ASSERTIVE BEHAVIOR IN DEMENTIA FAMILY CAREGIVERS: DEVELOPMENT AND VALIDATION OF THE CAREGIVING ASSERTIVENESS QUESTIONNAIRE (CAQ)

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Abstract

Dementia family caregivers´ assertiveness may play a significant role in the caregiving stress and coping process, but research analyzing this topic is still scarce. This study presents the psychometric properties of the Caregiving Assertiveness Questionnaire (CAQ) and analyzes the associations between assertiveness and other variables with a relevant role in the caregiving coping process. One hundred and forty-seven family dementia caregivers participated in the study. A three-factor structure (expressing discomfort, facing conflicts and setting limits) was found for the CAQ, which explained a 69.63% of the variance in assertiveness. Significant associations were found between scores in CAQ (total scale and subscales) and variables such as experiential avoidance, cognitive fusion and frequency of leisure. CAQ presents appropriate psychometric characteristics and is a useful assessment tool to take into consideration when designing comprehensive assessment protocols for dementia family caregivers, and designing interventions aimed at helping this population.
KEYWORDS: *dementia, family caregiving, assertiveness, assessment, social skills.*

Resumen

La asertividad podría tener un papel relevante en el proceso de estrés y afrontamiento del cuidado familiar de personas con demencia. Sin embargo, la investigación sobre esta cuestión es todavía escasa. Este estudio presenta las propiedades psicométricas del "Cuestionario de asertividad en el cuidado" (CAQ), y analiza las asociaciones entre esta variable y otras que presentan un papel importante en el afrontamiento del cuidado. Participaron 147 cuidadores de personas con demencia. Se identificó la estructura factorial del CAQ (expresión del malestar, hacer frente a los conflictos y poner límites), que explicaba el 69,63% de

la varianza en asertividad. Se encontraron asociaciones significativas entre las puntuaciones en el CAQ (escala total y subescalas) y otras variables tales como la evitación experiencial, fusión cognitiva y frecuencia de ocio. El CAQ presenta adecuadas propiedades psicométricas y es un instrumento de potencial utilidad a tener en cuenta a la hora de diseñar protocolos de evaluación de los cuidadores familiares y diseñar intervenciones dirigidas a ayudar a estas personas.
PALABRAS CLAVE: *demencia, cuidado familiar, asertividad, evaluación, habilidades sociales.*

Introduction

Caring for a family member with dementia is a highly demanding situation and has usually been associated with negative physical and psychological health outcomes (Schultz et al., 2020). Even though positive aspects of caregiving such as personal growth, mastery, or gratitude may be experienced (Quinn & Toms, 2019), there is consensus that caregiving is linked to worse overall physical health, higher rates of psychological distress, and impairment in social support and leisure activities, as compared to non-caregivers (Schultz et al., 2020).

Caregiving can be conceptualized as a chronically stressful situation. However, following the stress and coping model (Lazarus & Folkman, 1984), this situation does not necessarily lead all caregivers to develop psychopathological symptoms (Lazarus & Folkman, 1984; Losada et al., 2003). The differences in psychological outcomes can be explained by the existence of variables that modulate the effects of the stressors derived from caregiving, such as coping styles, self-efficacy, or social support (Knight & Sayegh, 2010; Losada et al., 2017).

One of these modulating variables may be assertiveness. Assertiveness has been described as the ability to express personal opinions, needs, and wishes, while also considering and respecting those of others (Rakos, 1991). By doing so, the probability of achieving and maintaining long-term mutually gratifying relationships is enhanced, in comparison with alternative interpersonal behaviors, such as aggression or submission (Marchezini et al., 2010). Wolpe (1958), one of the developers of assertiveness training, originally defined assertiveness and included "the outward expression of friendly, affectionate, and other non-anxious feelings" (Wolpe, 1958, p. 114). Lazarus (1973) defined assertiveness as the ability to say no, ask for help, make a request, express positive and negative emotions, and initiate, maintain, and cease behaviors. Finally, Alberti and Emmons (2008) defined assertiveness as the ability "to express feelings comfortably, and honestly, and to stand up for themselves without unreasonable anxiety, while simultaneously taking into account the personal rights of both parties". Although assertiveness has been defined in many ways, there is consensus regarding its complexity and its multi-dimensional character. In this sense, four specific expressions of assertive behavior have been differentiated (e.g., Alberti & Emmons, 2008; Bishop, 2010): a) expression of negative feelings, such as responding to criticism, refusing requests, or requesting a change in others' behavior; b) managing personal limitations, like asking for help or forgiveness; c) taking initiative, like stating personal opinions; and d) displaying

positive feelings like affection or satisfaction, or praising and responding to being praised.

