



SOCIAL AND BEHAVIORAL SCIENCES. Psychology

ORIGINAL RESEARCH



# The Personality Traits of Family Caregivers of Individuals with Dementia: The Effects of Social Anxiety, Social Phobia, and Caregiving Hours



Authors' Contribution:

- A – Study design;
- B – Data collection;
- C – Statistical analysis;
- D – Data interpretation;
- E – Manuscript preparation;
- F – Literature search;
- G – Funds collection

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**Background and Aim of Study:**

**Abstract**

Caring for individuals afflicted with dementia engenders substantial demands and responsibilities for caregivers, encompassing the extensive time allocation devoted to the care recipient on a daily basis. Furthermore, the psychological attributes inherent in informal caregivers, encompassing traits like social anxiety and social phobia, can exert an influence on the evolution of their personal dynamics over time. This phenomenon potentially yields repercussions for how caregivers offer guidance and assistance to elderly individuals grappling with dementia, particularly in relation to their fundamental daily activities and instrumental tasks. The aim of the study: to analyze the predictive effect of social anxiety and social phobia as psychological characteristics of caregivers, along with the impact of caregiving hours as caregiving-related characteristics, on caregivers' personality.

**Material and Methods:**

This observational and cross-sectional study comprised a sample of 97 participants serving as primary family caregivers completed a sociodemographic questionnaire, the Big Five Inventory, the Anxiety Scale in Social Interaction Situations, and the Social Phobia Scale.

**Results:**

The findings revealed that social phobia demonstrated significant predictive power for Openness ( $\beta=-0.199$ ;  $p=0.016$ ) and Extraversion ( $\beta=-0.136$ ;  $p=0.024$ ), whereas the daily caregiving hours negatively affected Conscientiousness ( $\beta=-0.145$ ;  $p=0.011$ ), Agreeableness ( $\beta=-0.137$ ;  $p=0.040$ ), Openness ( $\beta=-0.210$ ;  $p=0.011$ ), and Extraversion ( $\beta=-0.175$ ;  $p=0.003$ ). Conversely, social anxiety did not prove to be a significant variable.

**Conclusions:**

The presence of social phobia or higher hours devoted to caregiving for individuals with dementia are factors that impact personality functioning and should be considered in the planning of support programs for family caregivers.

**Keywords:**

personality, informal caregivers, dementia, social phobia, social anxiety

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## Introduction

Dementia is a brain disorder that affects the functioning of the nervous system and, consequently, impairs cognitive functions such as memory, language, reasoning, among others. According to the World Health Organization (2015), in 2015, an estimated 47.5 million people were affected by this neurological condition, and this number is expected to increase over time due to population aging. The progressive nature of this disease leads to the patient also losing social, functional, and behavioral abilities, necessitating supervision and support from caregivers. Informal caregivers are predominantly family members, often women, such as wives or daughters, who provide assistance with various daily tasks to the patient (e.g., hygiene, dressing, or feeding), dedicating several hours per day, without receiving monetary compensation for their efforts. Caregivers offer essential support not only in terms of basic and instrumental activities of daily living but also assume the responsibility of enhancing psychological well-being and quality of life for the patients (Serra et al., 2018; Silva et al., 2013). The demand for informal caregivers seems to be escalating, with a projected estimate of 21.5 million caregivers by the year 2030, with caregivers expected to dedicate at least 20 hours per week to caregiving responsibilities (Silva et al., 2013). Providing care for an individual with dementia necessitates empathy, flexibility, and patience; however, the approach taken by caregivers in executing their caregiving duties may also correlate with their personality traits (Melo et al., 2011). The psychological characteristics that underlie one's way of thinking, feeling, and acting, as well as the patterns found in attitudes and behaviors, define their personality (Flores-Mendoza & Colom, 2006). According to the Five Factor Model, the personality traits are extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Each trait represents a continuum where each individual positions themselves, helping to define their personality (Schultz & Schultz, 2021; Tew et al., 2013) demonstrated that the presence of conscientiousness is associated with better physical, psychological, and social quality of life, while the presence of extraversion promotes better mental health among individuals. On the other hand, higher levels of neuroticism negatively affect physical health, mental well-being, social relationships, and environmental aspects. The caregiver's neuroticism for a person with dementia has a negative impact on their family functioning, while extraversion, agreeableness, and conscientiousness have a positive impact on the same family functioning (Tavares et al., 2020). Throughout the caregiving process, caregivers with traits such as optimism, extraversion, conscientiousness, and openness tend to employ more engagement coping strategies in dealing with daily situations, whereas the presence of neuroticism is associated with disengagement coping (Carver & Connor-Smith, 2010). Melo et al. (2016) found that the presence of various personality traits in caregivers leads them to use different strategies in handling the behavioral changes

