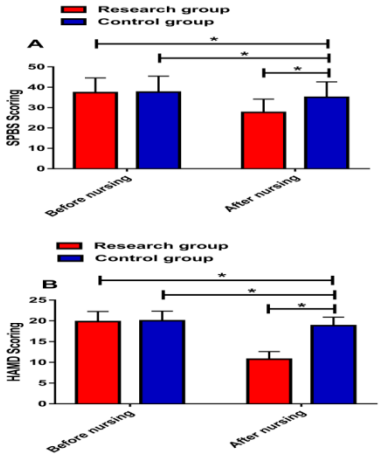
	Research group (n=37)	Control group (n=35)	χ2 or t	P
Age (years)	68.2±3.3	68.1±3.2	0.130	0.897
History of hypertension			0.172	0.679
Yes	11(29.73)	12(34.29)		
No	26(70.27)	23(65.71)		
BMI	22.05±1.24	22.02±1.17	0.106	0.916
History of smoking				
Yes	15(40.56)	14(40.00)	0.002	0.963
No	22(59.46)	21 (60.00)		
History of drinking				
Yes	18(48.65)	17(48.57)	0.007	0.995
No	19(51.35)	18(51.43)		
Place of residence				
Cities	23(62.16)	25(71.43)	0.695	0.405
Countryside	14(37.84)	10(28.57)		
Dietary preference				
Light	12(32.43)	11(31.43)	0.008	0.927
Spicy	25(67.57)	24(68.57)		
Exercise habits				
Yes	23(62.16)	20(57.14)	0.188	0.664
No	14(37.84)	15(42.86)		

Course of disease (Week)	3.74±1.04	3.92±0.86	0.798	0.428

SPBS and HAMD Scores of Patients

The SPBS and HAMD scores showed no difference between both groups before nursing intervention (P > 0.05), but the scores in the RG were lower than those in the CG after nursing intervention (P < 0.05) (Figure 1).

Figure 1.
SPBS and HAMD scores

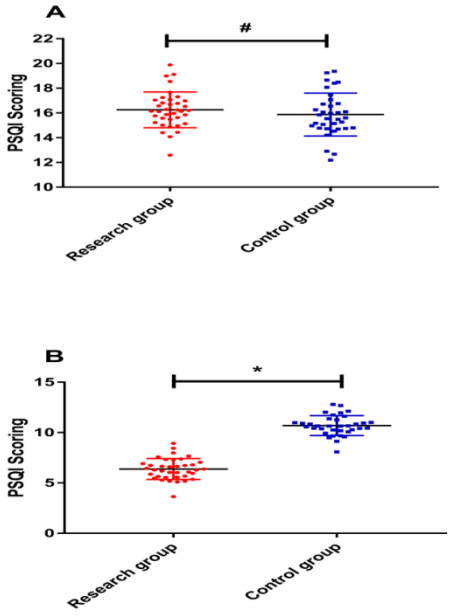


A: The SPBS score of the RG decreases after nursing, lower than that of the CG.
B: The HAMD score of the RG decreases after nursing, lower than that of the CG.
Note: * indicates that there is a difference between both groups (P < 0.05).

PSQI Scores

There was no obvious difference in PSQI scores between the two groups before nursing (P > 0.05), but the scores of the RG decreased after nursing compared with the CG (P < 0.05) (Figure 2).