Assertiveness has been widely studied in general and clinical populations, finding relationships between this variable and other transdiagnostic variables such as self-esteem (Caballo et al., 2018; Riggio et al., 1990), self-concept, and satisfaction with relationships (Elliot & Grampling, 1990; Speed et al., 2017). In addition, an inverse association has been found between assertiveness and other distress-related variables, such as anxiety or depression (Speed et al., 2017).

In professional or formal caregivers, benefits of assertiveness have also been found (e.g, Kanade, 2018; Macaden 2005). Formal caregivers or healthcare workers have been found to benefit from assertive behaviors to manage work-related stressors, such as dealing with unpredicted patients' symptoms, or confronting work overload (Abdelaziz et al., 2020). Thus, assertiveness skills in formal caregivers reduce interpersonal stress, build effective team relationships, and give confidence in one's actions, making them more competent in the provision of quality patient care, more effective in communicating with others, and using their professional knowledge and skills (Abdelaziz et al., 2020).

The number of research studies analyzing the specific role of assertiveness in informal or family caregivers´ emotional distress is rather small. Bandeira et al. (2014) analyzed this variable in family caregivers of psychiatric patients, finding that those who showed less assertiveness reported more burden. Furthermore, caregivers of dependent older adults (with and without dementia) who ask for help in an assertive manner seem to suffer from less burden as compared to caregivers who did not display this skill (Muela et al., 2001; Pinto & Barham 2014; Queluz et al., 2019), and asking for help has been linked to caregivers' quality of life and other positive outcomes (Pinto & Barham, 2014). In a study carried out by Pinto et al. (2016), it was found that, although the majority of caregivers participating in the study reported needing more support, only 20% of them stated that the ability to ask for help was important. That is, although they realized they needed more support, 80% did not think of the ability to ask for help as a skill that a caregiver should use.

There is a wide variety of reasons why caregivers may not ask for help. For example, culturally transmitted rules contending that caregiving must be carried out by a single person (the closest one), who should not ask for help in order to avoid bothering others, or because caregiving should take place inside the family (Losada et al., 2003; Losada et al., 2017). These cultural rules might shape dysfunctional or maladaptive beliefs about caregiving that are cognitive barriers against asking for help (Cabrera et al., 2020; Losada et al., 2006). Caregivers may also not ask for help because they do not know how to do so (Losada et al., 2008).

Given its importance, assertiveness scales have been developed and validated in different contexts, such as in the patient-doctor relationship (García-Arista & Reyes-Lagunes, 2017), in adults with intellectual disability (Arias et al., 2014), adults with schizophrenia (Casas-Anguera et al., 2014), or in formal dementia caregivers (Franzmann et al., 2014). Assertiveness in dementia family caregivers has been studied through instruments designed for the general population, or through qualitative methods (e.g., semi-structured interviews). Some of the most used instruments are the Assertiveness Schedule (Rathus, 1973) or the Assertion Inventory

(Gambrill & Richey, 1975). However, assertive behavior seems to be a context-dependent variable, which means that instruments aimed at the general population may not discern whether this specific population is assertive in the family caregiving context. Along these lines, Queluz et al. (2018) developed the Social Skills Inventory for Caregivers of Elderly Family Members (SSI-CE) to measure a wide range of social skills (emotional expression, assertive communication, and information seeking) in family caregivers of older adult dependent patients. Bearing in mind the context-dependency of assertive behavior, there seems to be a need for studying caregivers´ assertiveness in the specific context of dementia (Pinto et al., 2016). In this scenario, caregivers´ ability to express their discomfort to other relatives or manage potential conflicts that may arise in their interactions with them, including those associated with asking for their help in caregiving, can be an essential factor shaping their adjustment to this stressful context.

Drawing on the above-mentioned issues, the objective of the present study is to present the psychometric properties of the Caregiving Assertiveness Questionnaire (CAQ) and to analyze the associations between assertiveness and other variables with a relevant role in the caregiving stress and coping process. Specifically, the CAQ was developed as a measure of the assertive skills of family caregivers of people with dementia, in their interaction with the cared-for person and other relatives in the context of caregiving. Regarding the analysis of the correlates of assertiveness in dementia caregivers, the following variables were explored: sociodemographic variables (age, gender, and kinship), dementia stressors (frequency and reaction to problem behaviors), modulating variables (experiential avoidance, cognitive fusion, dysfunctional thoughts, frequency of leisure activities, and availability and satisfaction with social support) and outcome variables (depression, anxiety, and mean arterial pressure).

Methods

Participants

One hundred and forty-seven family caregivers of people with dementia were recruited through different social and healthcare centres from Autonomous Community of Madrid. To take part in the study, participants had to: a) be at least 18 years of age, b) identify themselves as the main caregiver, and c) devote more than one hour per day to caregiving tasks during at least three consecutive months. The socio-demographic characteristics of the sample are shown in Table 1. Most of the participants were women (76.2%) with a mean age of 60.2 years. Caregivers of parents comprised 54.4% of the sample and 40.2% were caregivers of a partner. They devoted a mean of 13 hours per day to the caregiving task during the last 45.9 months on average.

