

Apathy in Alzheimer's dementia: prevalence increases with disease severity and apathy negatively impacts upon object naming and mood



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The Methodological Question Being Addressed

The aim of this study was the evaluation of the influence of apathy on cognitive and behavioural symptoms in different stages of AD.

Introduction:

Alzheimer's disease (AD) is the most common cause of dementia among the elderly. Although cognitive deficits are the clinical hallmark of AD, various non-cognitive symptoms termed „behavioural and psychological symptoms of dementia” (BPSD) are common and can dominate the clinical manifestation. BPSD have been observed in up to 98% of patients with dementia and include apathy, agitation, aggression, anxiety, delusions, sleep disturbances, and hallucinations, among other symptoms. Apathy is defined as a symptom of decreased motivation and psychomotor lethargy. There is widespread acceptance in the field that apathy is an important and frequent behavioural symptom in AD with a negative impact on the course of the disease.

Methods:

Our sample consisted of 284 patients with AD from the outpatient memory clinic of the Department of Psychiatry, Medical University Innsbruck in this retrospective analysis. All participants underwent a clinical examination, medical records were reviewed and the following neuropsychological tests were applied: verbal and recognition subtests of the “Consortium to Establish a Registry for Alzheimer's Disease (CERAD) battery, figural memory, object naming (Boston Naming Test [BNT] – short version, CERAD), planning (CLOX Test part 1), divided attention, and cognitive flexibility (Trail Making Test-A and B). Apathy (sum of subscores: severity, frequency, caregiver burden) was assessed using the Neuropsychiatric Inventory (NPI). The association between apathy, dementia severity, cognitive functions, depression (assessed with the Geriatric Depression Scale, GDS) and psychotropic medication was analysed by Pearson's correlation and one-way ANOVA.

Results:

Of the 284 patients with AD (mean age 79.9±7.9 years) 67 % were female. The prevalence of apathy was 20.4% - severity of apathy was rated as mild to moderate in 17%, as severe in 7.4% of patients. Prevalence rates of apathy depending on dementia severity are presented in **Figure 1**. Comparison of different degrees of dementia severity showed higher scores of the NPI total score as well as the NPI apathy subscore in patients with more severe dementia (see **Table 1**). Correlation analyses showed a positive correlation of apathy with the GDS score and more severe impairment in neuropsychological measures (see **Figure 2**). Of assessed psychotropic medications (Antidepressants, Sedatives, Antipsychotics), only antipsychotics showed a trend towards an positive associated with higher apathy scores.

Table 1.	Dementia stage ^a			One-way ANOVA	Pairwise comparison		
	Mild N = 157	Moderate N = 95	Severe N = 32		Mild vs moderate	Mild vs. severe	Moderate vs. severe
Demographics / GDS / NPI							
Age (years)	77.7±7.5	81.6±8.1	80.3±8.1	p=0.001	p<0.001	n.s.	n.s.
Education (years)	8.9±2.2	8.6±2.5	8.4±2.3	n.s.	-	-	-
GDS score	8.3±6.2	7.6±6.2	8.4±2.3	n.s.	-	-	-
NPI total score	9.5±3.5	11.4±5.3	19.8±7.5	p<0.001	n.s.	p<0.001	p<0.001
NPI apathy ^b	0.5±1.3	1.1±1.2	2.4±2.1	p<0.001	p=0.036	p<0.001	p<0.001

^a Mild: MMSE >20, Moderate MMSE 11-20; Severe: MMSE <11, ^b range 0-8

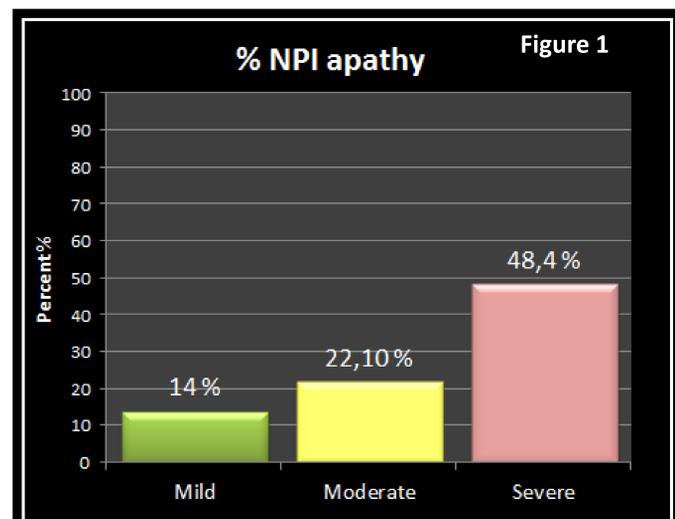
Table 1: results of one-way ANOVA of demographic data, GDS and NPI

Figure 1: comparison of apathy-prevalence dependent on dementia severity

Figure 2: Correlation analysis of the mean NPI apathy score with neuropsychological measures

Conclusions: Apathy is a common behavioural symptom in patients with dementia with increasing prevalence in severe disease stages. The positive correlation with the GDS score underscores the difficult differential diagnosis between apathy and depression. In addition, we found that apathy is associated with impaired verbal abilities, e.g., object naming and reduced psychomotor speed. These results suggest that patients with severe dementia should be sufficiently verbally stimulated even though the ability for active verbal communication may be attenuated in this stage of disease. Further, the reduced mentally processing speed should be considered in the communication and care of patients with dementia.

The authors report no conflicts of interest for this work



Correlation analysis		Figure 2
		Apathy score
MMSE	Pearson Correlation	-.293**
	Sig. (2-tailed)	.000
naming (BNT)	Pearson Correlation	-.167**
	Sig. (2-tailed)	.006
verbal memory (CERAD)	Pearson Correlation	.028
	Sig. (2-tailed)	.658
Trail A	Pearson Correlation	-.186*
	Sig. (2-tailed)	.011
Trail B	Pearson Correlation	.049
	Sig. (2-tailed)	.733
CLOX1	Pearson Correlation	-.170**
	Sig. (2-tailed)	.006
GDS score	Pearson Correlation	.224**
	Sig. (2-tailed)	.000

** . Correlation is significant at the 0.01 level (2-tailed).
* . Correlation is significant at the 0.05 level (2-tailed).