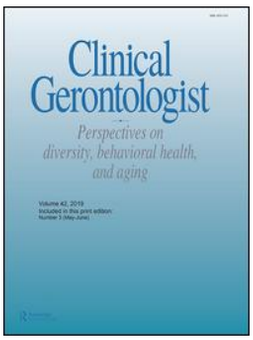

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Effectiveness of Acceptance and Commitment Therapy (ACT) in Professional Dementia Caregivers Burnout

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ABSTRACT

Objectives: To implement and assess the efficacy of a 6-week Acceptance and Commitment Therapy intervention to reduce anxiety and burnout in healthcare professionals working with dementia, and to increase their psychological flexibility and life satisfaction.

Methods: A total of 105 workers from the XXXXX Hospital were randomly assigned to an intervention group (Acceptance and Commitment Therapy) or a wait list control group. Psychological Flexibility (AAQ-II), Life Satisfaction (SWLS), Anxiety (STAI-T), and Burnout (MBI) were measured before and after the intervention. Follow-up data were collected 3 months and 12 months post-intervention. Split-plot analyses were performed following intention to treat approach.

Results: No significant differences were found in baseline outcome measures. No time effects were found in wait list control group in any variable. In the intervention group, pre-post comparison showed a significant decrease in levels of MBI emotional exhaustion ($p = .001$) and anxiety ($p < .001$), and an increase in life satisfaction levels ($p < .001$) and MBI personal accomplishment ($p < .001$). These results were maintained at the 3- and 12-month follow-up periods. No significant intervention effects were observed in pre-post flexibility scores; however, data suggest slight progressive increase in flexibility at follow-up.

Conclusions: Acceptance and Commitment Therapy showed positive effects in healthcare professionals working with dementia by reducing anxiety and burnout.

Clinical implications: The implementation of Acceptance and Commitment Therapy could help to increase the psychological well-being of healthcare professionals working with dementia.

KEYWORDS
Acceptance and Commitment Therapy; nurses; psychological flexibility; burnout; dementia

Introduction

In clinical service facilities such as nursing homes, where there is a high prevalence of people with dementia, the stress and anxiety associated with the work position could be behind the absenteeism and burnout that workers suffer (Duffy, 2009; Elliott, Stirling, Martin, Robinson, & Scott, 2016; Islam, Baker, Huxley, Russell, & Dennis, 2017). The stress and the burnout suffered by these workers, along with the lack of job satisfaction, may result in a worse patient-provider relationship and a poorer quality of care (Edberg et al., 2008; Stone, 2012). In this scenario, interventions directed toward the professional dementia caregivers to help them deal with anxiety and stress are essential.

The majority of programs to improve the situation of these workers are mainly focused on the acquisition of knowledge and abilities to deal with behavioral and psychological symptoms of dementia (BPSD) such as aggressivity or delusions, but not on stress management or on training the most adaptive style to face the challenges associated with the job (Elliott et al., 2016; Kuske et al., 2007). With regard to coping styles, it is known that among healthcare workers who have contact with potentially aggressive populations, those who use coping strategies based on the experiential avoidance of emotions, thoughts, and unpleasant sensations usually have higher stress levels and are at a higher risk of burnout (Clarke, Taylor, Lancaster, & Remington, 2015; Devereux, Hastings, & Noone, 2009; MacDonald, Hastings, & Fitzsimons, 2010; McConachie, McKenzie, Morris, & Walley, 2014). An alternative to this type of unhelpful coping is psychological flexibility, understood as the ability to connect fully with the

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internal experience of the present moment without resistance or struggle, changing or persisting in current behavior in search of personal goals and values (Hayes, Hayes, et al., 2006). In fact, healthcare workers with greater psychological flexibility not only show a greater degree of job satisfaction, but also greater psychological and physical health (Ramaci, Bellini, Presti, & Santisi, 2019). It has been shown that this construct could have a predictive and moderating role in the development of job burnout (Ruiz & Odriozola-González, 2017). In this direction, Acceptance and Commitment Therapy (ACT) is a type of evidence-based intervention aimed at increasing psychological flexibility, which has been shown to have positive effects not only on the psychological flexibility of workers (Moran, 2015), but also on their performance, job satisfaction and mental health (Bond & Bunce, 2003). In addition, when it comes to caregivers of people with dementia, group interventions to reduce stress (burden) have been effective when applied to informal caregivers (Abrahams et al., 2018), and those based on Acceptance and Commitment Therapy (ACT) (Collins & Kishita, 2018) have been especially useful in reducing the stress and anxiety of informal caregivers compared to cognitive-behavioral interventions (Losada et al., 2015). On the other hand, despite the fact that nowadays there are several studies that assess interventions based on ACT aimed at healthcare workers (Blanco et al., 2017; Clarke et al., 2015; Frögéli, Djordjevic, Rudman, Livheim, & Gustavsson, 2015; McConachie et al., 2014) or to informal caregivers of people with dementia (Collins & Kishita, 2018), there is no study, to the authors' knowledge, that has applied an ACT intervention in healthcare professionals who work with dementia.