Regarding the care recipient, 51.7% were women, with a mean age of 79.8 years. Considering the dementia type, 71.4% had Alzheimer´s disease, 16.3% had other types of dementia (e.g., Lewy Bodies), and the rest had mild cognitive decline.

Table 1
Socio-demographic characteristics of the sample (*N*= 147)

Socio-demographic characteristics	*M* (*SD*) or % (*n*) / Scale range
Caregiver's age	60.22 (13.06) / 32-85
Female, %	76.20 (112)
Civil State, %	
Married	61.20 (90)
Widowed	2.70 (4)
Single	30.60 (45)
Divorced	2.00 (3)
Time caregiving, months	45.94 (49.71) / 3-444
Daily hours caregiving	13.03 (7.92) / 2-24
Live with the care-recipient, yes (%)	77.60 (114)
Day-care utilization, yes (%)	63.30 (93)
Home-help utilization, yes (%)	38.10 (93)
Care recipient's age	79.75 (8.20) / 58-103
Relationship, %	
Spouses	40.20 (95)
Adult children	54.40 (80)
Others	5.40 (8)
Care recipient's disease, %	
Alzheimer's disease	71.40 (105)
Mild cognitive impairment	6.80 (10)
Other dementia	16.30 (24)

Instruments

a) An interview with *ad hoc questions* that assessed socio-demographic information from the caregiver such as age, gender, civil status, time being a caregiver (months), kinship between caregiver and the person with dementia (PWD), daily hours devoted to care, living (or not) with the PWD, use of formal resources (day-care center and home assistance), and information about the PWD (age and type of dementia).

b) *Caregiving Assertiveness Questionnaire* (CAQ). This questionnaire was developed to assess assertiveness in family dementia caregivers. Previously available measures, for example the Assertiveness Schedule (Rathus, 1973) and the Social Skills Scale (*Escala de Habilidades Sociales*; Gismero, 2010), were used as a reference in writing the scale items. In addition, the questionnaire was created considering the clinical experience of the authors (e.g., Losada *et al.*, 2015; Márquez-González *et al.*, 2020). The final version of the questionnaire was reviewed by a pool of experts in assessment and intervention in the caregiver field, who considered it to be suitable given its content and the fit to the theoretical construct. The initial scale consisted of 15 items with Likert-type responses ranging from 0 (never) to 3 (always). The final version of the CAQ was reviewed by a panel of experts on psychological assessment and intervention in the caregiving field, who considered it to be appropriate with

regard to its content and adjustment to the theoretical construct. The initial questionnaire included 15 items, with Likert-type response options (0=never) to 3 (always). The final version of the CAQ includes 12 items and it is presented in the Appendix.

c) *Revised Memory and Behavior Problems Checklist* (RMBPC; Teri et al., 1992; Spanish version by Nogales et al., 2015). This checklist was used to assess frequency and appraisal of behavioral and psychological symptoms in the person with dementia (BPSD). The RMBPC consists of a 24 item-scale (e.g., "During the past week; how often did your relative ask the same question over and over?) with two subscales, one assessing the frequency of disruptive behaviors and the other the degree to which these behaviors were rated as stressful by the caregivers. Responses regarding frequency are scored on a 5-point Likert scale ranging from 0 (Never) to 4 (Every day). Response options on the reaction scale range from 0 (Not at all) to 4 (Extremely). Previous studies have found good psychometric properties for this instrument, such as Cronbach´s alphas ranging from .85 (for the frequency subscale) to .93 (for the reaction subscale) (Johnson *et al.*, 2001). Cronbach's alphas for the scales in this study were .91 for the whole scale, .78 for the frequency and .91 for the reaction subscales.

d) *Experiential Avoidance in Caregiving Questionnaire* (EACQ; Losada et al., 2014). This questionnaire was used to assess manifestations of experiential avoidance related to care (e.g., "If a caregiver has negative thoughts toward his/her relative, the best thing to do is try to ignore them"). The EACQ consists of 15-items with a Likert-type response format (1= never true; 5= always true). A previous study found a Cronbach´s alpha of 0.69 (Cabrera et al., 2022), similar to the one found in the present study, that was .66.

e) *Cognitive Fusion Questionnaire* (CFQ; Gillanders et al., 2014), Spanish version by Romero-Moreno et al. (2014).The CFQ consists of a 7-item that assesses the tendency of human beings to get caught up in the content of what they are thinking, so that it dominates over other useful sources of behavioral regulation scale (e.g., "I tend to get very entangled in my thoughts"). The response scores range from 1 (never true) to 7 (always true). A previous study found an adequate Cronbach´s alpha (.87) for this scale (Losada *et al.*, 2014). Cronbach's alpha in the present study was .85.