Figure 2.
PSQI scores

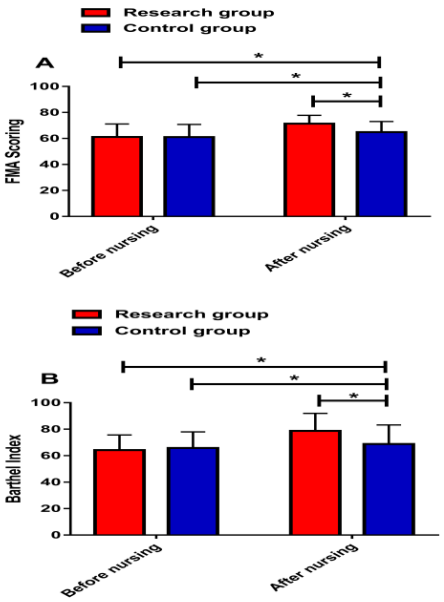


A: There is no obvious difference in PSQI scores between both groups before nursing (P > 0.05).
B: After nursing, the PSQI score of the RG is lower than that of the CG (P < 0.05).
Note: # indicates that there is no difference between both groups (P > 0.05), and * indicates that there is difference (P < 0.05).

FAM and BI Scores

There was no difference in FAM and BI scores between the two groups before nursing intervention (P > 0.05), but the scores in the RG increased after nursing compared with the CG (P < 0.05) (Figure 3).

Figure 3.
FAM and BI scores



A: The FAM score of the RG increases after nursing, higher than that of the CG.
B: After nursing, the BI score of the RG increases, higher than that of the CG.
Note: * indicates that there is a difference between both groups (P < 0.05).

Complications after Patients Return to Hospital 6 Months after Discharge

The complications occurred in both groups 6 months after discharge. The total incidence in the RG was 2.70%, lower than that in the CG (22.86%) (P < 0.05)(Table II).

Table II.
Incidence of complications [n(%)]

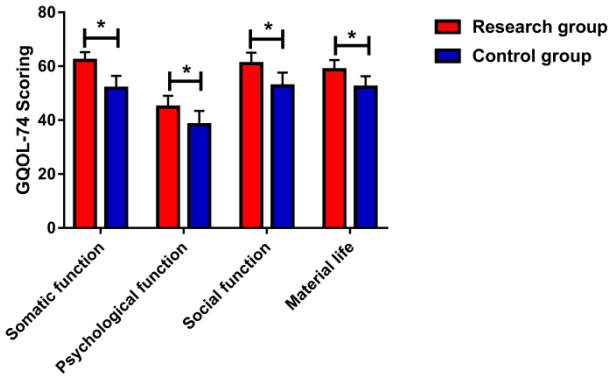
Category	Research group (n=37)	Control group (n=35)	χ2	P
Dysphagia	1(2.70)	2(5.71)		
Aspiration pneumonia	0(0.00)	1(2.86)		
Pressure sores	0(0.00)	2(5.71)		
Activity falls	0(0.00)	3(8.57)		
Total incidence	1(2.70)	8(22.86)	6.680	0.010

GQOL-74 Scores

The GQOL-74 scores (physical function, mental function, social function and material life) of patients in the RG were higher than those in the

CG (P < 0.05) (Figure 4).

Figure 4.
GQOL-74 scores



The GQOL-74 scores of patients in the RG are higher than those in the CG (P < 0.05).
Note: * indicates that there is a difference between both groups (P < 0.05).

Nursing Satisfaction

The nursing satisfaction of patients in the RG was 97.30%, higher than that in the CG (77.14%) (P < 0.05) (Table III).

Table III.
Nursing satisfaction scores [n(%)]

Groups	Number of cases	Satisfied	Relatively satisfied	Dissatisfied	Satisfaction (%)
Research group	37	29(78.38)	7(18.92)	1(2.70)	36(97.30)
Control group	35	10(28.57)	17(48.57)	8(22.86)	27(77.14)
t					6.680
P					0.010

DISCUSSION

PD is the second most familiar neurodegenerative disease after Alzheimer's disease (AD) [12]. It usually develops between those who are 55 and 65 years old; The incidence is 1%–2% in people over 60 years old and rises to 3.5% in those between 85 and 89 [13-15]. About 0.3% of the population was affected, and the prevalence rate of males was higher than that of females, which was 1.5: 1.0 [16]. PD may be more common among white people than Asian or African descendants. In 2011, the estimated number of PD patients in Canada has reached 85,200, which is expected to double by 2031 [17]. Goldman and others [18] have explained that PD patients and their caregivers often report that cognitive decline is one of their biggest concerns. Mild cognitive impairment affects about 20-50% of patients. Longitudinal study shows that up to 80% of patients suffer from dementia. The key problems and knowledge gaps that need to be solved should be concerned, in order to promote the cognitive research and improve clinical nursing.

