



Factors Related to Anxiety Events in Parkinson's Patients in Dr. M Djamil Padang

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ABSTRACT

Introduction : Anxiety is one of the most non-motorized symptoms in patients with Parkinson's which greatly affects the quality of life, but in clinical practice it is often neglected. Anxiety in patients with Parkinson's can accelerate motor deterioration / disability and also increase mortality. **Methods:** This cross-sectional study was conducted at the Neurology polyclinic Dr. M Djamil Padang from July to December 2020 in patients who had been diagnosed with Parkinson's Disease (PD) by excluding secondary Parkinson's and a history of stroke. Anxiety was measured using the Hamilton Anxiety Rating Scale (HARS). The research subjects were 60 people. Univariate analysis to present baseline characteristics and bivariate tests assessed factors associated with anxiety and the relationship between variables. A p value <0.05 was considered statistically significant. **Results:** Most of the subjects were male (55%) with a mean age of 58.05 ± 9.7 years and disease duration of 6.35 ± 5.29 years. By examining the Hamilton Anxiety Rating Scale (HARS), it was obtained 38.3% of Parkinson's sufferers with anxiety. There is a significant relationship between marital status, duration of illness and degree of disease with the incidence of anxiety ($p < 0.05$) and there is no significant relationship between age and sex with the incidence of anxiety in patients with Parkinson's. **Conclusion:** There is a significant relationship between marital status, duration of illness and degree of disease with the incidence of anxiety in patients with Parkinson's and there is no relationship between age and sex with the incidence of anxiety in patients with Parkinson's.

1. Introduction

Parkinson's disease (PD) is the second most common chronic neurodegenerative disease with a prevalence under Alzheimer's disease⁷. The current number of PD sufferers is 1-2 per 1000 people with a prevalence that continues to increase with age, around 1% in populations over 60 years.¹⁵

Anxiety is one of the most non-motorized symptoms in PD with a prevalence of 31%, even more than the prevalence of anxiety in non-PD patients.³ Research by Menon et al, shows that the impact of neuropsychiatric disorders such as anxiety is not a reaction to stress due to limited abilities experienced by PD sufferers, but a result

of changes in neuropathological processes that occur, one of which is dopaminergic degeneration.¹⁰

Anxiety greatly affects quality of life, which is associated with decreased function, cognitive impairment, and increased stress in people with Parkinson's. Understanding the occurrence of anxiety is very important so that it can carry out optimal management in people with Parkinson's.³

Dopamine is a neurotransmitter that plays an important role in regulating movement, besides that it also plays a role in regulating cognitive and behavioral functions, such as learning, mood and anxiety.² Research by Qamar et al also explained

that degeneration in the dopaminergic pathway in PD plays a role in anxiety compared to degeneration of the serotonergic pathways, in this case it means that dopamine has a more role in the occurrence of anxiety in PD.¹⁴

A study by Moriyama et al. In 2011, assessed the availability of dopamine transporters using PET scans in PD patients with symptoms of social anxiety. In the results of the study, it was found that the increase in the availability of dopamine transporters in PD patients with symptoms of social anxiety was found.¹¹ Drui G et al conducted an experimental study on mice treated with bilateral lesions on the substantia nigra pars compacta, with a decrease in dopamine levels of almost 70%. In the results of the study, there is a relationship between a decrease in dopamine levels and an increase in the incidence of anxiety.⁵

2. Methods

This study used a cross sectional design. The population of this study were all Parkinson's patients who went to the Neurology polyclinic Dr. M. Djamil and several other networking hospitals in the city of Padang. Samples were taken by consecutive sampling method that met the inclusion and exclusion criteria. The inclusion criteria were patients with Parkinson's who had been diagnosed clinically and were willing to participate in this study. Meanwhile, patients with secondary parkinsonism and a history of stroke were excluded from this study. There were 60 research subjects, where at the initial stage the demographic and clinical characteristics of the subjects were recorded, such as age, sex, marital status, disease duration, and disease degree based on Hoehn and Yahr's criteria. Anxiety is classified into two groups, namely without anxiety and anxiety by examining the *Hamilton Anxiety Rating Scale* (HARS). Statistical analysis was performed computerized with SPSS 22.0 for windows. Analysis of the relationship between variables was carried out by using the chi square

test with p value <0.05, which was considered statistically significant.

3. Results and discussion

The study was conducted on 60 people with Parkinson's who went to Dr. M. Djamil and several network hospitals in the city of Padang. In this study, there were 55% men with a mean age of 59, 58.05 ± 9.7 years and a disease duration of 6.35 ± 5.29 years. Based on the Hamilton Anxiety Rating Scale (HARS) examination, there were 61.7% without anxiety and 38.3% experiencing anxiety. The basic characteristics of PD patients are shown in Table 1.