f) *Dysfunctional Thoughts about Caregiving Questionnaire* (DTCQ; Losada et al., 2006). The DTCQ is a 16-item scale that assesses rigid verbal rules about caregiving of dependent relatives (e.g., "It is selfish for a caregiver to dedicate time to himself/herself when a relative is frail/sick and needs care") with a Likert-type response format (0= totally disagree; 4= totally agree). Previous studies show good psychometric properties of this scale, such as a Cronbach´s alpha of de .91 (Huertas-Domingo *et al.*, 2023). Cronbach's alpha of the scale in the present study was .89.

g) *Pleasant Events Schedule-AD* (PES-AD; Logsdon & Teri, 1997). The frequency subscale of the modified version of the PES-AD (Logsdon y Teri, 1997) was used, which consists of 20 items that assess the frequency of involvement in 20 leisure

activities. Response options were: 0 (not at all), 1 (a few times, 1-6 times), and 2 (often, 7 or more times). Previous studies report adequate psychometric properties (reliability and validity) for this scale (e.g., Amspoker et al., 2019; Logsdon y Teri, 1997). The Cronbach´s alpha of this subscale in the present study was .72.

h) *Social Support Questionnaire* (SSQ; Saranson et al., 1987). An adaptation of the short form by Sarason et al. (1987) was used, that assesses social support and satisfaction with social support. The following three items were used: "Who can you count on when you need help?", "Who can you really count on to help you feel more relaxed when you are under pressure or tense?", and "Who can you count on to console you when you are very upset?". Caregivers had to report the number of people who gave them that kind of support. For each of these items, the degree of satisfaction with the support received was also assessed, using a Likert-type scale ranging from 1 (very dissatisfied) to 6 (very satisfied). Two scores were calculated by obtaining the mean of number of sources of support and the mean of satisfaction across the three items. Previous studies report adequate psychometric properties for this scale (e.g., Martínez-López et al., 2014). In the present study, a Cronbach´s alpha of .75 was found for the scale of amount of support and of .67 for the scale of satisfaction with the received support.

i) *Profile of Mood States* (POMS; McNair et al., 1971). This instrument assesses different dimensions of mood state (tension/anxiety, depression, anger, vigor, fatigue and confusion). In this study, the tension-anxiety subscale was used, that consists of nine items (e.g., "Tense"), and caregivers are asked to rate how they felt during the previous week on a Likert-type scale (0= not at all; 4= extremely). Reliability of this scale has been found to be adequate in previous studies (e.g. Cronbach´s alpha of . 89; Gibson, 1997). In the present study, a Cronbach's alpha of .80 was found.

j) *Center for Epidemiological Studies-Depression Scale* (CES-D; Radloff, 1977). This is a 20-item scale (e.g., 'I felt sad'). Scores range from 0 (rarely or none of the time) to 3 (most or all of the time). This subscale has shown good psychometric properties in previous studies, such as a Cronbach´s alpha of .89 (Romero-Moreno *et al.*, 2014). For this study, Cronbach's alpha was .88.

k) **Omron Arm Tension Monitor M7** (**Omron Healthcare Co., Ltd.**). It is a non-invasive monitor that measures arterial pressure, and it includes the monitor, the arm bracelet, and the cable connecting them. This instrument was validated according to the British Hypertension Society Protocol (Coleman et al., 2008). Three blood pressure measurements were made at different points during the interview, following the recommendations for its measurement (O'Brien et al., 2003). Mean Arterial Pressure (MAP) was calculated using the formula provided by Mausbach et al. (2007).

Procedure

The present project was approved by the Ethics Committee of the Rey Juan Carlos University. First contact with the participants was established through a telephone-based interview with the aim of determining whether caregivers met the inclusion criteria and to inform them about the study objectives. After signing a written informed consent document, individual face-to-face interviews by trained psychologists were then carried out. Along the assessment interview, three measurements of blood pressure were obtained: 1) at the beginning of the interview (after signing the informed consent); 2) in the middle of the assessment protocol, and 3) after finishing the interview.