Taking into account the high risk of burnout suffered by the healthcare personnel working with people affected by dementia, this study sets out the objective of designing and assessing the effectiveness of an ACT intervention for these workers.

The aim of this study was twofold: to design and implement an intervention based on ACT aimed at nurses and auxiliary nurses who work with people affected by dementia, and to assess its effects on psychological flexibility, anxiety, life satisfaction and burnout at the end of the intervention and at the 3- and 12-month follow-ups.

Hypotheses:

(1) Intervention group participants will show decreased levels of trait anxiety, depersonalization, and emotional exhaustion after the intervention and at the 3–12-month follow-ups in comparison to baseline, whereas no changes are expected in control group participants.
(2) Intervention group participants will show higher levels of psychological flexibility, life satisfaction and personal accomplishment after the intervention and at the 3- and 12-month follow-ups in comparison to baseline, whereas no changes are expected in control group participants.

Methods

Design

A randomized controlled trial was conducted. Participants were randomly assigned into an intervention group (receiving ACT intervention) or into a wait list parallel control group. Outcome measures were collected in both groups before and after the intervention and 3- and 12-month follow-up.

Participants

The study was carried out between May 2017 and September 2018 at the XXXXXX Hospital. This center is made up of 6 long-term hospitalization units, 2 nursing home units, a day center and a palliative unit. In all units there are people with cognitive impairment and/or dementia, so all the healthcare workers who participated in the study were in contact with people affected by dementia. The study was approved by the Healthcare Ethics Committee of the XXXX Hospital Consortium.

All the healthcare workers (N = 246) were invited to participate in the study, except for those who were sick or on vacation. In order to recruit the sample, a series of informative talks were conducted in each of the units and work shifts of the center to offer the possibility of taking a course, organized by the Human Resources Service of the XXXX Health Center, to learn to manage emotions more effectively in the work context. A total of 105 people agreed and

completed the informed consent. Participation in the study was voluntary and outside of work hours.

The inclusion criteria were to be over 18 years old and have at least 6 months of experience in the center. Participants were randomly assigned to one of the two groups: the Intervention Group (IG; n = 51) or the wait list Control Group (CG; n = 54). Figure 1 shows the flow of participants throughout the study.

Intervention

The ACT intervention was conducted in the work setting, in 5 different groups that had a minimum of 6 healthcare workers and a maximum of 14. The intervention was specifically designed for workers providing services in the dementia context. It consisted of 6 sessions, each one 90 minutes long, to be able to implement each of the hexaflex components of ACT (Contact with the Present Moment, Acceptance, Self as Context, Cognitive Defusion, Values and Committed Action) in different sessions. (Hayes, Hayes, et al., 2006).

The intervention was carried out by a neuropsychologist of the Social and Health Center widely trained and experienced in dementia care and ACT, following the guidelines of some dynamics proposed in ACT manuals in work contexts (Flaxman, Bond, & Livheim, 2013), as well as dynamics specifically generated for the workers of dementia care context and guided by the basic principles of each of the components of the hexaflex (Hayes, Bond, Barnes-Holmes, & Austin, 2006). From the first session, the importance of contact with the present moment was also introduced as a key concept to learn to not get carried away by emotions and to help participants get in touch with their personal values.

