

ORIGINAL ARTICLE

Caregiver training: Evidence of its effectiveness for cognitive and functional improvement in older adults

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Abstract

Aims and objectives: The objectives of this study were to assess the benefits of a caregiver training programme on the cognitive and functional status of older adults, and to compare the effects of this programme according to type of caregiver (professional vs. family caregiver).

Background: Due to demographic changes that have resulted in an aging population, the role of caregiver of an older adult has become very important in recent years.

Design and Methods: The sample was composed of 160 older adults: (a) 100 received care from caregivers who had taken the three-month training programme (treatment group), of which 60 were professional caregivers and 40 were family caregivers, and (b) 60 received care from caregivers who had not taken the programme (control group). In order to evaluate programme effects on cognitive and functional status, we used both direct measures answered by the older adults (MMSE, CAPE and EuroQol) and caregiver reports (Barthel and RMPBC). We used a quasi-experimental, pre-post design. We followed SQUIRE 2.0 guidelines for reporting.

Results: The results showed that older adults who were cared for by caregivers that had participated in the training programme showed gains in quality of life and cognitive ability and maintenance of functional ability. Within the treatment group, although everyone significantly improved their scores, the older adults cared for by family caregivers improved in more of the cognitive sub-items than did their peers in the professional caregiver group.

Conclusions: The data obtained show that a caregiver training programme based on cognitive stimulation produces cognitive, functional and health-related quality-of-life benefits in older adults. Furthermore, the caregivers reported increased satisfaction with their work.

Relevance to clinical practice: The improvements obtained in the older adults and in caregivers show the relevance of this type of intervention when working in the clinical field of caregiving.

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KEYWORDS

caregiver training programme, cognitive stimulation, family caregivers, older adults, professional caregivers

1 | INTRODUCTION

In Europe, the population over age 65 has been increasing, now reaching 19.2% of the total population (European Commission, 2017). This has prompted entities like the World Health Organization (WHO) to recognise the phenomenon of demographic aging as one of the principal social and economic challenges of the 21st century (WHO, 2016).

While the rise in life expectancy is positive, it brings with it an economic, social and family-related impact, due to an increase in the incidence and prevalence of age-related pathologies (Manfredi et al., 2019). The European Commission has included improving the sustainability of healthcare systems as a priority objective in the Horizon 2020 Program (Apóstolo et al., 2019). For its part, the European Innovation Partnership on Active and Healthy Ageing (EIP-AHA) has put together tools for supporting and ensuring the use of good practices, focusing on successful aging (Bousquet et al., 2015).

Within these good practices, one line of work is to promote the participation of older adults in programmes that increase their cognitive functioning. Such cognitive intervention programmes are most often used for preventing or reversing a decline in cognitive functions (Apóstolo et al., 2019). In this line, a large number of cognitive programmes for older adults have been developed (Apóstolo et al., 2019) and show positive results, although their transfer to daily life is debatable (Von Bastian et al., 2013). Despite this debate, current data suggest that adapted cognitive training, where task difficulty and type are fitted to the individual's performance (as in the present applied intervention), seems to lead to better transfer (Cândeia et al., 2015), especially when the training is focused on the process, on basic and multidimensional functions (Calero, 2019).

When the older adult begins to present a certain level of dependency, they usually require a caregiver (professional or family member) who cares for them and becomes a fundamental person in their daily life. Caregivers are observed to have a decisive influence on the evolution of the older adult, with impact on their functionality and cognitive development (Cheng et al., 2019). This has led to the idea of training programmes to incorporate caregivers as active agents in the treatment of older adults (Leung et al., 2017).

2 | BACKGROUND

Given the importance of the caregiver, numerous studies have addressed their work issues and emotional problems. Cognitive-behavioural group interventions seem to be effective for this purpose, having shown benefits for caregivers (Jütten et al., 2019).

What does this paper contribute to the wider global community?

- This paper highlights the importance of caregiver training which can bring about improved autonomy and independence in the older adults under their care.
- This paper shows the importance of including caregivers as active agents in the cognitive and functional treatment of the older adults under their care.
- The great benefits obtained in cognitive functional and quality of life in the older adults show that training caregivers facilitates and lowers the cost of programme application and generalisation resulting in a greater amount of positive effects with fewer economic resources and personnel.
- This paper shows that training the caregivers increases their satisfaction with their work

Another set of programmes seeks to train caregivers in: (a) their knowledge of disease in older adults (Anker-Hansen et al., 2018), (b) knowledge of the behavioural and psychological symptoms these elders may present (McCabe et al., 2016) and (c) their own support and emotion management system, whether they are family caregivers or professional caregivers (Diniz et al., 2018). It has been demonstrated that when action is taken to train the caregivers, the older people they care for also obtain benefits (Cheng et al., 2019; Jutkowitz et al., 2020).

In recent years, there have been several movements that propose alternatives to the traditional care of older adults. This traditional care is based on a paternalistic system where the older adult is considered a passive subject who receives care designed in a general way for all elderly people, without taking into account the person's individual needs, characteristics and preferences. In this tradition, the older adult decides neither the type of treatment nor the way to receive it (Thompson, 2017). Person-centred approaches (Brownie & Nancarrow, 2013), the theories of patient activation (Hibbard & Mahoney, 2010) and patient engagement (Graffigna et al., 2017) have all been put forward for the purpose of improving older people's autonomy through caregiver training designed to enhance their role as environmental mediators (Fernández-Ballesteros et al., 2019). While these approaches were initially designed for caregivers of persons with dementia, their use has been expanded to others with good results. As of today, several programmes such as Lock (Mills et al., 2017), Start (Goyder et al., 2012), The CHAT (Williams et al., 2014), PRIDE (Yates et al.,

2019), CUIDA-2 (Calero et al., 2017) and an intervention in paternalistic attitudes in caregiving (Fernández-Ballesteros et al., 2019) have been applied with caregivers, to help them: (a) change their care strategies (Liddle et al., 2012), (b) change their communication and interactions with older adults (Goyder et al., 2012), (c) carry out physical rehabilitation with the older adults under their care (Resnick & Galik, 2013) and (d) carry out cognitive rehabilitation with older adults (Apóstolo et al., 2019). Some of these programmes are addressed to family caregivers (Jütten et al., 2019), although most do not distinguish between type of caregiver.

Based on the studies previously reviewed, we can draw some considerations. The population over age 65 years is on the rise, to the point that it may even be a problem for current societies. The best way to address an aging population is to promote active aging that contributes to the successful aging of older adults. However, the main problem that we find in this population is cognitive impairment that can be effectively treated with non-pharmacological interventions, especially with cognitive interventions, which are the most appropriate to improve the older adult's cognitive performance (Cândeia et al., 2015). Even so, problems have been found in transferring cognitive improvement to the individuals' functional capacity, although inclusion of the caregiver in cognitive stimulation programmes can have a beneficial effect on cognitive and functional ability in the older adult (Da Cruz et al., 2015). To our knowledge, few studies analyse the impact of caregiver training on the cognitive and functional improvement of people without dementia (Buitenweg et al., 2017).

For the above reasons, we believe it is essential to work with older populations who are under the care of a caregiver, but who have not yet developed dementia; to include caregivers as active agents in the older adult's cognitive maintenance and autonomy; and to carry out interventions in the place of residence, in order to ensure greater transfer of positive effects.

Based on the foregoing, prior studies using experimental and control groups have verified significant improvement in the cognitive functioning, motor execution and visuomotor coordination, and functional ability of older adults in the care of professional caregivers trained in a programme of cognitive intervention strategies that were incorporated into their usual caregiving tasks (Navarro et al., 2021; Sanjuán et al., 2018).