Data analysis

First, descriptive data (means, standard deviations, and frequencies) were calculated. After that, the factorial structure of the questionnaire was tested through Exploratory Factor Analysis (EFA). In order to examine whether the sample data were suitable for carrying out an EFA, the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of Sphericity were calculated. Exploratory factor analyses (EFA) were conducted using weighted least square mean and variance adjusted (WLSMV) estimator and Geomin as a method of rotation. Parallel analyses were carried out in order to determine the number of factors to retain. Specifically, the criteria proposed by Longman et al. (1989), using the mean eigenvalues and the 95th percentiles eigenvalues, was used. The fit of the obtained factor structure was tested through Chi-square tests ($\chi2$) and standardized root mean square residuals (SRMR), comparative fit index (CFI) and Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA). Acceptable model fit was established for values of RMSEA $\leq$ 0.06, 90% CI $\leq$ 0.08, SRMR $\leq$ 0.08 and CFI and TLI $\geq$ 0.95 (Brown, 2015; Hu & Bentler, 1998). The Cronbach's alpha coefficients for the questionnaire and the factors obtained through the EFA were calculated.

Pearson correlations were performed in order to explore associations between variables of the study. Due to the large number of correlations a Bonferroni correction was used. Following this method, only the coefficients with a p value under 0.003 were considered statistically significant. To analyze differences between caregivers as a function of gender and kinship, independent sample t-tests were performed for exploring gender differences, and one-factor ANOVA tests to explore kinship differences, including effect sizes (Cohen´s d for paired t-tests and eta squared for ANOVAs). Only children and spousal caregivers were analyzed as the other kinship categories (parents-in-law and other relatives) had very few cases (n= 2). The EFA analyses were carried out with Mplus 7.0 software (Muthén & Muthén, 2012), whereas descriptive, reliability and correlational analyses were conducted using SPSS version 27 (IBM, 2020).

Results

Factorial structure of the Caregiving Assertiveness Questionnaire (CAQ)

The reliability index (Cronbach´s alpha) of the initial pool of 15 items was .74. Despite the acceptable reliability of the instrument, three items showed correlations with the total score lower than .20 and were thus removed from further analyses.

The KMO value was .69 and Bartlett's sphericity test was significant, $\chi^2(105)=$ 490.149, $p<$ .001. An EFA was carried out with the twelve remaining items. The results of the first EFA showed a three-factor solution. However, three items had factor loadings lower than .40 ("I ask my relatives for help so that I can have time for my personal needs and hobbies"; "I find it hard to ask my relatives to do favors to me"; "I have a hard time saying "no" to a relative asking me for a favor") and were thus removed. The KMO value for the final set of items is .68, and the Bartlett's test of sphericity for the final set of items is significant ($p<$ .001), which shows that the correlation matrix has significant correlations among at least some of the variables. A second EFA with the remaining items was subsequently performed. The results again showed a three-factor solution with eigenvalues of 3.21, 1.70 and 1.36, respectively, with all the items showing factor loadings equal or higher than .40.

The three-factor structure showed an excellent fit of the model to the data, $\chi^2(36)=$ 783.769, $p<$ .001, RMSEA= .033, 90% CI (.000, .094), CFI= 1.00; TLI= .992, and SRMR= .028, and explained 69.63% of the variance in this variable. In addition, parallel analysis confirmed the three factors retained, as the obtained eigenvalues for the three factors, 3.21, 1.70 and 1.36, were higher than the simulated eigenvalues for each factor (1.48, 1.29 and 1.19, respectively). The final factor structure is shown in Table 2.

The first factor was labelled "Expressing discomfort" and explained the 35.67% of the variance of assertiveness. It was composed of three items grouping the caregivers´ attempts to express their distress and discomfort derived from the actions of other relatives. The second factor was formed by the three inverse items assessing caregivers' behaviors (e.g., hiding emotions) performed in order to avoid conflicts and confrontations with other relatives. It was named "Facing conflicts" and explained 18.85% of the variance. Finally, the third factor, labelled "Setting limits", explained 15.11% of the explained variance. The three items that composed this factor measure caregivers' ability to say no and establish limits to others in order to protect the self-interests and needs.

Table 2

Item factor loadings of the Caregiving Assertiveness Questionnaire (CAQ)

Items	F1	F2	F3
1. When a family member behaves in a way that I find uncomfortable or unfair, I talk to him/her and ask to change his/her behavior.	**1,00**	0,00	-0,35
2. When a family member does something that bothers me, I express my discomfort to him/her.	**0,85**	-0,10	0,00
3. If a relative has spoken badly about me or has attributed false actions to me, I try to speak to him/her as soon as possible to make things clear.	**0,61**	-0,16	0,02
4. I usually suppress my emotions to avoid conflicts with my relatives	0,17	**0,93**	0,00
5. I'd rather give in, keep quiet, or "get out of the way" in order to avoid conflicts with my relatives.	-0,02	**0,82**	0,08
6. I avoid asking for help to other relatives out of fear that they would get upset or that it may create a conflict between us.	0,16	**0,52**	-0,04
7. I know how to delegate, that is, share the caregiving tasks with other family members.	0,23	0,04	**0,40**
8. When a family member asks me to do something that I do not want to do or that I consider I should not do, I can say no.	0,02	-0,25	**0,56**
9. When the person I am taking care of is excessively demanding of my attention or care, I know how to set limits.	-0,04	-0,01	**0,84**

Note: factor loadings of the items pertaining to that factor are presented in bold.