PD patients were given continuous nursing in this research. First of all, we compared the SPBS and HAMD scores of two groups of patients. The results manifested that the two scores had no difference before nursing intervention, but the scores of the RG were lower than those of the CG after nursing intervention; It indicated that continuous nursing could improve patients' self-feeling burden and negative emotions. Zhang and others [19] confirmed that PD patients were accompanied by older age, depression and sleep quality problems. Hence, we further use the PSQI score to evaluate their sleep quality. The results manifested that there was no marked difference in PSQI scores between the two groups before nursing,

but the scores of the RG were lower than those of the CG after nursing, which suggested that continuous nursing could improve sleep quality. Studies have shown that [20, 21] PD patients have certain obstacles in ADL and limb function. Patients' ADL was measured by BI and their limb function was assessed by FAM. The results documented that the BI and FAM scores in the RG increased after nursing, higher than those in the CG. This reveals that continuous nursing can effectively improve ADL and limb function. Besides, patients' quality of life was evaluated by the GQOL-74 score; The RG was better than the CG in four dimensions: physical function, mental function, social function and material life. After the patients returned to the hospital 6 months after discharge, their complications were counted. The results manifested that only 1 case of dysphagia occurred in the RG, while 2 cases of dysphagia, 1 of aspiration pneumonia, 2 of pressure sores and 3 of active falls occurred in the CG. The total incidence of the CG was 22.86%, but only 2.70% in the RG. Our hospital's self-made nursing satisfaction scale showed that the satisfaction of patients in the RG was 97.30%, higher than that of the CG (77.14%). Continuous nursing has been unanimously recognized by patients and their families.

Through the above research, we preliminarily prove that the continuous nursing model can improve the negative emotions, self-management, ADL and sleep quality of PD patients. Nevertheless, there are still some limitations. For one thing, there are many clinical nursing modes. For another, only routine nursing is regarded as the CG, which is relatively simple. Thus, we hope to include more nursing models in future research to enrich our research results.

To sum up, continuous nursing model can effectively improve the negative emotions, self-management, ADL and complications of PD patients. It also promotes sleep, nursing satisfaction and quality of life.