Following evidence-based assessment procedures (Bauer, 2007), the general aim of this study was to evaluate these benefits in a wider sample of older adults without dementia and to ascertain whether the type of caregiver (professional caregiver or family caregiver) influenced the results obtained. We believe it is highly relevant to demonstrate the effectiveness of this type of intervention in a broad sample and with both types of caregivers, in that it represents improved care for this sector of the population. Since the intervention is personalised and framed within the older adult's daily activities, the quality of care is improved, and the consequences can be positive for both the caregivers and the persons receiving their care.

3 | METHODS

3.1 | Participants

The study sample was composed of 160 total participants cared for by family or professional caregivers, all of them over the age of 65 years ($n = 100$ treatment group, $n = 60$ control group). They were selected from three civic centres, four senior residential homes and three daycare centres in the Granada province. Participants were assigned to each group according to the recommendations of the centres where the research was carried out. Once the groups were established, we tested for group equivalence in terms of sociodemographic and psychological variables and their initial scores in the dependent variables.

The treatment group was divided according to the type of caregiver who would take the caregiver training programme. Sixty of the older adult participants received care from professional caregivers, who took the training programme at their respective public institutions (residences and daycare centres) and 40 received care from family caregivers (their own family members) who took the programme in their homes. Descriptive data for these samples are shown in Table 1.

The older adults met the following inclusion criteria: age 65 years or older, needing supervision or help from a caregiver in order to carry out basic daily tasks and no diagnosis of dementia.

As for the caregivers, we selected those responsible for providing direct care to the older adult participants in the groups described above. This resulted in a total of 59 caregivers ($n = 22$ professional caregivers and $n = 37$ family caregivers). The two groups were unequal in size because family caregivers normally serve a single person, while professional caregivers serve a larger number as assigned by the centre where they work. Regardless of the number of persons assigned to each caregiver, the intervention with the older adult in their charge was individual, personalised and adjusted to their initial cognitive profile.

3.2 | Assessment instruments

In order to assess the cognitive and functional ability of the older adults, we used direct assessment tests and caregiver reports.

3.2.1 | Direct assessment tests (answered by the older adults)

Mini-Examen Cognoscitivo (MEC) (Lobo et al., 1980), Spanish adaptation of the Mini-Mental State Examination (MMSE (Folstein et al., 1975)). This screening instrument is widely used for detecting cognitive impairment. The items pertain to different sub-categories such as orientation to time, orientation to place, registration, recall and reading comprehension.

TABLE 1 Characteristics of the older adults in the control group and treatment group

	Control group (n = 60)	Treatment group (n = 100)	Statistical test (p)
Age	82.84 (SD = 8.57)	82.50 (SD = 7.33)	F = 0.070 .792
Sex			
Male	21.3%	27%	$\chi^2 = 0.657$
Female	78.7%	73%	.418
Marital status			
Married	18%	27%	$\chi^2 = 4.392$
Single	13.1%	5%	.222
Divorced	3.3%	3%	
Widowed	65.6%	65%	
Education			
No education	21.3%	23%	$\chi^2 = 0.829$
Elementary	55.7%	57%	.843
Secondary	13.1%	14%	
Higher Ed.	9.8%	6%	
Place of recruitment			
Sr. Residence	83.6%	28%	$\chi^2 = 51.813^*$
Daycare centre	16.4%	32%	.0001
Civic centres	–	40%	
Characteristics of the older adults in the treatment subgroups			
	Received care from professional caregiver (n = 60)	Received care from family caregiver (n = 40)	Statistical test (p)
Age	82.42 (SD = 7.96)	82.63 (SD = 6.37)	F = 0.019 .890
Sex			
Male	21.7%	35%	$\chi^2 = 2.165$
Female	78.3%	65%	.141
Marital status			
Married	11.7%	50%	$\chi^2 = 19.164^*$
Single	5%	5%	.0001
Divorced	5%	–	
Widowed	78.3%	45%	
Education			
No education	23.3%	22.5%	$\chi^2 = 2.941$
Elementary	61.7%	50%	.401
Secondary	11.7%	17.5%	
Higher Ed.	3.3%	10%	
Place of recruitment			
Sr. Residence	46.7%	–	$\chi^2 = 100.000^*$
Daycare centre	53.3%	–	.0001
Civic centres	–	100%	

* $p < .05$.

The final score ranges from 0 to 35 points, where higher scores imply better cognitive functioning. It is often used as a global index and a method for monitoring the evolution of cognitive functions in

cognitive impairment and dementia. It has high internal consistency ($\alpha = .88$), good test-retest reliability (0.64–1.00; $p < .01$) and good interjudge reliability (0.69–1.00; $p < .01$; Buiza et al., 2011).

Procedimiento de Evaluación Clifton para Ancianos—Cognitive Scale (Fernández-Ballesteros & Zamarrón, 1999), a Spanish adaptation of the Clifton Assessment Procedure for the Elderly (CAPE; Pattie, 1979). This scale contains three parts: (1) Information and Orientation (I.O.) with a possible range of scores from 0 to 12 points; (2) Mental Abilities (M.A.) with scores ranging from 0 to 11; and (3) a psychomotor part with possible scores from 0 to 12. The final score ranges from 0 to 35 points; the higher the score, the better the person's cognitive functioning. Test-retest reliability falls between 0.79 and 0.90, between 0.61 and 0.69 and between 0.56 and 0.87, for the information and orientation scale, for the mental abilities scale and for the part on psychomotor skills, respectively.

EuroQol (EuroQol Group, 1990). Generic measure of health-related quality of life (HRQoL). The individual rates his or her own state of health. First, they assign levels of severity to each dimension. In this first part of the test, lower scores mean higher quality of life. Following this is a more general assessment using a 20-centimeter visual analog scale (VAS) that goes from 0 to 100, where higher scores means higher quality of life. Test-retest reliability falls between 0.86 and 0.90 and test validity and sensitivity to change have been demonstrated in numerous studies (Herdman et al., 2001).

3.2.2 | Caregiver reports

The caregivers responded to the following questionnaires about the persons under their care.

Barthel Index (Mahoney & Barthel, 1965) evaluates the person's functional ability based on 10 items answered by the caregiver. Scores range from 0 to 100, with 0 being completely dependent and 100 completely independent. Its internal consistency presents an alpha coefficient between .86 and .92 and interjudge reliability between 0.84 and 0.97.

Revised Memory and Behavior Problem Checklist (RMBPC), in its Spanish version (Teri et al., 1992), evaluates problems in memory, behaviour, and anxiety and depression. The caregiver indicates how often the person under her care has manifest each of the problems described during the past week (frequency scale, (FS)) and the degree that this bothers or worries her (reaction scale, (RS)). The scale includes 24 questions with Likert response options from 0 to 5. An alpha coefficient of .84 was found for the frequency scale and 0.90 for the reaction scale (Teri et al., 1992).

Finally, in order to analyse satisfaction with the training programme, all the caregivers who participated in the programme answered the questionnaire *Positive Aspects of Caregiving (PAC)*; Tarlow et al., 2004). This 11-item instrument measures caregivers' satisfaction with providing care to the older adults. It consists of a 5-point Likert scale from 1 (disagree) to 5 (agree). Scores range from 11 to 55; higher scores indicate a more positive perception and gains from the caregiver experience. It presents good general reliability (Cronbach's $\alpha = .89$) and convergent validity (Cronbach's $\alpha = .72$; Tarlow et al., 2004).