Each session included: 1) the explanation and experience of one of the concepts of the hexaflex through an experiential exercise and several metaphors, 2) an exercise to contact with the present moment, and 3) the recommendation of several tasks to perform at home. The exercises conducted throughout the intervention were specifically designed for healthcare workers in contact with people affected by dementia. For example, in

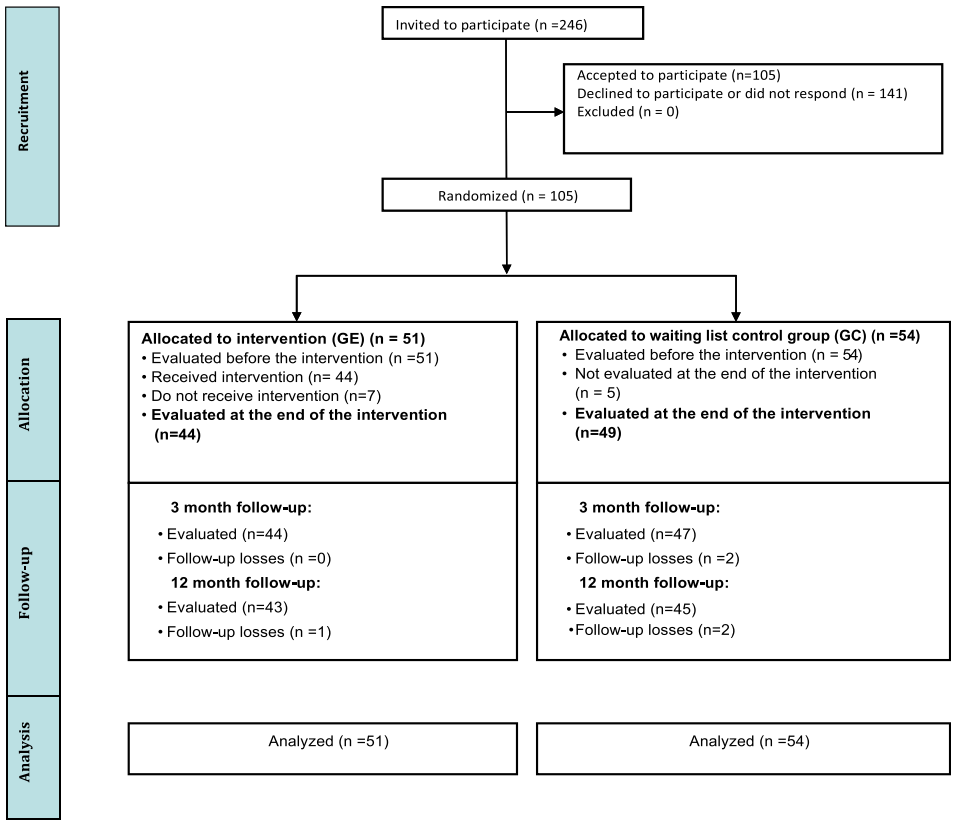

Figure 1. Participant flow through the study.

perspective-taking exercises, the workers should put themselves in the skin of the patient, increasing the empathy and compassion toward them. As far as metaphors are concerned, they were linked to the difficult emotions experienced by the healthcare workers when faced with the BPSD. Finally, contact with the present moment was presented as a tool to increase connection and effective communication with patients.

At the end of each session participants received a brief summary of the session and homework, which generally consisted of three practical tasks.

