

Apathy: An Important “Factor” in Parkinson’s Disease

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INTRODUCTION

Emotional changes frequently accompany Parkinson’s disease (PD) and many patients experience anxiety and depression.

Recently, attention has focused on a ‘syndrome of apathy,’ involving loss of motivation, loss of interest, and flattened affect.

It has been argued that apathy is distinct from depression. A recent study from our laboratory found that apathy occurred at high prevalence (51%; 41/80 patients) and high severity in PD. Additionally, for 29% (23/80) of these patients, apathy occurred in the absence of depression.

All studies to date examine apathy and depression based on total scores from apathy and depression self-report measures, such as the the Apathy Evaluation Scale and Beck Depression Inventory. Since apathy and depression have overlapping symptoms (ex. loss of interest), symptoms of apathy may be included as depression inventory total score when they actually represent apathy and vice versa.

This study is designed to address this limitation by using confirmatory factor analysis to examine apathy and depression items.

OBJECTIVE To examine whether items from Apathy Evaluation Scale and Beck Depression Inventory cluster into discrete apathy and depression factors in PD.

HYPOTHESIS

Hypothesis: PD patients scores from Apathy Evaluation Scale and Beck Depression Inventory will cluster into 4 factors:

Factor	Represents
Loss of interest	overlap between apathy & depression sx
Apathy	loss of motivation
Depressed mood	sadness/low mood
Somatic	bodily complaints

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RESULTS

NOTE:

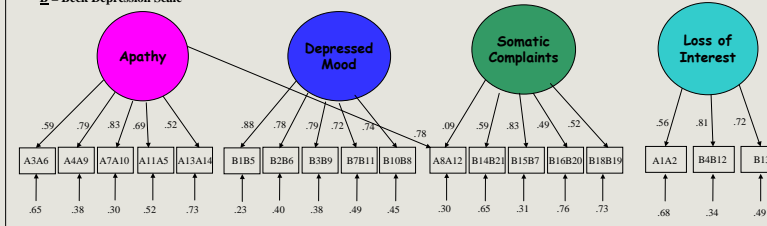
Circles = factors

Boxes = item parcels

△ = Apathy Eval. Scale

□ = Beck Depression Scale

Factor Loadings and Uniquenesses:



Fit Indices:	χ^2	RMSEA	NFI	CFI	IFI	RFI	GFI	critical N
	210.2 (p<.01)	.07	.93	.97	.97	.91	.84	92.18

Items for Factor Analysis

Apathy Evaluation Scale Items:

- A1: Are you interested in learning new things?
- A2: Does anything interest you?
- A3: Are you concerned with your condition?
- A4: Do you put much effort into things?
- A5: Are you always looking for something to do?
- A6: Do you have plans and goals for the future?
- A7: Do you have motivation?
- A8: Do you have the energy for daily activities?
- A9: Does someone have to tell you what to do each day?
- A10: Are you indifferent to things?
- A11: Are you unconcerned with many things?
- A12: Do you need a push to get started on things?
- A13: Are you neither happy nor sad Are you neither happy nor sad, just in between?
- A14: Would you consider yourself apathetic?

Beck Depression Inventory Items:

- B1: I feel sad.
- B2: I feel discouraged about the future.
- B3: I feel I have failed more than the ave. person.
- B4: I don't enjoy things the way I used to
- B5: I feel guilty a good part of the time.
- B6: I feel I may be punished.
- B7: I am disappointed in myself.
- B8: I am critical of myself for my weaknesses or mistakes.
- B9: I have thoughts of killing myself, but I would not carry them out.
- B10: I cry more now than I used to.
- B11: I get annoyed or irritated more easily than I used to.
- B12: I am less interested in other people than I used to be.
- B13: I put off making decisions more than I used to.
- B14: I am worried I am looking old or unattractive.
- B15: It takes an extra effort to get started at doing something.
- B16: I don't sleep as well as I used to.
- B17: I get tired more easily than I used to.
- B18: My appetite is not as good as it used to be.
- B19: I have lost more than 5 lbs.
- B20: I am worried about physical problems such as aches and pains
- B21: I am less interested in sex than I used to be.

SUBJECTS & METHODS

115 patients with idiopathic Parkinson’s Disease (PD)

Age (yrs)	66.9 yrs (9.5)
Sex	97M, 36F
DOPA meds	95%
Anti-depress	51%
Yrs Symptoms	6.4 (5.7)
Hoehn Yahr Stage	2.5 (.67)

*Recruited from Movement Disorders Center, University of Florida, during routine medical appointments. Subjects completed the mood scales, described below.

Marin Apathy Evaluation Scale-modified (AES)- 14 item self-report measure of apathy, modified by Starkstein et al. (1992). Likert scale ranges from 0 to 3.

Beck Depression Inventory I (BDI-I)- 21 item self-report measure of depressive symptoms that can be divided into ideational and somatic depressive symptoms. Likert scale ranges from 0-3.

Confirmatory factor analysis (CFA, Lisrel 8.71) examined fit of the data to the 4 a priori hypothesized factors. Items were parceled into pairs; parceling (e.g. combining) items produces better distributional properties to better approximate normal distribution. Modification indices were utilized to improve the model.

Multiple indices were used to determine the fit of the model. These included χ^2 , root mean square error of approximation (RMSEA), normed fit index (NFI), comparative fit index (CFI), incremental fit index (IFI), relative fit index (RFI), goodness of fit index (GFI), and critical N.

CONCLUSION

This Confirmatory factor analysis (CFA) examined the fit of the Apathy Evaluation Scale and the Beck Depression Inventory items to 4 a priori hypothesized factors- 1) loss of interest, 2) apathy, 3) depressed mood, and 4) somatic complaints.

Results indicated a good fit for apathy, loss of interest, and depressed mood (χ^2 (128, N = 115) = 210.22, p <.01). Factor loadings on these three factors were in the expected range (high, mostly .7-.8) whereas loadings on items proposed as “somatic” did not load as highly as expected (moderate, mostly .49-.59).

A good fit resulted after modification indices were examined and item parcel A8/A12 was allowed to load on the apathy factor instead of the somatic factor as hypothesized. These items involve lack of energy and needing a push to get started and based on CFA results better fit with apathy than with somatic complaints. These may fit under the context of behavioral components of apathy. Therefore, apathy, depressed mood, and loss of interest were supported as distinct factors whereas the somatic factor was less clearly supported.

CFA results support the notion that apathy and depression are discrete factors and add to the growing support for the discrimination of these two mood states in PD.