3.3 | Intervention programme

The caregiver training programme consisted of applying the cognitive stimulation model of the CUIDA-2 programme (Calero et al., 2017). This application included theoretical training made up of three modules: (1) person-centred care, (2) communication strategies and (3) mediated cognitive stimulation strategies. The training was given in two group sessions of two hours each, plus 50 h of individual practice, either on the job (in the case of professional caregivers) or in the home (in the case of family caregivers), in both cases the training was delivered by psychologists who were experts in the programme. In the individual practice hours, the caregivers were required to keep a weekly log. Here, they had to plan in advance the activities that they were going to carry out with the older adult, and once they had taken place, they had to record how they were done and how the older adult had responded. All these activities were supervised on a weekly basis by the psychologists who had developed the programme.

3.4 | Procedure and ethical considerations

First, permissions were obtained from the Research Ethics Committee at the University of Granada (registration ID 545/CEIH/2018). Contact was then made with the heads of the residential facilities, daycare centres and civic centres who had agreed to participate in the research.

Written informed consent was obtained from all participants, after being informed of both the research objectives and the privacy and anonymity of their involvement in the study. Once we had obtained informed consent from the facilities, caregivers and older adults, the following phases were implemented.

First, the older adults were evaluated in their own centres using the tests described in the previous section. Afterwards, we administered the caregiver training programme in small groups of 5–8 people. Once the training course was finalised, the caregivers of the treatment group put into practice what they had learned. This practice period lasted 3 months and was supervised by the research team, who reviewed the weekly logs that the caregivers had kept during their daily work. While the programme was being applied in the treatment group, the older adults in the control group were cared for by their usual caregivers who had not received the training, so they received the usual care that they had traditionally received. At the end of three months, where the treatment group received practice in cognitive training, the control group received traditional care, and the post-treatment assessment of all participants was carried out.

3.5 | Design and statistical analysis

Guidelines for Standards Quality Improvement Reporting Excellence (SQUIRE 2.0.) were followed (see File S1). We used a

quasi-experimental design based on between-group comparisons with repeated measures (pre and post) of the different dependent variables. The dependent variables were the older adult's levels of (1) cognitive ability, (2) quality of life, (3) functional skill and (4) presence of problems in memory, behaviour and mood.

Different statistical analyses were used according to the different objectives: (1) in order to know whether the caregiver training programme produced cognitive and functional improvement in the older adults in the treatment group, compared to older adults in the control group, we carried out an analysis of between-group and within-group differences at the two times—pre and post intervention—using a repeated-measures GLM analysis (group \times time). (2) In order to determine whether there were differences when care was received from a professional caregiver versus a family caregiver, we carried out a repeated-measures GLM analysis (group \times time). (3) To analyse how type of caregiver influenced the older adult's gains in the MEC and CAPE tests, a repeated-measures GLM was carried out for the different sub-categories of each test. In all cases, we determined effect size and power of the differences in the assessed variables. For all analyses, significance level was set at $p < .005$. We checked the sphericity assumption according to Mauchly's test, observing that it was fulfilled in all the variables. Data analyses were performed using SPSS 19.0 for Windows.

4 | RESULTS

Table 1 shows participants' sociodemographic data (older adults and caregivers). One can observe that the groups were equivalent in terms of sociodemographic and psychological variables, and in their initial scores in the dependent variables.

Regarding the first objective, an analysis of differences between the control group and the treatment group, the direct assessment tests of cognitive functioning showed (see **Table 2**) no significant between-group differences except on the EuroQol. On this test, with scores that are inversely proportionate to the participant's well-being, we see significant differences on the post-assessment ($p < .001$).

These results show two different trajectories: the treatment group, whose scores go down and, therefore, improve, and the control group, whose scores are maintained or increase, and, therefore, remain stable or worsen.

As for within-group differences, as shown in **Table 2**, these were significant on the MEC ($p = .035$) and the EuroQol ($p = .003$), telling us that changes from pre- to post-test are significant, implying improved cognitive status and quality of life. As the (group \times time) interaction shows, the changes are associated with membership group (treatment vs. control; MEC: $p = .012$ and EuroQol: $p = .001$). On the CAPE, significant differences were produced in the (group \times time) interaction ($p = .001$). These data show that the scores in the treatment group increase from the initial assessment to the post-assessment on the MEC and on the CAPE and decrease on the

EuroQol, thus implying improved cognitive functions and quality of life in the treatment group. We also found a decline in the control group, given that their CAPE score dropped from the initial assessment to the post-assessment.

As for the results from measures reported by the caregivers, **Table 2** shows a significant (group \times time) interaction ($p = .006$) on the Barthel test. The control group shows decline, given that their score dropped from the initial assessment to the post-assessment, implying a lower level of independence.

On the RMPBC test (see **Table 2**), significant between-group differences were observed both on the part that assesses total problem frequency (RMPBC FS: $p = .002$) and on the part that assesses the total caregiver reaction to these problems in the older adult (RMPBC RS: $p < .0001$).

We also found significant within-group differences between the initial assessment and the post-assessment on the RMPBC FS ($p = .033$) and RMPBC RS tests ($p = .001$). These data show an increase in the caregiver's reaction to these problems in the control group.

Regarding the second objective, an analysis of differences within the treatment group, between the older adults with professional caregivers and those with family caregivers, results from the direct tests showed significant within-group differences on the three tests: MEC ($p < .0001$), CAPE ($p = .002$) and EuroQol ($p < .0001$), as reflected in **Table 3**. On the MEC and CAPE tests, significant improvement was associated with the type of caregiver (professional caregivers vs. family caregivers) as is shown in the (group \times time) interaction (MEC: $p = .003$; CAPE: $p = .005$; see **Table 3**). We thus see a significant increase in the MEC and the CAPE in the family caregivers group, from initial assessment scores to post-assessment scores, meaning improved cognitive functioning, and a significant decrease in the scores of both groups (regardless of the type of caregiver) from the initial assessment to the post-assessment on the EuroQol, implying improved quality of life.

As for the results from the caregiver reports, significant between-group differences were found on the RMPBC FS ($p < .0001$) and RMPBC RS tests ($p < .0001$). These results show higher scores in the family caregiver group (on both tests and at both times) than in the professional caregiver group, implying that the family caregivers recorded and reacted more to problems presented by persons under their care than did the professional caregivers.

Regarding the third objective, an analysis of how type of caregiver influenced the older adult's gains in the MEC and CAPE tests, results showed that in the MEC (see **Figure 1**), the older people who received their care from family caregivers obtained significant improvements as a consequence of the intervention, in the following sub-categories: Orientation to Time ($F_{39} = 8.604$; $p = .006$; $\eta = .181$; O.P. = .816), Orientation to Place ($F_{39} = 6.087$; $p = .018$; $\eta = .135$; O.P. = .672), Registration ($F_{39} = 4.333$; $p = .044$; $\eta = .100$; O.P. = .528) and Recall ($F_{39} = 19.745$; $p < .0001$; $\eta = .336$; O.P. = .991).