Session	CONTENT OF THE SESSION	CORE EXERCISES	HOMEWORK
S1	**Contact with the present moment**. Introduction of the two ways the mind operates (Autopilot and Conscious Mode). An experiential dynamic was performed to verify the advantages and disadvantages of each of the two mind modes, and the therapist facilitated the transfer of these reflections to the life of the participants. A first contact with Mindfulness was made through a meditation exercise. At the end of the session, the concept of Cognitive Defusion was introduced and the homework was explained.	Contact with the present at work	- Take a commitment with two activities that you normally do on autopilot. - Breathing meditation 2 times a day. - Get rid of a habit every day.
S2	**Defusion.** The concepts of Cognitive Fusion and Reactivity were introduced. Through a series of dynamics and metaphors, the therapist made the participants aware of the constant judging of the mind and the influence that the judgments have on the small decisions throughout the day. The importance of personal history was emphasized through an adaptation of the exercise of "numbers" (Hayes, Strosahl, & Wilson, 1999). Meditation was performed and finally the concept of Acceptance was introduced, and homework was assigned.	Voices in your head	- Practice the contact with the present moment - Observe one person every day and notice the judgments that arise. - Attack embarrassment and implement defusion techniques.
S3	**Acceptance.** The concept of Experiential Avoidance was explained through the tiger metaphor (Hayes, Strosahl, & Wilson, 1999) and experiential exercises. Through experience, it was showed that unpleasant emotions are not necessarily our enemies. It was transmitted the idea that we need to contact and make room for our emotions instead of running from them in order to accomplish what we care about. At the end of the session, the MATRIX tool was introduced (Polk, Schoendorff, Webster, & Olaz, 2016).	Tiger metaphor Acceptance of the present moment with your partner	-Body Scan meditation (2 times a day). -Take the purpose of showering with cold water to practice cognitive defusion and acceptance. -Notice each day a way in which the tiger is fed
S4	**Values**. The distinction between values and goals was introduced. The experiential exercise "Sweet Spot" (Hayes et al., 1999) was carried out and the distinction was established with different metaphors. At the end of the session, the MATRIX tool was retaken, and each attendant filled it with their personal experiences.	The Matrix Sweet Spot	- Meditation of kindness (2 times a day). - Try to notice a step forward and a step backward with the MATRIX every day. - A small action with the purpose of improve some aspects of the workplace was chosen to be fulfilled during the week. It was also asked to participants to carry out a good deed and to not tell anyone until the next session.
S5	**Self as context.** At the beginning of the session the usefulness and experiences with the MATRIX were reviewed. Then, in order to connect with the self as context, the sky and clouds metaphor and the chess metaphor were used. A meditation for that purpose was also used. Several experiential exercises were also carried out in order to make contact with the idea of taking perspective and with the emotions of Gratitude and Compassion.	The Observer self (10 minutes)	-The Observer Self Meditation (2 times a day). - Task of the 10 fingers (Gratitude exercise and perspective taking). - Presence with the enemy: find a difficult person and try to observe him or her carefully with acceptance and compassion
S6	**Committed Action.** The exercise "Worry vs. care" (LeJeune, 2007) was carried out to clarify the importance of the action involved and its possible barriers, always relating them to the MATRIX. Personal barriers were analysed and possible solutions were proposed. The therapist made a committed action at the session that reflected a personal value, in order to thank the attendants for their presence during the course. Following this experience, the course came to an end discussing the importance of committed action and of following personal values.	Worry vs. care	

Figure 2. Design of the intervention.

Homework was always reviewed at the beginning of each session. A content synthesis of the sessions is shown in Figure 2.

Measures

Demographic data and outcome measures were collected before the first session, after the intervention and at the 3- and 12-month post-intervention. Additionally, a series of qualitative questions about the duration and the main points of the ACT intervention were asked after the intervention.

Primary outcomes

- The Acceptance and Action Questionnaire-II (AAQ-II). This questionnaire was used to assess psychological inflexibility through 7 items with a Likert response format from 1 (never true) to 7 (always true) (Bond et al., 2011). The Spanish version was administered (Ruiz, Langer Herrera, Luciano, Cangas, & Beltrán, 2013) which has good reliability, construct validity, criterion validity and discriminant validity. The internal consistency in the whole sample was excellent ($\alpha = 0.91$; $n = 105$). Its test-retest reliability in the CG at the end of the intervention, at 3 months and 12 months with respect to the baseline measure, ranged from rpost = 0.80 ($p < .001$; $n = 49$) to r12m = 0.70 ($p < .001$; $n = 45$).
- The Maslach Burnout Inventory scale (MBI) (Maslach, Jackson, & Leiter, 1996). The Spanish version was administered (Gil-Monte & Peiró, 1999). This scale is divided into three subscales: 9 items that assess Emotional Exhaustion (EE) in relation to the job; 5 items that evaluate the Depersonalization (PD) or negative attitudes of the worker toward the patients; and 8 items that evaluate Personal Achievement (PA) or feelings of success or competence toward one's own work. The internal consistency in the sample was excellent ($\alpha = 0.83$; $n = 105$) for the EE scale, good for the PA scale ($\alpha = 0.73$; $n = 105$) and moderate for the DP scale ($\alpha = 0.46$; $n = 105$). Its test-retest reliability in the CG at the end of the intervention, at 3 months and 12 months with respect to the baseline measure, was adequate. This ranged from rpost = 0.76 ($p < .001$; $n = 49$) in DP scale to rpost = 0.90 ($p < .001$; $n = 49$) in EE scale.