of individuals with dementia. In their study, where caregivers spent approximately 12.2 hours per day on caregiving, when they used adaptive strategies with the patient (e.g., guiding the patient), the care provided to the individual with dementia was positive. Conversely, when caregivers used maladaptive strategies that were poorly suited to caregiving (e.g., confronting the patient), the quality of care was negatively affected. The presence of neuroticism may lead individuals to experience greater difficulty in coping with stressful, uncomfortable, or anxiety-inducing situations (Ji et al., 2022; Karaaslan et al., 2020), consequently negatively impacting the lives of those dependent on caregiving. This highlights the association between anxiety and individuals' personality traits. The presence of anxiety leads individuals to exhibit restlessness due to apprehensive anticipation of future situations (Ji et al., 2022). In the case of social anxiety, individuals perceive exposure to social interactions as problematic. Consequently, they tend to avoid such situations, which they perceive as threatening and where they might become the focus of others' attention (Morais et al., 2008). When the fear of these situations is experienced intensely, it can also manifest as social phobia. The presence of social phobia causes irrational fears and negative thoughts to impact individuals' functionality (Barlow, 2003), and a marked lack of sociability becomes prevalent in avoidant personality disorder (Pellecchia et al., 2018). Indeed, the existence of comorbidity between social phobia and avoidant personality disorder has been observed (Wittchen & Fehm, 2001), as well as a relationship between social phobia, shyness, and avoidant personality disorder (Botella et al., 2003), or a positive correlation between social anxiety and neuroticism, and a negative correlation with extroversion (Kaplan et al., 2015). However, the predictive effects of social phobia and social anxiety on different personality traits of caregivers remain unknown. Additionally, personality has also been associated with variables such as the patient's health status (Suso-Ribera et al., 2019), depression (Tavares et al., 2020), and caregiver burden (Kim et al., 2016; Tavares et al., 2020). Burden may manifest in later stages of caregiving, for instance, in female caregivers who dedicate 20 hours per week to caring for individuals with dementia, indicating that the time devoted to caregiving also has negative effects on caregivers' lives (Swinkels et al., 2019). However, it is not yet known how the time spent on caregiving may impact caregivers' personality functioning, despite acknowledging that personality can also undergo changes over time (Boyce et al., 2015). In light of this, our study hypothesis posits that social phobia and social anxiety may be important predictors of personality traits in family caregivers of individuals with dementia, and that the hours of care provided may also exert a similar effect.

*The aim of the study.* To investigate how social phobia, social anxiety, and daily caregiving hours significantly influence the personality characteristics of informal family caregivers of patients with dementia.