Reliability of the Caregiving Assertiveness Questionnaire (CAQ)

Cronbach´s alpha of the CAQ total score was .74. Cronbach´s alpha for the first factor was .79, with alphas of .68 for the second and .59 for the third factor.

Descriptive data of the Caregiving Assertiveness Questionnaire (CAQ)

The means, standard deviations, and ranges of the CAQ total score and factors as well as of the other assessed variables are shown in Table 3.

Associations between variables

The Pearson correlations between the measured variables are shown in Table 4. Following the Bonferroni correction only those associations with *p* values under .003 were considered as significant. The CAQ total scale was significant and positively associated with the frequency of leisure (*r*= .37, *p*< .003). Regarding the first factor (Expressing discomfort), it showed significant and positive associations with leisure (*r*= .24, *p*< .003). The second factor (Facing conflicts) was negatively correlated with experiential avoidance (*r*= -.30, *p*< .003), and cognitive fusion (*r*= -.30, *p*<. 003); and positively associated with leisure (*r*= .25, *p*< .003). Finally, the

third factor (Setting limits) presented positive correlations with leisure (*r*= .30, *p*< .003).

Table 3
Descriptive data of the measured variables

Variables	*M*	*SD*	Range
CAQ total scale	12.41	5.53	1-27
F1. Expressing discomfort	4.13	2.82	0-9
F2. Facing conflicts	4.12	2.61	0-9
F3. Setting limits	4.11	2.48	0-9
Depression (CES-D)	22.59	11.74	1-51
Tension/Anxiety (POMS)	20.15	9.43	1-76
Experiential avoidance (EACQ)	45.46	9.49	19-63
Cognitive fusion (CFQ)	27.11	9.99	7-49
Leisure (PES-AD)	21.57	5.88	8-36
Dysfunctional thoughts (DTCQ)	25.55	14.30	0-64
Social support (3 items from the SSQ)	2.52	1.62	0-8.33
Satisfaction with social support (3 items from the SSQ)	4.93	1.17	1-6
Frequency of BPSD (RMBPC)	36.73	15.83	1-84
Reaction to BPSD (RMBPC)	18.92	17.30	0-76
MAP	96.10	12.71	66.78-144.78

Note: CAQ= Caregiving Assertiveness Questionnaire; CES-D= Center for Epidemiological Studies-Depression Scale; POMS= Profile of Mood States; EACQ= Experiential Avoidance in Caregiving Questionnaire; CFQ= Cognitive Fusion Questionnaire; PES-AD= Pleasant Events Schedule-AD; DTCQ= Dysfunctional Thoughts about Caregiving Questionnaire; SSQ= Social Support Questionnaire; BPSD= behavioral and psychological symptoms of dementia; RMBPC= Revised Memory and Behavior Problems Checklist; MAP= Mean arterial pressure.

Gender and kinship differences

The mean CAQ score for female caregivers (*M*= 11.89, *SD*= 5.72) was statistically lower (*t*= -2.05, *p*< .05) than for male caregivers (*M*= 14.09, *SD*= 4.59), with an effect size measure (Cohen´s *d*) of .40. A statistically significant difference was found in factor 2 (Facing conflicts) (*t*= -2.05, *p*< .05), with female caregivers scoring lower (*M*= 5.12, *SD*= 2.60) than male caregivers (*M*= 4.09, *SD*= 2.48, Cohen´s *d*= .40). No statistically significant differences were found between males and females' scores on factors 1 (Expressing discomfort) (*t*= -1.01, *p* > .05) or 3 (Setting limits) (*t*= -1.37, *p* > .05).

Table 4

Correlations between the study variables

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age															
2. Depression	-.07														
3. Anxiety	-.11	.68*													
4. Experiential avoidance	.32*	-.04	-.03												
5. Cognitive fusion	-.17	.52*	.43*	.12											
6. Leisure	-.03	-.37*	-.30*	.08	-.12										
7. Dysfunctional thoughts	.46*	.01	-.09	.48*	.02	-.05									
8. Social support	.03	-.11	-.02	.07	-.14	.15	-.12								
9. Satisfaction with social support	.12	-.15	-.19	.05	-.25*	.11	0.1	.19							
10. Frequency BPSD	-.25*	.26*	.31*	-.26*	.22	-.15	-.32*	.03	-.03						
11. Reaction BPSD	-.11	.36*	.33*	-.17	.26*	-.20	-.16	.05	-.004	.63*					
12. MAP	.29*	.01	.02	.17	-.1	-.12	.22	-.04	-.009	-.05	-.11				
13. CAQ total	-.20	-.21	-.11	-.21	-.22	.37*	-.16	.21	.24	.05	-.02	-.20			
14. CAQ F1	-.22	.01	.08	-.04	.03	.24*	-.03	.18	0.1	.09	008	-.13	.76*		
15. CAQ F2	-.06	-.22	-.09	-.30*	-.30*	.25*	-.18	.15	.20	.02	.03	-.13	.66*	.25*	
16. CAQ F3	-.17	-.23	-.22	-.11	-.22	.30*	-.13	.06	.20	-.02	-.15	-.15	.67*	.29*	.15