Regarding the CAPE (see **Figure 2**), results showed that the older adults who were cared for by family caregivers made significant

TABLE 2 Means and *F* scores obtained by the older adults in the control and treatment groups, on the MEC, CAPE, EuroQol, Barthel' index, RMPBC FS and RMPBC RS in the pre- and post-treatment assessments

	Pre	Post	Between-group differences	Within-group differences	Interaction Group × Time
			Pre-post	Pre-post	Pre-post
	Mean (SD)	Mean (SD)	<i>F</i> (158) <i>p</i> eta O.P	<i>F</i> (158) <i>p</i> eta O.P	<i>F</i> (158) <i>p</i> eta O.P
MEC total					
Trt (n = 100)	26.53 (5.79)	27.80 (5.69)	0.990	4.522*	6.497*
Cont (n = 60)	28.05 (4.86)	27.93 (4.57)	.321 .006 .168	.035 .028 .561	.012 .039 .717
CAPE total					
Trt (n = 100)	27.05 (6.04)	27.91 (5.89)	0.110	0.239	10.589*
Cont (n = 60)	27.77 (5.32)	26.61 (5.31)	.740 .001 .063	.626 .001 .077	.001 .062 .899
EuroQol total					
Trt (n = 100)	2.40 (0.60)	2.02 (0.68)	5.268*	8.796*	10.454*
Cont (n = 60)	2.39 (0.64)	2.41 (0.62)	.023 .032 .626	.003 .052 .838	.001 .062 .895
Barthel total					
Trt (n = 100)	63.85 (22.05)	64.60 (23.00)	0.007	3.582	7.883*
Cont (n = 60)	66.48 (27.45)	62.62 (29.32)	.935 .0001 .051	.060 .022 .469	.006 .047 .797
RMPBC FS					
Trt (n = 100)	1.74 (0.77)	1.83 (0.67)	9.528*	4.631*	0.001
Cont (n = 60)	1.43 (0.50)	1.52 (0.56)	.002 .057 .866	.033 .028 .571	.971 .0001 .050
RMPBC RS					
Trt (n = 100)	1.18 (0.57)	1.26 (0.53)	35.386*	10.470*	1.609
Cont (n = 60)	0.68 (0.45)	0.86 (0.50)	.0001 .182 1.000	.001 .062 .895	.207 .010 .243

Note: Between-group and within-group differences.

Abbreviations: Cont, Control Group; eta, effect size; *F*, *F* Test; O.P., observed power; *p*, statistical significance; Post, Post-treatment assessment; Pre, Initial assessment; SD, standard deviation; Trt, Treatment group.

**p* < .05.

improvements as a consequence of the intervention, in the sub-categories of Information and Orientation ($F_{39} = 19.783$; $p < .0001$; $\eta = .337$; O.P = .991) and Mental Ability ($F_{39} = 18.258$; $p < .0001$; $\eta = .319$; O.P = .986). Older adults who were cared for by professional caregivers made significant improvements in the sub-category of Information and Orientation ($F_{59} = 4.414$; $p = .040$; $\eta = .07$; O.P = .542).

Finally, in relation to the caregiver programme assessment, results of the PAC questionnaire showed significant differences between the professional caregivers and the family caregivers both in the initial assessment ($F_{58} = 36.308$; $p < .0001$;

$\eta = .270$; O.P = 1.000) and in the post-assessment ($F_{58} = 20.670$; $p < .0001$; $\eta = .174$; O.P = 994), with higher scores in the group of professional caregivers than in the family caregivers at pre-test and post-test. Significant within-group differences were also found ($F_{58} = 33.270$; $p < .0001$; $\eta = .253$; O.P = 1.000), and in the (group × time) interaction ($F_{58} = 14.771$; $p = .000$; $\eta = .131$; O.P = .968), such that scores increased from the initial assessment to the post-assessment in both groups, from 49.3 (SD = 4.73) to 50.62 (SD = 4.95) in the professional caregivers group and 38.63 (SD = 12.46) to 45.20 (SD = 6.97) in the family caregivers group (data not shown in table).

TABLE 3 Means and F scores obtained by the older adults in the professional caregiver and family caregiver groups, on the MEC, CAPE, EuroQol, Barthel' index, RMPBC FS and RMPBC RS in the pre- and post-treatment assessments

	Pre	Pos	Between-group differences	Within-group differences	Interaction Group × Time
			Pre-post	Pre-post	Pre-post
	Mean (SD)	Mean (SD)	F(98) p eta O.P	F(98) p eta O.P	F(98) p eta O.P
MEC total					
Fam (n = 40)	26.20 (6.99)	28.73 (5.93)	0.195	18.735*	9.366*
Pro (n = 60)	26.75 (4.87)	27.18 (5.49)	.659 .002 .072	.0001 .160 .990	.003 .087 .858
CAPE total					
Fam (n = 40)	26.53 (7.73)	28.53 (7.13)	0.004	10.317*	8.443*
Pro (n = 60)	27.37 (4.66)	27.46 (4.94)	.949 .0001 .050	.002 .095 .889	.005 .079 .821
EuroQol total					
Fam (n = 40)	2.38 (0.54)	1.83 (0.55)	3.470	23.193*	2.792
Pro (n = 60)	2.42 (0.65)	2.15 (0.73)	.065 .034 .454	.0001 .191 .998	.098 .028 .380
Barthel total					
Fam (n = 40)	64.75 (22.22)	66.00 (21.84)	0.182	0.588	0.147
Pro (n = 60)	63.25 (22.11)	63.67 (23.88)	.670 .002 .071	.445 .006 .118	.702 .001 .067
RMPBC FS					
Fam (n = 40)	2.13 (0.68)	2.10 (0.63)	19.170*	1.764	3.460
Pro (n = 60)	1.48 (0.71)	1.65 (0.65)	.0001 .164 .991	.187 .018 .260	.066 .034 .453
RMPBC RS					
Fam (n = 40)	1.47 (0.59)	1.46 (0.60)	18.105*	2.175	2.533
Pro (n = 60)	0.99 (0.48)	1.12 (0.43)	.0001 .156 .988	.143 .022 .309	.115 .025 .351

Note: Between-group and within-group differences.

Abbreviations: eta, effect size; F, F test; Fam, family caregiver group; O.P., observed power; p, statistical significance; Post, post-treatment assessment; Pre, initial assessment; Pro, professional caregiver group; SD, standard deviation.

* $p < .05$.

5 | DISCUSSION

As we observed in the scientific literature, the caregiver plays a fundamental role in the status of the older adult that is cared for (Cheng et al., 2019). This has led to the many programmes being developed in recent years to train caregivers. They aim to improve the quality of care and so in turn improve the cognitive and functional status of the older people they serve (Fernández-Ballesteros et al., 2019). The problem that we find is that most of these programmes are implemented with older adults who have developed dementia (Robertson et al., 2017), forgetting that the best possible intervention is

preventive, that is, before dementia occurs (Butler et al., 2018). For this reason, the target population of our research was older adults who are under the care of a caregiver but who have not developed dementia. Our objective was to assess the benefits of a caregiver training programme on the cognitive and functional status of older adults. In addition, as a second objective, we wished to compare the effects of this programme according to type of caregiver (professional vs. family caregiver).

In light of the foregoing, the general aim of this study was to evaluate the benefits of a caregiver training programme on the cognitive and functional status of older adults in their care.