Secondary outcomes

- State and Trait Anxiety-Trait (STAI-T). The Spanish version of Anxiety-Trait subscale of the STAI-T was used as a measure of Anxiety and emotional well- being. The psychometric qualities of its Spanish version show good validity and reliability (Spielberger, Gonzalez-Regiosa, Martínez-Urrutia, Natailcio, & Natalicio, 1971). The internal consistency in the sample was excellent ($\alpha = 0.83$; $n = 105$). Its test-retest reliability in the sample at the end of the intervention, at 3 months and at 12 months, was adequate, and it ranged from rpost = 0.84 ($p < .001$; $n = 49$), to r12m = 0.81 ($p < .001$; $n = 45$).
- Satisfaction With life Scale (SWLS). This scale assesses life satisfaction and consists of 5 items with a Likert response format from 1 (strongly disagree) to 7 (strongly agree). The Spanish version was used (Vázquez, Duque, & Hervás, 2013) which is a valid and reliable scale (Vázquez et al., 2013). The internal consistency in the sample was excellent ($\alpha = 0.85$; $n = 105$). Its test- retest reliability in the CG at the end of the intervention, at 3 months and at 12 months with respect to the baseline measure was adequate. This ranged from between rpost = 0.83 ($p < .001$; $n = 49$) to r12m = 0.76 ($p < .001$; $n = 45$).
- Qualitative Questions. In the post-intervention measures the participants were asked to respond in the protocol of tests about the duration and the contents of the course. Regarding duration, one question referred to the duration of the course and the other one to the duration of the sessions. Participants were asked to respond to these questions with multiple choice (short-adequate-long). On the other hand, two open qualitative questions were asked about the contents of the course (What

do you take away from this course? What did you like the most about the course?).

Data analysis

The statistical analysis was carried out with the Statistical Package for Social Sciences program, version 25.0 for Windows (SPSS Inc., Chicago, Illinois, USA).

A descriptive analysis was carried out using absolute and relative frequencies for the categorical variables, and means and standard deviation for the quantitative variables. Student Fisher t-tests and chi-square tests were performed for independent samples to compare the socio-demographic variables and baseline levels of the study response variables of the IG and CG. Similarly, people who finished and did not finish the study were compared. Normality assumption was assessed using the Shapiro-Wilks test, and homogeneity of variance assumption was assessed with the Levene test for equality of variances. For the quantitative variables whose normality could not be assumed, Mann-Whitney U tests were used, and medians and quartiles were also provided as an alternative to comparing means. Chi-square tests were used to compare the percentage of post-intervention losses at 3 months and 12 months of follow-up. A risk α of 0.05 was established.

The analysis of the outcome variables was carried out under an intention to treat approach, using the measure of baseline instead of the missing value. A general linear model (split-plot or mixed ANOVA) was carried out, with the time factor as a within- subject factor and with the group factor as a between-subjects factor, in which the time x group interaction was included. All contrasts were bilateral with a significance level of 0.05. Bonferroni adjustment was used for multiple comparisons. The size of the effects was estimated with the Cohens'-d coefficient ($|d| > 0.50$ was considered a moderate effect size and $|d| > 0.80$ large).

Results

Quantitative results

The sample (n = 105) was mostly women (93.3%), aged between 19 and 64, with an average of 41.1 years (SD = 1.2), and with an education level of secondary school or higher since they were mostly nursing assistants and nurses. Sample demographics are shown in Table 1. No significant group differences were found at baseline for demographics neither for outcome measures. The drop-out rate at the end of the intervention in the sample as a whole was 15.5%, 17.3% at 3 months of follow-up, and 20% at 12 months of follow-up. Although the attrition effect was higher in the IG, there were no statistically significant differences between groups drop-out rates (Table 2).

With regard to adherence to treatment, the total of 51 participants of the IG who initiated the intervention attended at least 4 of the 6 sessions, specifically, 39.2% (n = 20 attended all sessions, 33.3% (n = 17) attended five sessions, and 13.7% attended four sessions.

As seen in Table 3 we didn't find significant differences in psychological flexibility (measured by AAQ-II) between the intervention and control group. Although, we found a decreasing psychological inflexibility trend in the intervention group at the 12-month follow-up ($p = .052$). Furthermore, the STAI-

Table 1. Sample sociodemographic characteristics and baseline data.