Notes: BPSD= Behavioral and psychological symptoms of dementia, MAP= Mean arterial pressure, CAQ= Caregiving Assertiveness Questionnaire; F1= Expressing discomfort; F2= Facing conflicts; F3= Setting limits. *$p<$ .003.

Regarding kinship, the comparison between spousal and children caregivers revealed a statistically significant difference in the CAQ total score (t= -2.19, p< .05, with an effect size (η^2) of .29), and in factor 2 (Facing conflicts, F=3.25, p< .05, η^2= .25), with a non-significant tendency in CAQ factor 3 (t= -1.78, p= .07), with spousal caregivers scoring lower than children caregivers in assertiveness. The analysis crossing gender and kinship variables showed statistically significant differences in the CAQ total score (F= 4.04, p< .01), and in factor 2 (Facing conflicts, F=3.25, p< .05, η^2= .29), with a tendency close to statistical significance in factor 3 (Setting limits, F= 2.67, p= .051), but not in factor 1 (Expressing discomfort, F= 1.95, p > .05, η^2= .32). Specifically, post-hoc Tukey HSD tests revealed that the statistically significant group differences in CAQ total score were found between wives (M=10.31, SD= 4.27) and the rest of kinship/gender groups: husbands (M=14.80, SD= 4.04), daughters (M= 12.56, SD= 6.04) and sons as caregivers (M= 14.64, SD= 4.29). With regard to CAQ factors 2 and 3, the group differences were found again between wives (factor 2: M= 3.27, SD= 2.43, factor 3: M= 3.34, SD= 2.50) and husbands (factor 2: M= 5.80, SD= 2.15; factor 3: M= 5.30, SD=1.63), and sons as caregivers (factor 2: M= 4.41, SD= 2.67; factor 3: M= 4.76, SD= 2.10), but not with daughters (factor 2: M= 4.21, SD= 2.55; factor 3: M= 4.21, SD= 2.53).

Discussion

The aim of this study was to present the psychometric properties of a new instrument developed to measure the assertiveness skills of dementia family caregivers in the context of their interaction with the cared-for person and other relatives. The development of the Caregiving Assertiveness Questionnaire (CAQ) was motivated by the observed lack of measures available to assess specific assertiveness skills in dementia caregivers in the specific context of their family interactions, including those with the care-recipients (Pinto et al., 2016). The results of the study suggest that the CAQ presents appropriate psychometric characteristics and can thus be used in research and clinical settings in order to measure the ability of dementia family caregivers to employ direct and effective communication with their care-recipient and other relatives in the caregiving context, expressing their feelings and opinions, setting limits to care, ahnd not avoiding conflicts. It is important to highlight that, despite the availability of previous measures of communication skills in caregivers of older adults (Queluz et al., 2018), the CAQ is innovative as it allows the assessment of specific assertive skills in the family context, such as openness to conflicts or setting limits in the interaction with the cared-for person or other relatives.

Specifically, the results of the present study reveal that the CAQ presents adequate reliability, as reflected by the acceptable internal consistency of the CAQ total score. The construct validity of the questionnaire is supported by a factorial structure of three factors ("Expressing discomfort", "Facing conflicts", and "Setting limits") that explain an important percentage of the variance of this variable, with all items showing high factor loadings. The construct validity of CAQ was also supported by its significant relationships with psychological variables that are relevant in the caregiving stress and coping processes (Knight & Sayegh, 2010).

Specifically, caregivers´ assertiveness total score was positively associated with frequency of leisure, suggesting its potential role as a facilitator of the realization of pleasant activities. Although no significant association has been identified between CAQ scores and caregivers´ distress (depression and anxiety), the relationship between CAQ and leisure may be reflecting the potential role of leisure as a mediator in the relationship between caregivers´ assertiveness and their psychological well-being.