Significant sub-items of the MEC

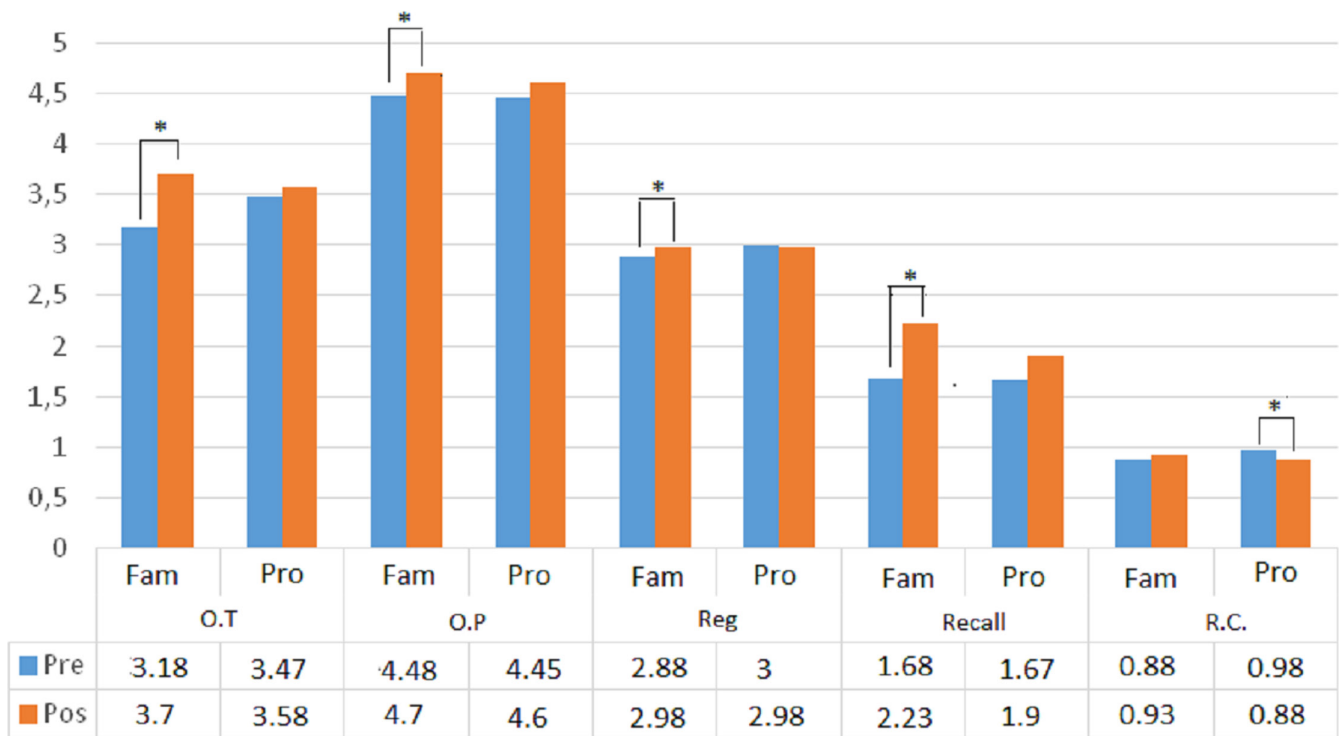


FIGURE 1 Differences between the professional caregiver group and the family caregiver group on MEC sub-items at two different assessment times. * $p < .05$; Fam, family caregivers group; O.P, Orientation to Place; O.T, Orientation to Time; Post, Post-treatment assessment; Pre, Initial assessment; Pro, professional caregivers group; R.C, Reading Comprehension; Reg, Registration [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/doi/10.1111/jocn.16301)]

Significant sub-items of the CAPE

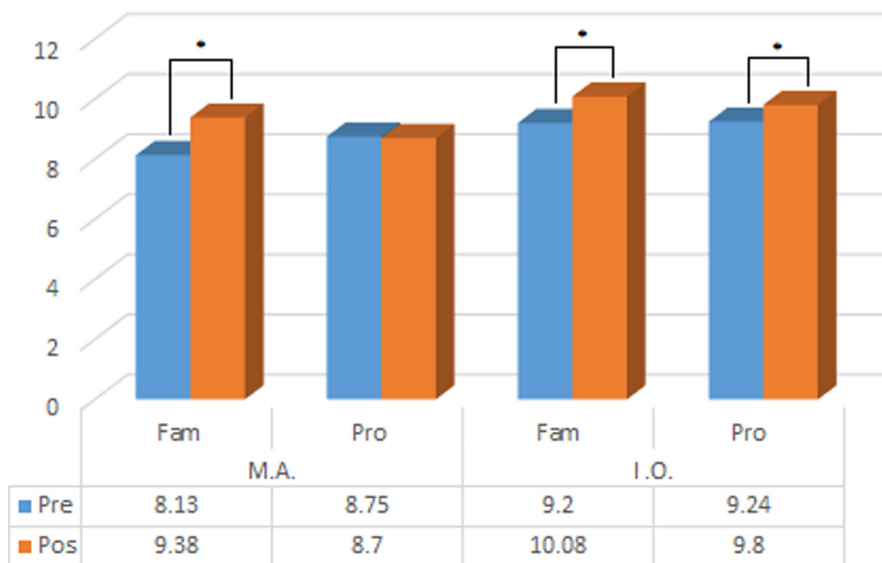


FIGURE 2 Significant differences between the professional caregiver group and the family caregiver group on CAPE sub-items at two different assessment times. * $p < .05$; Fam, Family caregivers group; I.O, Information and orientation; M.A, Mental Ability; Post, Post-treatment assessment; Pre, Initial assessment; Pro, Professional caregivers group [Colour figure can be viewed at [wileyonlinelibrary.com](https://onlinelibrary.wiley.com/terms-and-conditions)]

Overall, the results confirmed that the older adults cared for by caregivers trained in our stimulation programme obtained significant cognitive and functional benefits after the intervention.

In particular, the treatment group presented a significant improvement in health-related quality of life (HRQoL), which we did

not observe in the control group. This is visible in the significant differences found in the EuroQol post-assessment, which favoured the treatment group. These data show us how older adults who receive a cognitive stimulation intervention from their caregivers improve their HRQoL along the same lines as previous studies in older people

with dementia (Cheng et al., 2019). Therefore, all the quality of life benefits that are supported by the scientific literature (Jutkowitz et al., 2020) can be extrapolated to older adults without dementia. In this way, we ensure that longer life spans represent not only a quantitative value but also a qualitative value.

In addition, our results show that training caregivers in cognitive stimulation produced an observable increase in the cognitive capacity of older people who received this care, something that did not happen in the control group. We even observed how the cognitive ability of the control group declined over time. We, therefore, conclude that the caregiver training programme that we carried out produces cognitive improvement that encourages cognitive and functional maintenance in older adults, decreasing their dependency and, inasmuch as possible, promoting greater autonomy and more active aging, as other research studies have demonstrated (Rebok et al., 2014).

In the caregiver-reported data, the Barthel index reveals a decline in the functional ability of older adults from the control group, but this was not true of the treatment group. This represents a positive programme effect of maintaining these abilities. Regarding the RMPBC, however, there were no differences associated with the intervention, only initial between-group differences that were maintained at the post-assessment.

A second objective of this study was to check the treatment group for any within-group differences in the programme effect according to type of caregiver, whether professional or family. There are no studies to date that analyse differences between care provided by one type of caregiver or another, so the purpose of this research was to verify whether the programme effects in older adults might depend on the type of caregiver they have. In this regard, we found that there were no significant differences associated with type of caregiver in the change between the initial and the post-assessment. This reveals that older adults benefit equally from the intervention produced by the training programme, regardless of the type of caregiver that implements the programme, such that both types of caregivers are equally effective. Moreover, in both groups we see how HRQoL and cognitive ability improve after the intervention, once again showing the effectiveness of cognitive stimulation applied by caregivers, as seen in previous studies (Diniz et al., 2018; Sanjuán et al., 2018).