	CG		IG		
	n = 54		n = 51		p
Age; *Mean (SD)*	41.8	(12.3)	40.5	(12.8)	.594
Gender, Women; *n, %*	49	90.74	49	96.08	.273
Education level; *n, %*					.703
No studies	0	0.00	1	1.96	
Primary studies	3	5.56	4	7.84	
Secondary studies	25	46.3	24	47.1	
University studies	26	48.1	22	43.1	
Profession; *n, %*					.973
Assistant	27	50.0	24	47.1	
Geriatrician	10	18.5	10	19.6	
Nurse	11	20.4	12	23.5	
Others	6	11.1	5	9.80	
Seniority, year (*Median; IQR* P_{25}-P_{75})	9.5	(3.75–15.5)	9	(3–14)	.480 [a]
Have or Have had any close relative with dementia *n, %*	29	53.7	27	52.9	.938
Has been the main caregiver of his close relative	44	81.5	48	94.1	**.049**
	Mean	(SD)	Mean	(SD)	p
AAQ-II Flexibility	20.2	(7.7)	20.7	(8.0)	.717
SWLS Satisfaction with life	24.0	(5.8)	23.3	(5.3)	.517
MBI Emotional exhaustion	18.4	(11.4)	17.9	(10.3)	.806
MBI Depersonalization	7.3	(4.6)	7.3	(4.7)	.964
MBI Personal accomplishment	38.9	(6.9)	37.5	(7.7)	.316
STAI-T Anxiety-Trait	19.7	(10.1)	21.0	(8.8)	.498

CG: Control Group. IG: Intervention Group. SD: Standard Deviation. [a] Mann-Whitney- U test significance Level: $p < .05$. In bold $p < .05$.

Table 2. Sociodemographic characteristics and baseline data of the people evaluated and not evaluated at the end of the intervention.

	Drop-out		End		
	n = 12		n = 93		p
Age; *Mean (SD)*	45.8	(14.4)	40.5	(12.2)	.168
Gender, Women; *n, %*	12	100	86	92.5	.325
Education level; *n, %*					**.024**
No studies	1	8.3	0	0.0	
Primary studies	1	8.3	6	6.5	
Secondary studies	7	58.3	42	45.2	
University studies	3	25.0	45	48.4	
Profession; *n, %*					.114
Assistant	6	50.0	45	48.4	
Geriatrician	3	25.0	17	18.3	
Nurse	0	0.0	23	24.7	
Others	3	25.0	8	8.6	
Seniority, years (*Median; IQR P_{25}-P_{75})*	9	(2.5–19.5)	9	(4–14)	.940[a]
Have or Have had any close relative with dementia *n, %*	8	66.7	48	51.6	.325
Has been the main caregiver of his close relative	10	83.3	82	88.2	.632
	Mean	(SD)	Mean	(SD)	p
AAQ-II Flexibility	21.2	6.32	20.3	8.04	.734
SWLS Satisfaction with life	23.6	7.00	23.6	5.40	.981
MBI Emotional exhaustion	19.9	7.56	17.9	11.2	.552
MBI Depersonalization	10.3	4.08	6.88	4.55	**.014**
MBI Personal accomplishment	38.8	6.79	38.1	7.39	.755
STAI-T Anxiety-Trait	21.0	7.01	20.3	9.75	.797

CG: Control Group. IG: Intervention Group. SD: Standard Deviation. [a] Mann-Whitney-U test significance Level: $p < .05$. In bold $p < .05$.

T scores showed less anxiety trait in the intervention group compared to the control group after the intervention ($p < .001$), maintaining the results at 3 and 12 months. Regarding life satisfaction, the participants in the ACT intervention showed higher scores in SWLS after the intervention than the control group ($p = <.001$), and these results were maintained at the 3-month and 12-month follow-up. Regarding Burnout (measured with MBI), the intervention group showed a lower level of exhaustion than the control group after the intervention ($p = .01$), which was maintained at three months ($p = .048$). However, these results were not maintained at the 12-month follow-up ($p = .925$). Finally, although we didn't find significant differences in depersonalization, the intervention group showed higher levels of personal accomplishment in relation to the control group after the intervention ($p < .001$), and these results were maintained at the 3-month and 12-month of follow-up.

Qualitative results

Regarding the questions asked about the duration of the course, 59% found that its duration was adequate, while 41% found it short. No one reported feeling that the course was too long. Regarding the duration of 90 minutes per session, 61% of the participants considered that 90 minutes is an adequate duration, while 39% shared that the sessions were short, and that they would have lengthened them slightly. No one reported finding the sessions too long.

At the end of each group intervention, participants were encouraged to respond to the two qualitative questions about the contents of the intervention. Practically all participants answered the qualitative questions. In the first phase, all the participants' responses were grouped together in one document. By consensus of the three researchers, duplicate responses or those expressing the same opinion with different words were eliminated, with the intention of keeping the minimum number of responses that would represent all opinions.

In the second phase, two of the researchers (XM & ST) analyzed all the remaining statements and categorized them based on the original definitions of the 6 hexaflex processes (Hayes, Strosahl, & Wilson, 1999). Finally, the results of the categorization were shared, and in the cases in which there was discrepancy, a third researcher (JM) intervened to reach a consensus on the categorization.