The pattern of correlations suggests that the CAQ subscale "Facing conflicts" (factor 2) is the one that shows a larger number of associations with the rest of variables. Specifically, facing conflicts is inversely associated with experiential avoidance and cognitive fusion, which are considered to be central markers of psychopathology in the contextual approach to psychological health (Hayes et al., 2011). These associations support the construct validity and relevance of caregivers´ attitude to behave in assertive ways (express opinions and feelings or asking for help) despite these behaviors may potentially cause conflicts with other relatives. This ability may be particularly helpful in the stressful family caregiving context. These associations, together with the significant correlations identified between frequency of leisure activities and CAQ total score and its three subscales, reinforce the adaptive role of assertiveness in dementia caregiving and suggest that this variable can be conceptualized as a fundamental key to adaptive coping behaviors, such as facing potential conflicts with relatives or engaging in pleasant activities. These findings suggest that the CAQ can be a very useful tool in intervention settings, providing important information related to caregivers' areas of vulnerability in adaptive coping.

The obtained results are consistent with many of the studies analyzed in the systematic review conducted by Queluz et al. (2019), which explores social skills in caregivers of frail older adults. The review comprises 11 studies and was rather consistent in its findings: caregivers with good communication and social skills had a higher quality of life, lower levels of burden, and better psychological adjustment than caregivers with a limited repertoire of skills. Good social skills and socially competent behaviors can positively affect the well-being of family caregivers and the quality of their interpersonal relationships (Barham & Pereira del Prette, 2016).

In the present study, women had lower levels of assertiveness compared to men, as has been previously observed in the general population (Feingold, 1994). Interestingly these gender differences were observed in the general questionnaire and the "Facing conflicts" factor, but not in the other two factors, "Expressing discomfort" and "Setting limits". These findings may be of special importance, given that most dementia family caregivers are women (Alzheimer's Association, 2019), and, as already commented, in the present study this assertiveness factor ("Facing conflicts") has been found to be the most significantly associated with relevant caregiving coping and stress dimensions.

These findings have important clinical implications as they highlight the relevance of including assertiveness in the design of comprehensive assessment protocols, and as a target in interventions aimed at helping caregivers develop more adaptive coping strategies to deal with dementia care. Although some aspects of assertiveness skills (i.e., asking for help) have been included in cognitive-behavioral

interventions with caregivers (Losada et al., 2006, Losada et al., 2015, Márquez-González et al., 2007), improving caregivers´ global assertiveness or specific factors thereof may be an important target in order to allow them to learn and develop other adaptive strategies such as engagement in leisure and social support. In fact, a short intervention program to increase assertiveness skills in caregivers might be developed with positive results, as has been done with other non-caregiving populations (e.g., Omura et al., 2017). Furthermore, it may be interesting for future studies to explore more deeply the role displayed by assertiveness in psychotherapeutic or psychoeducational interventions, since this variable may be acting as a relevant mechanism of action for understanding the efficacy of these types of intervention in caregivers.

It is important to acknowledge some limitations of the present study, such as the low internal consistency of the third factor ("Setting limits"). Also, its cross-sectional nature prevents us from identifying causal relationships between the analyzed variables, an aspect which would be really helpful in understanding the mechanisms of how assertiveness functions. Longitudinal studies with the CAQ are necessary in order to confirm the obtained findings. Moreover, the sample is composed of Spanish caregivers who volunteered to participate in the study, a fact that may limit the generalizability of results. In addition, the KMO value of adequacy of the sample was under .7 and, following the indications of Shrestha (2021) values between .6 to .69 are not optimal. This aspect may be influencing our results, and future studies should replicate these findings in a larger sample. Keeping in mind the impact of socio-cultural variables context in the caregiving stress process, such as familism (e.g., Losada et al., 2006), research in different cultural backgrounds is necessary.

Despite these limitations, the results of this study suggest that CAQ may be a useful instrument to take into consideration when designing comprehensive assessment protocols for dementia family caregivers and designing interventions aimed at improving their ability to cope with caregiving in effective and adaptive ways.

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Appendix

"Caregiving Assertiveness Questionnaire (CAQ)"

Below you can read some sentences describing ways of behaving in the interaction with relatives. Please, indicate the frequency with which you behave the way each item describes.

Items	Never	Sometimes	Often	Always
1. When a family member behaves in a way that I find uncomfortable or unfair, I talk to him/her and ask to change his/her behavior				
2. When a family member does something that bothers me, I express my discomfort to him/her				
3. If a relative has spoken badly about me or has attributed false actions to me, I try to speak to him/her as soon as possible to make things clear				
4. I usually suppress my emotions to avoid conflicts with my relatives				
5. I'd rather give in, keep quiet, or "get out of the way" in order to avoid conflicts with my relatives				
6. I avoid asking for help to other relatives out of fear that they would get upset or that it may create a conflict between us				
7. I know how to delegate, that is, share the caregiving tasks with other family members				
8. When a family member asks me to do something that I do not want to do or that I consider I should not do, I can say NO				
9. When the person I am taking care of is excessively demanding of my attention or care, I know how to set limits				