Bivariate analysis was performed to look for factors that influence anxiety in Parkinson's sufferers. In this study, there was a significant relationship between marital status, duration of illness and degree of disease with the incidence of anxiety (p <0.05) and there was no significant relationship between age and sex with the incidence of anxiety in patients with Parkinson's. The relationship between variables is presented in table 2.

In this study, it was found that more people with Parkinson's were male (55%). This is in accordance with a metanalytic study conducted by Pringsheim et al on the epidemiology of Parkinson's disease which concluded that male Parkinson sufferers were significantly more than women in all age groups.¹³ Men have a 1.5 times higher incidence of developing Parkinson's disease than women and when compared with clinical Parkinson's symptoms, women have less severe symptoms than men. This is thought to be involved in genetic effects, exposure to lifestyle, hormonal factors and also differences in the structure or function of the dopaminergic pathways of the brain.⁶

The age of people with Parkinson's is more common at > 50 years (63%). From research on the epidemiology of PD, as conducted by Von Campenhausen in 2005, it was found that the

prevalence of PD is 1-2 per 1000 population, 1% in populations > 60 years, and rarely occurs at <50 years of age.¹⁵ Likewise, a study¹². Conducted in 2014, where 422 Parkinson's patients had an age at onset of 61.6 ± 9.73 years, and only a few patients were found with age at onset <50 years.¹²

In this study, it was found that the relationship between anxiety and duration of illness in PD patients was found. This is in line with the study of Marinus et al. Where a longer duration of illness is a risk factor for the occurrence of psychiatric disorders in PD patients. And emerging psychiatric disorders are also a risk factor for the increasing severity and rapid progression.⁹

The degree of disease can also be used as a predictor of anxiety in PD patients with a value of $p = 0.002$. This is in line with research by Khedr et al in 2020, finding that increased staging of Hoehn and Yahr in PD has a positive correlation with the incidence of anxiety in people with Parkinson's.⁸

Marital status is one of the predictors of anxiety in PD with a value of $p = 0.024$ OR = 4.9. In a 2005 study, a relationship was found between marital status which indicates support, so that patients have more ability to cope with stress. PD patients

generally have difficulty in carrying out daily activities, so the support from their families, especially their partners, will be an important factor in reducing stress.¹

Similar to the results obtained by several studies which explain that the incidence of anxiety in patients with Parkinson's status is not married has a prevalence of 25% higher than patients who are married. This indicates that people with PD who are not married are more likely to experience anxiety than those who are married. These results are useful as guidelines in the management of anxiety in PD sufferers, as an intervention to improve social relationships in order to reduce the stressor burden on PD sufferers. Emotional support and assistance for mood stabilization from partners can reduce the risk of anxiety in people with PD. There is evidence that a decrease in quality of life can occur in people with PD who are not married, widowers or widows.⁴

Research with a larger sample size should be conducted, with a cohort design and identification of other factors that can influence the incidence of anxiety in people with Parkinson's, such as previously acquired Parkinson's therapy and previous history of anxiety.

Table 1. Basic Characteristics

Characteristics	Frequency (n-60)
Age, mean ($\pm$ SD)	58.05 ($\pm$ 9.7)
Median (min-Max)	59 (28 – 73)
Gender, n (%)	
Male	33 (55 %)
Female	27 (45 %)
Marital status	
Not married	10 (16.7 %)
Married	50 (83.3%)
Duration of illness, meas ($\pm$ SD)	6.35 ($\pm$ 5.29)
Median (min-max)	5 (1-25)
Degree of disease	
HY I	4 (6.66 %)
HY II	28 (46.67 %)
HY III	19 (31.67 %)

HY IV	9 (15 %)
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Table 2. Relationship of the factors that influence anxiety in patients with Parkinson's

Variable	Parkinson's		P value	OR	IK 95 %	
	Anxiety	No anxiety			Min	Max
Gender			0.852	1.105	0.388	3.150
Male	13	20				
Female	10	17				
Age			0.353	0.548	0.153	1.966
≤ 50 years	6	6				
> 50 years	17	31				
Duration of illness			0.024	4.958	1.132	21.722
≤ 5 years	7	30				
> 5 years	16	7				
Marital status			0.011	4.143	1.341	12.798
Not married	7	3				
Married	16	34				
Degree of Disease (Hoehn and Yahr)			0.002			
I	0	4				
II	7	21				
III	8	11				
IV	8	1				

4. Conclusion

Anxiety is one of the non-motor symptoms of Parkinson's disease. However, these symptoms sometimes get less attention because the patient, the patient's family or the doctor is more focused on the motor symptoms that arise. Need proper management in dealing with anxiety in patients with Parkinson's, because it affects in reducing the quality of life of people with Parkinson's. This study found a significant relationship between marital status, duration of illness and degree of disease with the incidence of anxiety in patients with Parkinson's.

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