## Materials and Methods

### Participants

Ninety-seven participants of both sexes were included in this study, with 77.3% being women and 22.7% being men. The participants identified themselves as primary informal caregivers for individuals with dementia and their ages ranged from 20 to 72 years, with a mean age of 45.91 ( $\pm 13.37$ ) years. On average, they provided 10.56 ( $\pm 8.33$ ) hours of daily care to the person with dementia. The average weekly leisure hours for the caregiver are 8.12 ( $\pm 9.42$ ). Among the sample, 61.9% are children of the person with dementia, 3.1% are siblings, 2.1% are sons-in-law, 5.2% are spouses, 6.2% are nephews/nieces, and 21.6% have another degree of relationship. Furthermore, 77.3% of caregivers provide multiple types of care (e.g., feeding, hygiene, shopping) to the person with dementia, while 22.7% are responsible for only one type of care. Regarding the gender distribution of individuals with dementia, 67% are female, and 33% are male. Most individuals with dementia are widows (61.9%) and have completed primary education (4 years of schooling) (42.3%). Additionally, 51.5% of individuals with dementia have a clinical diagnosis of Alzheimer's disease, 6.2% have vascular dementia, and 42.3% have other types of dementia (e.g., Parkinson's disease dementia, Lewy body dementia, and frontotemporal dementia). The patients have an average diagnosis time of 6.06 ( $\pm 5.99$ ) years. Among them, 83.5% live with the caregiver, while 16.5% live alone. The inclusion criteria for caregivers in this study considered those who were responsible for patients with a clinical diagnosis of dementia.

### Measures

As measurement instruments, a sociodemographic questionnaire was used to collect data from caregivers (age, hours of caregiving, etc.). The Big Five Inventory (Portuguese version by Brito-Costa et al., 2015) was employed to assess caregivers' personality across five dimensions through 44 items: Openness to Experience, Conscientiousness, Extroversion, Agreeableness, and Neuroticism. The instrument is rated on a Likert-type scale, with scores ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Higher scores indicate a greater presence of these traits in the subjects. The internal consistency of the instrument yielded satisfactory values ( $\alpha=0.78$ ). The social anxiety scale in social interaction contexts, comprising 19 items, and the social phobia scale, consisting of 20 items (Portuguese version by Pinto-Gouveia & Salvador, 2001), were employed. The first scale was utilized to assess caregivers' levels of social anxiety, while the second scale aimed to evaluate social phobia. The assessment of these instruments was based on a 4-point Likert-type scale, with higher scores indicating higher levels of social anxiety and social phobia. The psychometric characteristics of the scales were considered good, with a Cronbach's alpha of 0.90 and good discriminant validity.

### Procedure

In the initial phase, the representatives of informal caregiver support institutions were contacted. Once their

interest in participating and becoming acquainted with the study was expressed, working meetings were scheduled, during which the study's objectives were presented. With the collaboration of these institutions, family caregivers of individuals with dementia were subsequently approached. Those family caregivers who willingly agreed to participate in the study proceeded to sign an informed consent form, emphasizing the voluntary nature of their involvement, and assuring them of the absence of any health risks associated with their participation. The researchers made a commitment to adhere to all ethical and deontological responsibilities of the investigation, which were duly communicated to the participants. The study protocol was administered in a comfortable and well-lit room belonging to the collaborating institutions or through online tools, adapting the data collection method to the caregivers' availability.

### Data Analysis

For the analysis of the collected data, the Statistical Package for the Social Sciences, version 29 for Windows (IBM, SPSS Statistics 29) was used. Initially, the data were examined through descriptive statistics, including frequencies and percentages for categorical variables and means and standard deviations for numerical variables. The correlation between variables was assessed using the Pearson correlation coefficient, and statistical assumptions such as homogeneity of variance and normal distribution of the sample were checked. To investigate the predictive effect, both simple and multiple linear regression models were employed to estimate the magnitude and direction of the impact of independent variables on caregivers' personality dimensions. Only independent variables that demonstrated significant correlations with personality dimensions were included in the regression models. The assumptions of the regression models were also verified. A significance level of  $p$ -value  $< 0.05$  was adopted to determine statistical significance.

