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Apathy in aging: Are lack of interest and lack of initiative dissociable?

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ABSTRACT

Apathy is common in aging and generally defined on the basis of three dimensions: lack of initiative, lack of interest and emotional blunting. Curiously, no study until now has examined the associations and dissociations between these dimensions in elderly people (with or without dementia). These questions were addressed in two studies. In the first study, we explored the distribution of scores and the relationships between the three dimensions of apathy in 56 patients with dementia, focusing mainly on lack of initiative and lack of interest. Apathy was hetero-evaluated with the Apathy Inventory (AI), a scale widely used to assess the apathy dimensions in aging. In the second study, given the AI's limitations, we investigated in more detail the relationship between lack of initiative and interest in 115 elderly people using a new questionnaire specifically designed to assess these two dimensions. Results showed that lack of initiative was closely related to lack of interest (Study 1). Although we used a more specific questionnaire, these facets of apathy did not constitute two separable dimensions, but reflected a common main factor of apathy in aging (Study 2). Thus, the distinction between lack of initiative and lack of interest seems questionable. Only a multifactorial approach that includes the various psychological factors involved in apathy would enable one to gain a better understanding of the different manifestations of apathy and to highlight possible dissociations between them.

1. Introduction

Apathy is a common behavioral symptom in aging (in people with or without dementia; Brodaty, Altendorf, Withall, & Sachdev, 2010; Ishii, Weintraub, & Mervis, 2009) and appears to be significantly associated with cognitive decline (Onyike et al., 2007; Starkstein, Jorge, Mizrahi, & Robinson, 2006), poor quality of life (Yeager & Hyer, 2008), lower basic/instrumental activities of daily life (Benoit et al., 2008; Boyle et al., 2003), and close relatives' suffering (Leroi et al., 2011). Currently, there is a general agreement that diminished goal-directed behavior (GDB) is the core feature of apathy (Levy & Dubois, 2006; Robert et al., 2009). Recently, inspired by the categorical approach of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000), Mulin et al. (2011; see also Robert et al., 2009) proposed a set of diagnostic criteria for apathy. By consensus, apathy was divided into three dimensions: loss of initiative (incapacity to begin activities spontaneously or in response to external stimuli), loss of interest (incapacity to feel or to show an attraction for activities) and affective blunting (decrease in positive and negative emotional reactions). Individuals are diagnosed as "apathetic" if two of these three dimensions are affected (Mulin et al., 2011). Thus, the diagnosis of apathy is established regardless of which dimensions are affected.

The Apathy Inventory (AI; Robert et al., 2002) is frequently used to assess the three dimensions of apathy distinguished in the diagnostic criteria for apathy (e.g., Adam et al., 2012; David et al., 2010; Leone et al., 2012; Robert et al., 2006). However, very few studies have explored these three dimensions separately; usually only the global score is considered. The few studies of apathy in aging that have considered the scores for each dimension separately focused essentially on the links between the apathy dimensions and other variables (such as memory; Robert et al., 2008), without examining the relationships between the dimensions themselves. To our knowledge, only two studies so far have examined these relationships: Robert et al. (2002), which

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highlighted a significant correlation between lack of initiative and lack of interest in the validation study of the AI ($p < 0.001$; the size of the correlation was not available), and more recently, Esposito, Rochat, Juillerat Van der Linden, and Van der Linden (2012), which showed also a strong link between these two apathy dimensions ($r = 0.65$, $p < 0.001$).

Thus, little is known about the different facets of apathy in aging as assessed with the AI; the distribution of scores, the relationships between the three dimensions and with other variables (e.g., effect of age, cognitive problems, etc.) remain unclear. The first objective of this study was to explore the apathy dimensions separately (score distribution, relationships among dimensions and between dimensions and other variables), focusing mainly on the link between lack of initiative and lack of interest as assessed with the AI caregiver version in people with dementia (Study 1). Due to some methodological limitations of the AI (e.g., there is only one item per dimension, which is not enough to perform detailed statistical analyses), we conducted a second study in which we created a new questionnaire specifically designed to assess lack of initiative and lack of interest. Then, we examined in more detail the relationship between these two dimensions of apathy in 115 elderly people presenting with more or fewer cognitive problems.

Thus, the main objective of this study was to explore in detail the links between lack of initiative and lack of interest. We did not focus on the emotional blunting dimension because the AI assessment of this dimension appeared not to be sensitive enough (the scores on this dimension are often near zero; see Robert et al., 2002, 2008). In fact, the assessment of emotional blunting is rather problematic for close relatives, because of the difficulty of reliably inferring loss of "experienced" emotion. Obviously, emotional blunting constitutes a key dimension of apathy, but studies aiming to examine this dimension should use more objective measures (e.g., physiological measures, such as autonomic or cardiovascular reactivity).