Figure 3 shows those answers classified based on the six core principles of the ACT hexaflex.

Discussion

The purpose of this study was to design and test the effectiveness of an ACT intervention, aimed at improving the dementia care workers' well-being. Our intervention was effective in reducing anxiety and emotional exhaustion, and increasing the life satisfaction and personal accomplishment of workers, implementing a coping style that is more adaptive to their particular jobs, and their personal difficulties in general.

Regarding our intervention design we chose to implement a novel and longer format in comparison with other ACT interventions because of its duration. Despite the proven effectiveness of the 2 +1 ACT format (Hayes, Bond, Barnes-Holmes, & Austin, 2012), which consists of three sessions (2 in consecutive weeks and a reminder session between one and three months later), we designed a six-

Table 3. Means at baseline and post intervention, 3-month and 12-month follow-up. Results of Intention to treat analysis, Cohen's d and Significance for comparisons with baseline, Significance of Simple Effects Test at Each Time Point, and Significance of Main and Interactive Effects.

CG n = 54 mean (SD)				|d|	p value	IG n = 51 mean (SD)		|d|	p value
AQQ-II Flexibility	Baseline	20.2	(7.7)			20.7	(8.0)		
Post-intervention		20.5	(8.4)	0.04	1.00	20.0	(7.5)	0.09	1.00
3-month follow-up		20.4	(8.2)	0.03	1.00	19.5	(5.9)	0.18	.339
12-month follow-up		19.8	(7.6)	0.05	1.00	18.8	(6.1)	0.27	.052
					Treatment group				.736
					Time				.047
					Treatment group × time				.230
SWLS Satisfaction	Baseline	24.0	(5.8)		23.3		(5.3)		
Post-intervention		23.9	(5.8)		0.01 1.00 27.0		(4.4)	0.77	<.001
3-month follow-up		23.8	(5.6)		0.03 1.00 26.1		(4.6)	0.57	<.001
12-month follow-up		24.0	(5.1)		0.01 1.00 25.4		(4.9)	0.42	.001
					Treatment group				.110
					Time				<.001
					Treatment group × time				<.001
MBI Emotional exhaustion	Baseline	18.4	(11.4)		17.9		(10.3)		
Post-intervention		19.1	(12.3)		0.06 1.00 14.1		(9.3)	0.38	.001
3-month follow-up		18.8	(12.1)		0.04 1.00 15.4		(8.7)	0.26	.048
12-month follow-up		18.2	(10.3)		0.02 1.00 16.4		(8.5)	0.15	.925
					Treatment group				.171
					Time				.073
					Treatment group × time				.003
MBI Depersonalization	Baseline	7.3	(4.6)		7.3		(4.7)		
Post-intervention		7.0	(5.1)		0.06 1.00 6.2		(4.7)	0.23	.205
3-month follow-up		7.4	(4.2)		0.02 1.00 6.5		(4.4)	0.17	.567
12-month follow-up		6.9	(3.8)		0.08 1.00 6.8		(4.1)	0.09	1.00
					Treatment group				.563
					Time				.118
					Treatment group × time				.255
MBI Personal accomplishment	Baseline	38.9	(6.9)		37.5		(7.7)		
Post-intervention		39.1	(6.7)		0.03 1.00 41.2		(4.4)	**0.59**	<.001
3-month follow-up		38.5	(6.3)		0.06 1.00 40.5		(4.5)	0.49	<.001
12-month follow-up		39.4	(6.1)		0.08 1.00 40.6		(4.7)	**0.50**	<.001
					Treatment group				.366
					Time				<.001
					Treatment group × time				<.001
STAI-T Anxiety-Trait	Baseline	19.7	(10.1)		21.0		(8.8)		
Post-intervention		19.9	(11.0)		0.02 1.00 18.0		(7.2)	0.36	<.001
3-month follow-up		20.0	(10.7)		0.02 1.00 17.8		(6.9)	0.40	<.001
12-month follow-up		20.0	(9.1)		0.03 1.00 17.9		(6.7)	0.40	.001
					Treatment group				.461
					Time				.005
					Treatment group × time				.001

CG: Control Group. IG: Intervention Group. SD: Standard Deviation.

session program (one per week) of 1.5 hours each. We consider it novel because we have not found precedents of an ACT intervention with said structure and directed at healthcare workers who are in contact with patients affected by dementia. The fact that our intervention was longer than the programs of similar studies could have increased the likelihood of attrition given that the intervention was carried out outside of working hours and attendance was voluntary.