## Results

### *Correlation between Personality Traits, Caregiver's Age, Hours of Daily Care, Social Phobia, and Social Anxiety*

The dimension of openness exhibits a significant negative relationship with hours of daily care ( $r=-0.249$ ,  $p=0.014$ ), a significant negative correlation with social phobia ( $r=-0.276$ ,  $p=0.006$ ), and a significant correlation with social anxiety ( $r=-0.201$ ,  $p=0.049$ ). However, no significant relationship was found between this dimension and caregiver's age ( $r=0.018$ ,  $p=0.861$ ). The dimension of conscientiousness exhibits a significant negative relationship with hours of daily care ( $r=-0.257$ ,  $p=0.011$ ). However, it does not show a statistically significant relationship with social phobia ( $r=-0.050$ ,  $p=0.625$ ), social anxiety ( $r=-0.043$ ,  $p=0.673$ ), nor caregiver's age ( $r=-0.075$ ,  $p=0.464$ ). The dimension of extraversion exhibits a significant negative relationship with hours of daily care ( $r=-0.297$ ,  $p=0.003$ ), social phobia ( $r=-0.287$ ,  $p=0.004$ ), and social anxiety ( $r=-0.225$ ,  $p=0.027$ ). However, this dimension does not



show a statistically significant relationship with caregiver's age ( $r=0.050, p=0.626$ ). The dimension of agreeableness has a significant negative relationship with hours of daily care ( $r=-0.209, p=0.040$ ). It does not have a statistically significant relationship with social phobia ( $r=-0.082, p=0.426$ ), social anxiety ( $r=-0.057, p=0.578$ ), nor caregiver's age ( $r=0.101, p=0.323$ ). The dimension of neuroticism does not have a statistically significant relationship with hours of daily care ( $r=-0.100, p=0.328$ ), social phobia ( $r=0.124, p=0.228$ ),

social anxiety ( $r=0.146, p=0.153$ ), nor caregiver's age ( $r=0.092, p=0.371$ ).

**Prediction of Personality Dimensions**

The variables that previously correlated significantly with the personality dimensions were considered in the regression models. Table 1 represents the prediction effect using the simple linear regression model, and Table 2 shows the prediction effect using the multiple linear regression model.

**Table 1**  
*Prediction of Conscientiousness and Agreeableness*

Regression models	B	SE	P
<b>Conscientiousness</b>			
Model 1 ( $R^2=25.7\%$ )			
Hours of daily care	-0.145	0.056	0.011*
<b>Agreeableness</b>			
Model 2 ( $R^2=20.9\%$ )			
Hours of daily care	-0.137	0.066	0.040*

Note. B – unstandardized Beta Coefficients; SE – standard error (unstandardized Coefficients); P – p-value (\*0.05).

**Table 2**  
*Prediction Effects of Openness and Extraversion*

Regression Models	B	SE	P
<b>Openness</b>			
Model 1 ( $R^2=38.4\%$ )			
Hours of daily care	-0.201	0.077	0.011*
Social phobia	-0.199	0.081	0.016*
Social anxiety	0.132	0.098	0.182
<b>Extraversion</b>			
Model 2 ( $R^2=41.4\%$ )			
Hours of daily care	-0.175	0.056	0.003*
Social phobia	-0.136	0.059	0.024*
Social anxiety	0.078	0.072	0.277

Note. B – unstandardized Beta Coefficients; SE – standard error (unstandardized Coefficients); P – p-value (\*0.05).

**Discussion**

The aim of the study was to investigate whether characteristics such as social phobia, social anxiety, or hours of daily care could serve as predictors of personality dimensions in informal caregivers of individuals with dementia. Our results revealed that only social phobia and hours of daily care were significant variables in predicting Openness and Extraversion. Additionally, hours of daily care were also found to be predictors of Conscientiousness and Agreeableness among caregivers. Specifically, our findings revealed that the presence of social phobia negatively affects caregivers' openness to experience and extraversion. In fact, the presence of phobic characteristics, such as negative thoughts, negative self-images, or fear of failure, hinders individuals from understanding or accepting positive stimuli from others and circumstances (Calderón & Blázquez, 2014). Social phobia prevents them from arousing curiosity, a desire to enjoy new experiences and sensations, which are characteristic of openness to experience, or from exhibiting greater sociability, assertiveness, or a spirit of adventure, which characterize extraversion (Feixas, 2019; Pedroso de Lima