In this study, the difference between professional caregivers and family caregivers appeared when we more closely analysed the sub-categories that make up the two cognitive assessment tests. Persons cared for by family caregivers showed improvement on a greater number of cognitive items in the MEC and the CAPE.

This fact allows us to affirm that both groups present cognitive benefits, but the group with family caregivers presents more cognitive benefits than the group with professional caregivers. This may be because treatment from family caregivers is more personalised, longer-lasting, more constant and more connected to elements of their normal daily environment, making it easier to put the cognitive improvements into practice in these contexts.

However, in the caregiver reports, as was the case when comparing the treatment and control groups in the RMPBC and on the Barthel test, there were no significant differences associated with

treatment. Nevertheless, in the RMPBC, family caregivers showed greater frequency in detecting, and greater reaction to, the older adults' problems in memory, behaviour and emotion, than did the professional caregivers. This may be due to family caregivers being even more vested in the care, and therefore, more sensitive and more attentive to the behaviours of the family member they serve, as is seen in prior studies (Wimo et al., 2017).

The fact that overall there are no significant differences associated with treatment in the measures reported by the caregivers may have several explanations. First, it may be due to the high variability found in these measures. Second, it may be due to baseline differences between the groups in the case of the RMPBC, and third, to the possible influence of other personal variables related to the caregiver reporting these measures. Regarding this third explanation, it is important to recall how some previous research on the transfer of training effects showed that direct measures of cognitive functioning were associated with direct measures of functional ability, while not associated with third-party reports (Guye et al., 2016). This effect has been related to the role of working memory as a mediating variable that acts on direct measures of performance but not on measures reported by third parties (as would be the case of our caregivers; Guye et al., 2016). This discrepancy between different measures has also been observed in other types of psychological interventions where self-report measures were often found to conflict with direct performance measures. According to several authors, this may be a reflection of behaviour variability in different assessment contexts and times or of different perspectives of the different informants (Gómez-Pérez et al., 2016).

Based on all the above, direct measures of ability must be introduced in order to evaluate programme effects. While it is relevant to have the effects verified by people from the participant's environment, these measures may be affected by the informant's personal characteristics and may not give objective data of the change that takes place in the patient.

In the treatment group, however, we can affirm that there was no functional decline, since there was an increase in HRQoL, as commented earlier. HRQoL has an inverse, proportionate relationship to functional decline. Therefore, if HRQoL in the treatment group significantly increases, one may infer that functional decline is not taking place, in other words, that functional maintenance has really occurred.

Concerning the caregivers' programme assessment, we observe how their satisfaction with their work has increased after programme application. Both family caregivers and professional caregivers showed an increase in satisfaction from the initial assessment to the post-assessment. We also observe in the data that the professional caregivers presented higher values of satisfaction than did the family caregivers, at all times. This may be due to the fact that professional caregivers are performing a job that they have chosen and at a location outside their own home, while family caregivers often face a situation that has been imposed on them by the needs of the older relative under their care. The most important finding in this regard is that the family caregivers showed a greater increase in satisfaction than did the professional caregivers after the treatment. We

say that this is important because we saw how this group evolved, showing gains in satisfaction that were reflected in their daily life, causing the burden of care to be evaluated less negatively and leading to a better emotional frame of mind with regard to caring for their family members.

6 | CONCLUSIONS

Even so, this study presents some limitations, such as the fact that the samples were not equivalent in number of participants. The difficulties we have faced in gaining access to this type of population led us to maintain our non-equivalent samples rather than eliminate study participants. Other limitations to be mentioned are the short duration of the programme (three months), which may account for the lack of significance of some results in the more functional part, and also the assessment of functional ability only through instruments of caregiver-reported data, and not direct data from the adults themselves.

Nonetheless, based on the results obtained, we can conclude that intervening with both family and professional caregivers has great advantages: caregivers facilitate and lower the cost of programme application, generalisation and dissemination, resulting in a greater amount of positive effects with fewer economic resources and personnel.

7 | RELEVANCE TO CLINICAL PRACTICE

The novelty of this research is the inclusion of caregivers as active agents in the cognitive and functional treatment of the older adults under their care. In addition, the intervention focuses on older people without dementia, taking a preventive aim.

The improvements obtained both in the older adults and in caregivers show the relevance of this type of intervention when working in the clinical field of caregiving.

As we have confirmed here, a training programme that trains caregivers to work cognitively with older adults produce cognitive, functional and HRQoL benefits in these adults regardless of the type of caregiver who administers this effort, resulting in older adults who remain autonomous and independent for a longer time.

This increased independence supports and maintains an active aging process (Salazar-Barajas et al., 2018), offloading dependency care services and producing economic savings for society (Orrell et al., 2012). Moreover, caregivers are more satisfied with their work, encouraging a positive outlook on their labour by diminishing several of the negative aspects associated with the role of caregiver (Fauziana et al., 2018).

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CONFLICT OF INTEREST

The authors declare that they have no competing interests.

AUTHOR CONTRIBUTIONS

E. Navarro and M. Calero conceptualised and designed the study. M. Sanjuán, E. Navarro and M. Calero analysed and interpreted the data. M. Sanjuán wrote the final version of the manuscript. The three authors read and approved the final manuscript.

DATA AVAILABILITY STATEMENT

Sanjuán Gómez, Miriam, 2020, "Replication Data for: Caregiver training: Evidence of its effectiveness for cognitive and functional improvement in older adults", <https://doi.org/10.7910/DVN/RLIMZX>, Harvard Dataverse, V1, UNF:6:FLhsEBqmwSQGzHUV9ATw9A== [fileUNF]

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REFERENCES

- Anker-Hansen, C., Skovdahl, K., McCormack, B., & Tønnessen, S. (2018). The third person in the room: The needs of care partners of older people in home care services—A systematic review from a person-centred perspective. *Journal of Clinical Nursing*, 27(2), e1309–e1326. <https://doi.org/10.1111/jocn.14205>
- Apóstolo, J., Bobrowicz-Campos, E., Gil, I., Silva, R., Costa, P., Couto, F., Cardoso, D., Barata, A., & Almeida, M. (2019). Cognitive stimulation in older adults: An innovative good practice supporting successful aging and self-care. *Translational Medicine @ UniSa*, 19, 90–94.
- Bauer, R. M. (2007). Evidence-based practice in psychology: Implications for research and research training. *Journal of Clinical Psychology*, 63(7), 685–694. <https://doi.org/10.1002/jclp.20374>
- Bousquet, J., Malva, J., Nogues, M., Mañas, L. R., Vellas, B., Farrell, J., Bewick, M., Kowalski, M. L., Strandberg, T., Alonso, J., Ranberg, K. A., Ankri, J., Barbagallo, M., Ben-Shlomo, Y., Berr, C., Crooks, G., de Manuel Keenoy, E., Goldberg, M., Guldmond, N., ... Mercier, J. (2015). Operational definition of active and healthy aging (AHA): The European innovation partnership (EIP) on AHA reference site questionnaire: Montpellier October 20–21, 2014, Lisbon July 2, 2015. *Journal of the American Medical Directors Association*, 16(12), 1020–1026. <https://doi.org/10.1016/j.jamda.2015.09.004>
- Brownie, S., & Nancarrow, S. (2013). Effects of person-centered care on residents and staff in aged-care facilities: A systematic review. *Clinical Interventions in Aging*, 8, 1–9. <https://doi.org/10.2147/CIA.S38589>
- Buitenweg, J. I., van de Ven, R. M., Prinssen, S., Murre, J. M., & Ridderinkhof, K. R. (2017). Cognitive flexibility training: A large-scale multimodal adaptive active-control intervention study in healthy older adults. *Frontiers in Human Neuroscience*, 11, 529. <https://doi.org/10.3389/fnhum.2017.00529>
- Buiza, C., Navarro, A., Díaz-Orueta, U., González, M. F., Álaba, J., Arriola, E., Hernández, C., Zulaica, A., & Yanguas, J. J. (2011). Evaluación breve del estado cognitivo de la demencia en estadios avanzados: resultados preliminares de la validación española del Severe Mini-Mental State Examination. [A brief evaluation of the cognitive status of dementia in advanced stages: Preliminary results from the Spanish validation of the Severe Mini-Mental State Examination.].