2. Study 1. The link between the lack of initiative and lack of interest assessed with the AI

This first study aimed to explore the scores distribution of the three dimensions of apathy as assessed with the AI in dementia, the relationship between the lack of initiative and lack of interest, and their links with other variables (i.e., cognitive processes and demographic data). With reference to past studies, a strong association between lack of initiative and lack of interest was postulated (Esposito et al., 2012; Robert et al., 2002).

2.1. Materials and methods

2.1.1. Participants

Fifty-six non-consecutive patients (29 women and 27 men) were recruited from the Geneva Memory Clinic (University Hospital of Geneva, Switzerland). Forty-five patients met the National Institute of Neurological and Communicative Disorders and Stroke/Alzheimer's Disease and Related Disorders Association criteria for probable Alzheimer dementia (McKhann et al., 1984) and 11 patients had mixed dementia (Alzheimer and vascular) on the basis of a detailed neurological, psychiatric, and neuropsychological examination. All participants were retired and living in independent living accommodations. The inclusion criterion was a score $\geq$18 on the MMSE (Mini-Mental State Examination; Folstein, Folstein, & McHugh, 1975). Participants with a history of psychiatric disorders, motor impairment, or uncorrected visual or hearing difficulties were excluded. Only participants for whom a close relative could complete the hetero-evaluation questionnaire were included in the study. Among people who completed that questionnaire, 34 were spouses and 22 were adult children. The age range of the sample was from 57 to 90 years old ($M = 75.57$, $SD = 7.80$) and the educational level ranged from 8 to 19 years ($M = 12.79$, $SD = 2.64$).

2.1.2. Apathy assessment and neuropsychological measures

2.1.2.1. Apathy Inventory (AI caregiver version) (Robert et al., 2002). Given its brevity, the AI seems to constitute a practical first approach in exploring the links between initiative and interest. The AI is a semi-structured scale providing a brief and separate assessment of emotional blunting (e.g., "*Is he/she as affectionate and does he/she express emotion as usual?*"), lack of initiative (e.g., "*Does he/she initiate a conversation and make decisions?*"), and lack of interest (e.g., "*Does he/she seem interested in the activities and plans of others?*"). The questions deal with behavioral changes that have occurred since the onset of the disease. We used the hetero-evaluation form in which questions (yes/no) are asked to determine whether apathy is present or absent. If the response is negative, the clinician assigns a score of 0 and proceeds to the next item. If the response is positive, the clinician explores the frequency and severity of the item with simple questions ("*How frequently do these problems arise?*", "*How severe are these problems?*"). For each of the three dimensions, the maximum score (frequency of 1–4 multiplied by severity of 1 to 3) is 12, giving a maximum total score of 36. It should be noted that no cut-off has ever been defined to make a clinical diagnosis of apathy with the AI. However, according to the results of previous studies on dementia (Brocker, Clairet, Benoit, & Robert, 2003), a score of higher than 2 on one of the apathy dimensions is usually considered clinically significant. Validation of the AI was carried out in a mixed sample consisting of healthy controls ($N = 19$), patients with mild cognitive impairment ($N = 24$), patients with Parkinson's disease ($N = 12$) and patients with Alzheimer disease ($N = 60$). Good internal consistency, test-retest reliability and interrater reliability were demonstrated (Robert et al., 2002).

2.1.2.2. Mattis Dementia Rating Scale (DRS; Mattis, 1976). In order to examine whether lack of initiative and lack of interest had different relationships with cognitive processes, we used the DRS, a standardized clinical mental status examination providing an index of overall cognitive functioning. The DRS consists of 36 tasks divided into five subtests: Attention (37 points), Verbal and Motor Initiation and Perseveration (37 points), Visuospatial Construction (6 points), Conceptualization (39 points) and Memory (25 points). The total DRS score ranges from 0 to 144, with higher scores reflecting better performance.

2.1.3. Procedure

Participants were tested individually in a quiet environment; after written informed consent was obtained, they executed the MMSE and the DRS. Simultaneously, the AI was administered by a clinician neuropsychologist (the first author of this study) to a close relative of the participant. All participants gave their written consent to participate, and the study was approved by the ethics committee of the University Hospital of Geneva.

2.1.4. Statistical analyses

Firstly, the score distributions of the three dimensions of the AI were examined. Exploratory analyses of the data revealed that some variables were not normally distributed, so non-parametric tests were performed. Secondly, Spearman correlations were computed to explore the links between lack of initiative and lack of interest, and their associations with the demographic data and cognitive functioning. Given the number of statistical analyses, and the need to balance the number of type I and type II errors, we calculated adjusted p values with the false discovery rate method