et al., 2014). However, individuals with higher levels of extraversion may demonstrate greater difficulties with attention and concentration on the tasks they must perform (Cloninger, 2013), which could have a negative influence on caregiving. Nevertheless, the negative effects caused by the presence of social phobia may vary depending on whether it is non-generalized social phobia, where the impact of this condition is less severe, or generalized social phobia with comorbidity with avoidant personality disorder, where problems are more pronounced and affect social interactions and the negative interpretation of received stimuli (Kessler, 2003). Our results also demonstrate that the number of hours spent in daily caregiving for individuals with dementia negatively affects caregivers' personality traits, namely their conscientiousness, agreeableness, openness to experience, and extraversion. According to the study by Tew et al. (2013), a longer duration of caregiving and a greater number of hours dedicated to caregiving harm caregivers' physical and mental health, social relationships, and environmental quality of life. A higher number of caregiving hours restricts individuals from engaging in new activities and having time to express





their ideas or creative freedom in other situations. The negative impact of caregiving hours on extraversion influences the sociability of individuals and reduces their energy in pursuing new challenges (Cloninger, 2013). On the other hand, when there is higher extraversion, individuals with dementia may benefit more from caregiving, as caregivers are more readily available to provide patients with new stimuli and activities that help delay the effects of cognitive deterioration caused by the disease (Norton et al., 2013), and enable them to positively express their emotions (Rabins et al., 1990). However, despite the study by Hajek & Konig (2018) finding a positive association between the number of hours informal caregivers dedicate to caregiving and conscientiousness, according to our results, we can infer that dedicating more hours to caregiving may compromise caregivers' levels of organization, planning, and even responsibility, which are characteristics of conscientiousness, as well as their levels of confidence, empathy, or cooperation, which characterize their agreeableness. The lack of empathy or cooperation with the care recipient can indeed exacerbate the difficulties experienced in caregiving (Hajek & Konig, 2018) and lead the caregiver to adopt maladaptive caregiving strategies.

Vugt et al. (2004) found that caregivers who devoted more than 90 hours per week to caregiving, when using maladaptive caregiving strategies, resulted in the patient showing more behavioral disturbances. However, it is through the expression of personal characteristics such as neuroticism that one would expect maladaptive caregiving strategies to be employed due to the caregiver's lack of understanding and acceptance of the patient's condition. Although our study did not reveal significant relationships with neuroticism, it is well-known that individuals who excessively focus on their fears or concerns tend to exhibit higher levels of neuroticism (Costa & McCrae, 2008), as greater neuroticism is indicative of higher emotional instability in individuals (Schultz & Schultz, 2021). As limitations, this study did not consider the personality characteristics of the patients and did not assess the impact that sexes or different age groups of caregivers might have on the results. However, this research contributes to the development of support guidelines for caregivers, highlighting the importance of such psychological factors and caregiving characteristics in personality functioning. It is crucial for informal caregiver support programs to address social phobia in order to minimize fears and enhance caregivers' interpersonal relationships. The construction of robust theoretical models based on these findings will also be essential.

Furthermore, additional studies are needed to understand how the effects of social phobia, social anxiety, and caregiving hours impact the personality of family caregivers over time and to identify significant differences concerning personal characteristics (e.g., degree of kinship) and clinical features of caregivers (e.g., comorbidity diagnoses) as well as the clinical characteristics of the patient (e.g., type of dementia or time of diagnosis).

## Conclusions

Key conclusions to highlight include that social phobia demonstrates a significant impact on individuals who exhibit pronounced traits of personality encompassing Openness and Extraversion. Furthermore, an increased number of hours devoted to caring for individuals with dementia exerts a notable influence on individuals displaying evident traits of Conscientiousness, Agreeableness, Openness, and Extraversion that characterize their personality.

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## Ethical Approval

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