- Revista Española de Geriátria y Gerontología, 46(3), 131–138. <https://doi.org/10.1016/j.regg.2010.09.006>
- Butler, M., McCreedy, E., Nelson, V. A., Desai, P., Ratner, E., Fink, H. A., Hemmy, L. S., McCarten, J. R., Barclay, T. R., Brasure, M., Davila, H., & Kane, R. L. (2018). Does cognitive training prevent cognitive decline?: A systematic review. *Annals of Internal Medicine*, 168(1), 63–68. <https://doi.org/10.7326/M17-1531>
- Calero, M. D. (2019). Effects of environmental enrichment and training across life span in cognition. In R. Fernández-Ballesteros, A. Benetos, & J. Robine (Eds.), *The Cambridge handbook of successful aging (Cambridge handbooks in psychology)* (pp. 321–354). Cambridge University Press. <https://doi.org/10.1017/9781316677018.020>
- Calero, M. D., Navarro, E., Sanjuán, M., Calero-García, M. J., & Ortega, A. R. (2017). *CUIDA-2: Programa de formación de cuidadores para una estimulación integral de las personas mayores*. Ediciones Pirámide. <https://www.edicionespiramide.es/libro.php?id=5138076>
- Câdea, D. M., Cotet, C. D., Stefan, S., Valenas, S. P., & Szentagotai-Tatar, A. (2015). Computerized cognitive training for working memory in older adults: A review. *Transylvanian Journal of Psychology*, 16(2), 141–161. Retrieved from <https://search.proquest.com/docview/1758617160?accountid=14542>
- Cheng, S. T., Au, A., Losada, A., Thompson, L. W., & Gallagher-Thompson, D. (2019). Psychological interventions for dementia caregivers: What we have achieved, what we have learned. *Current Psychiatry Reports*, 21(7), 59. <https://doi.org/10.1007/s11920-019-1045-9>
- da Cruz, T. J. P., Sá, S. P. C., da Costa Lindolpho, M., & Caldas, C. P. (2015). Cognitive stimulation for older people with Alzheimer's disease performed by the caregiver. *Revista Brasileira De Enfermagem*, 68(3), 510–516. <https://doi.org/10.1590/0034-7167.2015680319i>
- Diniz, M., Melo, B., Neri, K. H., Casemiro, F. G., Figueiredo, L. C., Gaioli, C., & Grato, A. (2018). Comparative study between formal and informal caregivers of older adults. Estudo comparativo entre cuidadores formais e informais de idosos. *Ciencia & Saude Coletiva*, 23(11), 3789–3798. <https://doi.org/10.1590/1413-812320182311.16932016>
- European Commission. (2017). *The 2018 Ageing Report Underlying Assumptions and Projection Methodologies*. Luxembourg: European Economy. <https://doi.org/10.2765/286359>. https://ec.europa.eu/info/sites/info/files/economy-finance/ip065_en.pdf
- EuroQol Group. (1990). EuroQol—a new facility for the measurement of health-related quality of life. *Health Policy*, 16(3), 199–208. [https://doi.org/10.1016/0168-8510\(90\)90421-9](https://doi.org/10.1016/0168-8510(90)90421-9)
- Fauziana, R., Sambasivam, R., Vaingankar, J. A., Abdin, E., Ong, H. L., Tan, M. E., Chong, S. A., & Subramaniam, M. (2018). Positive caregiving characteristics as a mediator of caregiving burden and satisfaction with life in caregivers of older adults. *Journal of Geriatric Psychiatry and Neurology*, 31(6), 329–335. <https://doi.org/10.1177/0891988718802111>
- Fernández-Ballesteros, R., Sánchez-Izquierdo, M., Olmos, R., Huici, C., Ribera, J. M., & Cruz, A. J. (2019). Paternalism vs. autonomy: Are there alternative types of formal care? *Frontiers in Psychology*, 10, 1460. <https://doi.org/10.3389/fpsyg.2019.01460>
- Fernández-Ballesteros, R., & Zamarrón, M. D. (1999). Evaluación en la vejez: algunos instrumentos. *Clínica & Salud*, 10(3), 245–286. Retrieved from <https://journals.copmadrid.org/clysa/archivos/50620.pdf>
- Folstein, M. F., Folstein, S. E., & McHugh, P. R. (1975). "Mini-mental state". A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12(3), 189–198. [https://doi.org/10.1016/0022-3956\(75\)90026-6](https://doi.org/10.1016/0022-3956(75)90026-6)
- Gómez-Pérez, M. M., Calero, M. D., Mata, S., & Molinero, C. (2016). Discrepancies between direct and indirect measures of interpersonal and neurocognitive skills in autism spectrum disorder children. *Journal of Clinical and Experimental Neuropsychology*, 38(8), 875–886. <https://doi.org/10.1080/13803395.2016.1170106>
- Goyder, J., Orrell, M., Wenborn, J., & Spector, A. (2012). Staff training using STAR: A pilot study in UK care homes. *International Psychogeriatrics*, 24(6), 911–920. <https://doi.org/10.1017/S1041610211002559>
- Graffigna, G., Barello, S., & Bonanomi, A. (2017). The role of Patient Health Engagement Model (PHE-model) in affecting patient activation and medication adherence: A structural equation model. *PLoS One*, 12, e0179865. <https://doi.org/10.1371/journal.pone.0179865>
- Guye, S., Röcke, C., Méryllat, S., Von Bastian, C. C., & Martin, M. (2016). Adult lifespan. In T. Strobach & J. Karbach (Eds.), *Cognitive training* (pp. 134–156). Springer. https://doi.org/10.1007/978-3-319-42662-4_5
- Herdman, M., Badia, X., & Berra, S. (2001). El EuroQol-5D: una alternativa sencilla para la medición de la calidad de vida relacionada con la salud en atención primaria. *Atención Primaria*, 28(6), 425–429. [https://doi.org/10.1016/S0212-6567\(01\)70406-4](https://doi.org/10.1016/S0212-6567(01)70406-4)
- Hibbard, J. H., & Mahoney, E. (2010). Toward a theory of patient and consumer activation. *Patient Education and Counseling*, 78, 377–381. <https://doi.org/10.1016/j.pec.2009.12.015>
- Jutkowitz, E., Gaugler, J. E., Trivedi, A. N., Mitchell, L. L., & Gozalo, P. (2020). Family caregiving in the community up to 8-years after onset of dementia. *BMC Geriatrics*, 20(1), 1–9. <https://doi.org/10.1186/s12877-020-01613-9>
- Jütten, L. H., Mark, R. E., & Sitskoorn, M. M. (2019). Episodic memory and executive functioning in informal dementia caregivers. *Aging & Mental Health*, 1, 1–9. <https://doi.org/10.1080/13607863.2019.1617242>
- Leung, P., Yates, L., Orgeta, V., Hamidi, F., & Orrell, M. (2017). The experiences of people with dementia and their carers participating in individual cognitive stimulation therapy. *International Journal of Geriatric Psychiatry*, 32(12), e34–e42. <https://doi.org/10.1002/gps.4648>
- Liddle, J., Smith-Conway, E. R., Baker, R., Angwin, A. J., Gallois, C., Copland, D. A., Pachana, N. A., Humphreys, M. S., Byrne, G. J., & Chenery, H. J. (2012). Memory and communication support strategies in dementia: Effect of a training program for informal caregivers. *International Psychogeriatrics*, 24(12), 1927–1942. <https://doi.org/10.1017/S1041610212001366>
- Lobo, A., Escobar, V., Ezquerra, J., & Seva Díaz, A. (1980). "El Mini-Examen Cognoscitivo" (Un test sencillo, práctico, para detectar alteraciones intelectuales en pacientes psiquiátricos) [The "Mini-Examen Cognoscitio": A simple and practical test to detect intellectual dysfunctions in psychiatric patients]. *Revista De Psiquiatría Y Psicología Médica*, 14(5), 39–57. Retrieved from <https://psycnet.apa.org/record/1982-24794-001>
- Mahoney, F. I., & Barthel, D. W. (1965). Functional evaluation: the Barthel index. A simple index of independence useful in scoring improvement in the rehabilitation of the chronically ill. *Maryland State Medical Journal*, 14, 61–65. Retrieved from <https://psycnet.apa.org/record/2012-30334-001>
- Manfredi, G., Midão, L., Paúl, C., Cena, C., Duarte, M., & Costa, E. (2019). Prevalence of frailty status among the European elderly population: Findings from the Survey of Health, Aging and Retirement in Europe. *Geriatrics & Gerontology International*, 19(8), 723–729. <https://doi.org/10.1111/ggi.13689>
- McCabe, M., You, E., & Tatangelo, G. (2016). Hearing their voice: A systematic review of dementia family caregivers' needs. *The Gerontologist*, 56(5), e70–e88. <https://doi.org/10.1093/geront/gnw078>
- Mills, W. L., Pimentel, C. B., & Palmer, J. A. (2017). Snow framework to guide quality improvement efforts in nursing homes: The LOCK model. *The Gerontologist*, 58(3), 598–605. <https://doi.org/10.1093/geront/gnx023>
- Navarro, E., Sanjuán, M., & Calero, M. (2021). Increasing autonomy through improved care: Effects of a professional care-giver training