REFERENCES

1. Aarsland D, Creese B, Politis M, et al. Cognitive decline in Parkinson disease. Nat Rev Neurol. 2017;13(4):217–231. doi:10.1038/nrneurol.2017.27
2. Non motor subtypes and Parkinson's disease.Sauerbier A, Jenner P, Todorova A, Chaudhuri KR Parkinsonism Relat Disord. 2016 Jan; 22 Suppl 1():S41-6.
3. What are the most important nonmotor symptoms in patients with Parkinson's disease and are we missing them?Gallagher DA, Lees AJ, Schrag A Mov Disord. 2010 Nov 15; 25(15):2493-500.
4. Cognitive impairment in patients with Parkinson's disease: diagnosis, biomarkers, and treatment.Svenningsson P, Westman E, Ballard C, Aarsland D Lancet Neurol. 2012 Aug; 11(8):697-707.
5. Radder DLM, Lennaerts HH, Vermeulen H, et al. The cost-effectiveness of specialized nursing interventions for people with Parkinson's disease: the NICE-PD study protocol for a randomized controlled clinical trial. Trials. 2020;21(1):88. Published 2020 Jan 15. doi:10.1186/s13063-019-3926-y
6. Marcinowicz L, Owlasiuk A, Slusarska B, Zarzycka D, Pawlikowska T. Choice and perception of the nursing profession from the perspective of Polish nursing students: a focus group study. BMC Med Educ. 2016;16(1):243. Published 2016 Sep 20. doi:10.1186/s12909-016-0765-3
7. Coban GI, Yurdagul G. The relationship between cancer patients' perception of nursing care and nursing attitudes towards nursing profession. Asia Pac J Oncol Nurs. 2014;1(1):16–21. doi:10.4103/2347-5625.135816
8. Parkinson's disease: clinical features and diagnosis.Jankovic J J Neurol Neurosurg Psychiatry. 2008 Apr; 79(4):368-76.
9. Radder DLM, Lennaerts HH, Vermeulen H, et al. The cost-effectiveness of specialized nursing interventions for people with Parkinson's disease: the NICE-PD study protocol for a randomized controlled clinical trial. Trials. 2020;21(1):88. Published 2020 Jan 15. doi:10.1186/s13063-019-3926-y
10. Nurses as substitutes for doctors in primary care.Laurant M, van der Biezen M, Wijers N, Watananirun K, Kontopantelis E, van Vught AJ Cochrane Database Syst Rev. 2018 Jul 16; 7():CD001271.
11. Ffytche DH, Creese B, Politis M, et al. The psychosis spectrum in Parkinson disease. Nat Rev Neurol. 2017;13(2):81–95. doi:10.1038/nrneurol.2016.200
12. Projected number of people with Parkinson disease in the most populous nations, 2005 through 2030.Dorsey ER, Constantinescu R, Thompson JP, Biglan KM, Holloway RG, Kieburtz K, Marshall FJ, Ravina BM, Schifitto G, Siderowf A, Tanner CM Neurology. 2007 Jan 30; 68(5):384-6.
13. de Rijk MC, Tzourio C, Breteler MM, et al. Prevalence of parkinsonism and Parkinson's disease in Europe: the EUROPARKINSON Collaborative Study. European Community Concerted Action on the Epidemiology of Parkinson's disease. J Neurol Neurosurg Psychiatry 1997;62:10–5.
14. Twelves D, Perkins KSM, Counsell C. Systematic review of incidence studies of Parkinson's disease. Mov Disord 2003;18: 19–31.

15. de Lau LML, Breteler MMB. Epidemiology of Parkinson's disease. Lancet Neurol 2006;5:525–35.
16. Incidence of parkinsonism and Parkinson disease in a general population: the Rotterdam Study.de Lau LM, Giesbergen PC, de Rijk MC, Hofman A, Koudstaal PJ, Breteler MM Neurology. 2004 Oct 12; 63(7):1240-4.
17. Scope (prevalence and incidence) of neurological conditions. In: Mapping connections: an understanding of neurological conditions in Canada. Ottawa: Public Health Agency of Canada; 2014. Available: www.phac-aspc.gc.ca/publicat/cd-mc/mc-ec /section-3-eng.php (accessed 2015 Aug. 30).
18. Goldman JG, Vernaleo BA, Camicioli R, et al. Cognitive impairment in Parkinson's disease: a report from a multidisciplinary symposium on unmet needs and future directions to maintain cognitive health. NPJ Parkinsons Dis. 2018;4:19. Published 2018 Jun 26. doi:10.1038/s41531-018-0055-3
19. Zhang T M , Yu S Y , Guo P , et al. Nonmotor symptoms in patients with Parkinson disease: A cross-sectional observational study[J]. Medicine, 2016, 95(50):e5400.
20. WOLFF L, BENGE J. Everyday language difficulties in Parkinson'sdisease: caregiver description and relationship with cognition, activi-ties of daily living, and motor disability [J]. Am J Speech Lang
21. Pathol, 2019, 28(1): 165-173.DATTA AK, DAS D, BHATTACHARYYA KB, et al. Frontal assess-ment battery in Parkinson's disease: A study on 170 patients [J]. Neu-rol India, 2019, 67(2): 433-438.