

A Comparison of Depression Screening Tools in Parkinson's Disease and Normal Community Controls using a Brain and Body Donation Database

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INTRODUCTION

The most common psychiatric complication in patients affected by Parkinson's Disease (PD) is depression. Screening accurately for depression in PD is clinically relevant as depression is associated with a reduced Health Related Quality of Life, a more rapid progression of motor deficits, and increased caregiver stress. Screening for depression clinically in a PD population is challenging as PD manifestations may mimic depression (e.g. facial masking, change in appetite and insomnia).

The purpose of this study is to compare depression inventories in PD and normal elderly controls (NC) looking for patterns to help guide clinical management.

Screening tools currently validated for screening of depression in PD include Beck Depression Inventory, Geriatric Depression Scale, and Hamilton Depression Scale.

METHODS

Subjects were drawn from the Banner Sun Health Research Institute's Brain and Body Donation Program (BBDP), an IRB approved study.

Scales used in this study were scales routinely administered as part of BBDP. Cut-off scores were determined from literature review. All statistical analyses performed using SAS software Version 9.1. Means were compared by using the two-sample *t* test, proportions were compared by using the Pearson chi-square test, and odds ratios were assessed by using logistic regression

Inclusion: Enrolled in the BBDP. Completion of the necessary depression related assessments. Diagnosis of either clinically probable Parkinson's Disease or Normal Control. Included regardless of treatment for depression.

Exclusion: Dementia or other neurodegenerative disease.

RESULTS SUMMARIZED

The overall trends in the data were consistent between the scales with the PD group showing more positive depression screens than NC

The NPI (caregiver informant) and GDS (self report) had the highest rates of positive screens in both PD and NC

Similar percentages of PD and NC were being treated for depression, despite the higher rate of positive depression screens across all inventories in the PD group

DISCUSSION

PD patients likely suffer from depression with greater frequency than NC

Depressive symptoms are similar among PD versus NC considering individual scales ask about different depressive symptoms and have different degrees of somatic items, but follow the same patterns

May be beneficial to the clinician to involve a caregiver in the assessment of the patient, in both PD patients or in a general primary care setting

Depression may be undertreated in PD. May be beneficial to consider lowering the threshold for treatment of depression in PD taking into account clinician suspicion, caregiver concern or patient disclosure.

Demographics			
	Parkinson's	Elderly Control	p value
Age (years) mean, (SD), n	75.2, (8.7), 92	81.6, (7.6), 518	<.001
MMSE mean, (SD), n	27.8, (2.3), 92	28.3, (1.8), 518	.02
Female	37/92 (40%)	328/518 (63%)	<.001

Hamilton Depression Scale			
	Parkinson's	Normal Control	p value
Mean, (SD), n	3.8, (3.2), 89	2.8, (3.3), 507	.02
Positive Screens	5/89 (6%)	23/507 (5%)	.66

Validated for use in PD. Score range 0-50. Cut-off for depression >9. Clinician administered scale.

LIMITATIONS

Limitations to the study include not having a gold standard comparison to validate the findings in the screening tools. Inclusion of the HAMD and GDS which have been validated for use in PD served as reference. These scales are intended for screening of depression only, not diagnosis. Therefore a positive screen should only prompt further clinical investigation, and not be the final decision in diagnosing depression.

Geriatric Depression Scale			
	Parkinson's	Normal Control	p value
Mean, (SD), n	6.9, (5.2), 86	4.5, (4.5), 504	<.001
Positive screens	29/86 (34%)	65/504 (13%)	<.001

Validated for use in PD. 30-item scale, with score range 0-30. Cut-off for depression >9. Self reported scale.

Unified Parkinson's Disease Rating Scale			
	Parkinson's	Elderly Control	p value
Depression mean, (SD), n	0.36, (0.62), 92	0.21, (0.49), 517	.01
Positive screens	7/92 (8%)	16/501 (3%)	.04
Motivation mean, (SD), n	0.44 (0.76), 91	0.18 (0.48), 518	<.001
Positive screens	6/91 (7%)	19/518 (4%)	.19

Score range 0-4. Cut-off score >1. Interview and clinical observation.

CONCLUSIONS

The pattern of positive depression screens between PD patients and NC was similar across the scales analyzed in this study. Informant information seems particularly useful for screening, particularly for elderly controls. This may have implications for primary care, where elderly individuals come alone to office visits. Self-administered tools for the office seem to be a good starting point for patients or controls which could be followed by a clinician driven semi-structured interview. Screening with multiple modalities may prove useful in the clinical setting. Caregiver and informant driven information should be explored further as to relevance for clinical practice.

Neuropsychiatric inventory			
	Parkinson's	Elderly Control	p value
Depression	32/92 (35%)	115/518 (22%)	.009
Apathy	21/92 (23%)	61/518 (12%)	.004
Irritability	25/92 (27%)	127/518 (25%)	.59
Appetite	21/92 (23%)	64/518 (12%)	.008

Cut-off for depression is any positive response. Caregiver informant.

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Sources

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