- programme on the functional status of older adults. *Ageing and Society*, 1–18. <https://doi.org/10.1017/S0144686X21000519>
- Orrell, M., Yates, L., Burns, A., Russell, I., Woods, R., Hoare, Z., Moniz-Cook, E., Henderson, C., Knapp, M., Spector, A., & Orgeta, V. (2012). Individual Cognitive Stimulation Therapy for dementia (iCST): Study protocol for a randomized controlled trial. *Trials*, 13(1), 1–8. <https://doi.org/10.1186/1745-6215-13-172>
- Pattie, A. H. (1979). *Manual of the Clifton Assessment Procedures for the Elderly (CAPE)*. Hodder & Stoughton.
- Rebok, G. W., Ball, K., Guey, L. T., Jones, R. N., Kim, H.-Y., King, J. W., Marsiske, M., Morris, J. N., Tennstedt, S. L., Unverzagt, F. W., & Willis, S. L. (2014). Ten-year effects of the advanced cognitive training for independent and vital elderly cognitive training trial on cognition and everyday functioning in older adults. *Journal of the American Geriatrics Society*, 62(1), 16–24. <https://doi.org/10.1111/jgs.12607>
- Resnick, B., & Galik, E. (2013). Using function-focused care to increase physical activity among older adults. *Annual Review of Nursing Education*, 31(1), 175–208. <https://doi.org/10.1891/0739-6686.31.175>
- Robertson, S., Cooper, C., Hoe, J., Hamilton, O., Stringer, A., & Livingston, G. (2017). Proxy rated quality of life of care home residents with dementia: A systematic review. *International Psychogeriatrics*, 29(4), 569–581. <https://doi.org/10.1017/S1041610216002167>
- Salazar-Barajas, M. E., Lillo Crespo, M., Hernández Cortez, P. L., Villarreal Reyna, M. Á., Gallegos Cabriales, E. C., Gómez Meza, M. V., & Salazar Gonzalez, B. C. (2018). Factors contributing to active aging in older adults, from the framework of Roy's adaptation model. *Investigación Y Educación En Enfermería*, 36(2), e08. <https://doi.org/10.17533/udea.iee.v36n2e08>
- Sanjuán, M., Calero, M. D., Abarca, S., & Navarro, E. (2018). Evaluation of the effects a caregiver training programme has on the cognitive and functional maintenance of the elderly/Valoración de los efectos de un programa de formación de cuidadores sobre el mantenimiento cognitivo y funcional de ancianos. *Estudios De Psicología/Studies in Psychology*, 39(2–3), 437–464. <https://doi.org/10.1080/02109395.2018.1486359>
- Tarlow, B., Wisniewski, S., Belle, S., Rubert, M., Ory, M., & Gallagher-Thompson, D. (2004). Positive aspects of caregiving. *Research on Aging*, 26(4), 429–453. <https://doi.org/10.1177/0164027504264493>
- Teri, L., Truax, P., Logsdon, R., Uomoto, J., Zarit, S., & Vitaliano, P. P. (1992). Assessment of behavioral problems in dementia: The Revised Memory and Behavior Problems Checklist. *Psychology and Aging*, 7(4), 622–631. <https://doi.org/10.1037/0882-7974.7.4.622>
- Thompson, L. (2017). *Paternalism*. *Encyclopedia Britannica* (15th ed.). Encyclopedia Britannica, Inc. Retrieved from <https://www.britannica.com/topic/paternalism>
- Von Bastian, C. C., Langer, N., Jäncke, L., & Oberauer, K. (2013). Effects of WM training in young and old adults. *Memory & Cognition*, 41(4), 611–624. <https://doi.org/10.3758/s13421-012-0280-7>
- Williams, K., Herman, R., & Smith, E. K. (2014). Cognitive interventions for older adults: Does approach matter? *Geriatric Nursing*, 35(3), 194–198. <https://doi.org/10.1016/j.gerinurse.2014.01.004>
- Wimo, A., Elmstahl, S., Fratiglioni, L., Sjölund, B., Sköldrung, A., Fagerström, C., Berglund, J., & Lagergren, M. (2017). Formal and informal care of community-living older people: A population-based study from the Swedish National study on Aging and Care. *Journal of Nutrition, Health and Aging*, 21(1), 17–24. <https://doi.org/10.1007/s12603-016-0747-5>
- World Health Organization. (2016). Global strategy and action plan on ageing and health (2016–2020). Retrieved from <http://who.int/ageing/global-strategy/en/https://apps.who.int/iris/bitstream/handle/10665/329960/9789241513500-eng.pdf>
- Yates, L., Cspike, E., Moniz-Cook, E., Leung, P., Walton, H., Charlesworth, G., Spector, A., Hogervorst, E., Mountain, G., & Orrell, M. (2019). The development of the Promoting Independence in Dementia (PRIDE) intervention to enhance independence in dementia. *Clinical Interventions in Aging*, 14, 1615. <https://doi.org/10.2147/CIA.S214367>

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