The reason for our design was born from the desire to find a formula that would help maintain therapeutic results beyond 12 months post-intervention, finding a similar structure from Mindfulness-Based Stress reduction programs (Ducar, Penberthy, Schorling, Leavell, & Calland, 2020), and preserving the ACT philosophy of the six core processes of the hexaflex (Hayes et al., 1999). In our opinion, implementing a 6-week intervention could offer a scenario that would allow participants enough time to integrate and practice the knowledge acquired through the exercises between sessions. Instead of offering a wide range of knowledge in a single day, it was agreed to ration the different ACT processes in small doses of experience and implement them individually between sessions, acquiring small personal challenges to share later in the sessions.

Despite our intervention being longer than the 2 +1 format (Lloyd, Bond, & Flaxman, 2013), the

participants assessed it as suitable and even short. The authors attribute this assessment to the fact that the sessions were designed in such a way that they greatly encouraged participation and allowed for a space to share personal advances among attendees, which was very reinforcing.

However, it should be mentioned that 13.7% of the participants only attended 4 sessions. This fact could compromise the interpretation of the effects of the intervention on those participants. One explanation for this lack of attendance could be the fact that the sessions were held outside of working hours and the participants were not required to attend. Furthermore, the cause of nonattendance was not collected, and this is an important limitation of the study that should be considered in future investigations.

As far as outcome results, it was surprising that unlike what happened in similar studies (Blanco et al., 2017), we did not find statistically favorable results in the main variable associated with therapeutic success in ACT intervention, psychological flexibility. In the post-intervention analysis, no significant differences were found between the intervention group and the control group. Nevertheless, in the subsequent analyses a slowly progressive increase in psychological flexibility was observed in the intervention group, reaching almost statistical significance at the 12-month follow-up. Moreover, the qualitative examination of the course assessments by the participants showed responses that reflected crucial aspects of psychological flexibility. In the responses of the subjects of the intervention group, attitudinal or behavioral changes were observed that they themselves attributed to the course and that qualitatively could be considered as an increase in their psychological flexibility. As seen in Figure 2, these responses reflected different psychological flexibility aspects of the hexaflex (Hayes et al., 2012). We used the AAQ-II to measure the psychological flexibility. The AAQ-II presents seven general statements (I am afraid of my feelings, worries get in the way of my success, ...) where the subject has to indicate how true the statement is in a multiple-choice scale. Perhaps, if we had used a more specific instrument to measure the psychological flexibility associated with the workplace (Ruiz et al., 2013) or the experiential avoidance as a caregiver (Losada, Márquez-González, Romero-Moreno, & López, 2014), the results would have been more favorable. When designing the research plan, the possibility of assessing process measures (Hayes et al., 2006) like cognitive fusion, a cognitive component of psychological flexibility, was considered. Ultimately, it was decided that this evaluation should not be added in order to reduce the burden on participants.

On the other hand, regarding the variables of Anxiety and Emotional Exhaustion, the intervention was clearly effective, since the levels of anxiety and exhaustion decreased significantly. In this sense, our results support the data obtained in similar interventions based on ACT, whether they are applied to informal caregivers (Collins & Kishita, 2018), or to healthcare professionals working with potentially aggressive populations (Blanco et al., 2017; Clarke et al., 2015; McConachie et al., 2014). Furthermore, in our case the results remained significant at 3 and 12 months of follow-up. With regard to levels of personal accomplishment and life satisfaction, we also obtained favorable results, observing a significant increase in both variables, both after the intervention and after 3 and 12 months of follow-up. These results suggest that our intervention not only helped participants reduce their anxiety levels but also connect with their values through actions committed to both their work and to certain aspects of their personal lives, this being a fundamental and defining aspect of Acceptance and Commitment Therapy (Hayes et al., 1999).

Despite there currently being many training programs to prevent burnout in dementia care workers, most of them are focused on helping to detect, anticipate and manage the BPSD (Kitwood, 1997), to improve communication style with the patient (Bourgeois, Dijkstra, Burgio, & Allen, 2004), as well as to increase the perception of efficacy in the workplace (Barbosa, Nolan, Sousa, Marques, & Figueiredo, 2016; Elliott et al., 2016), but few of them have had the main objective of increasing the emotional well-being of workers. Our study is the first to use ACT to prevent burnout in dementia care workers. However, the results should be interpreted with caution due to the significant limitations of the study.

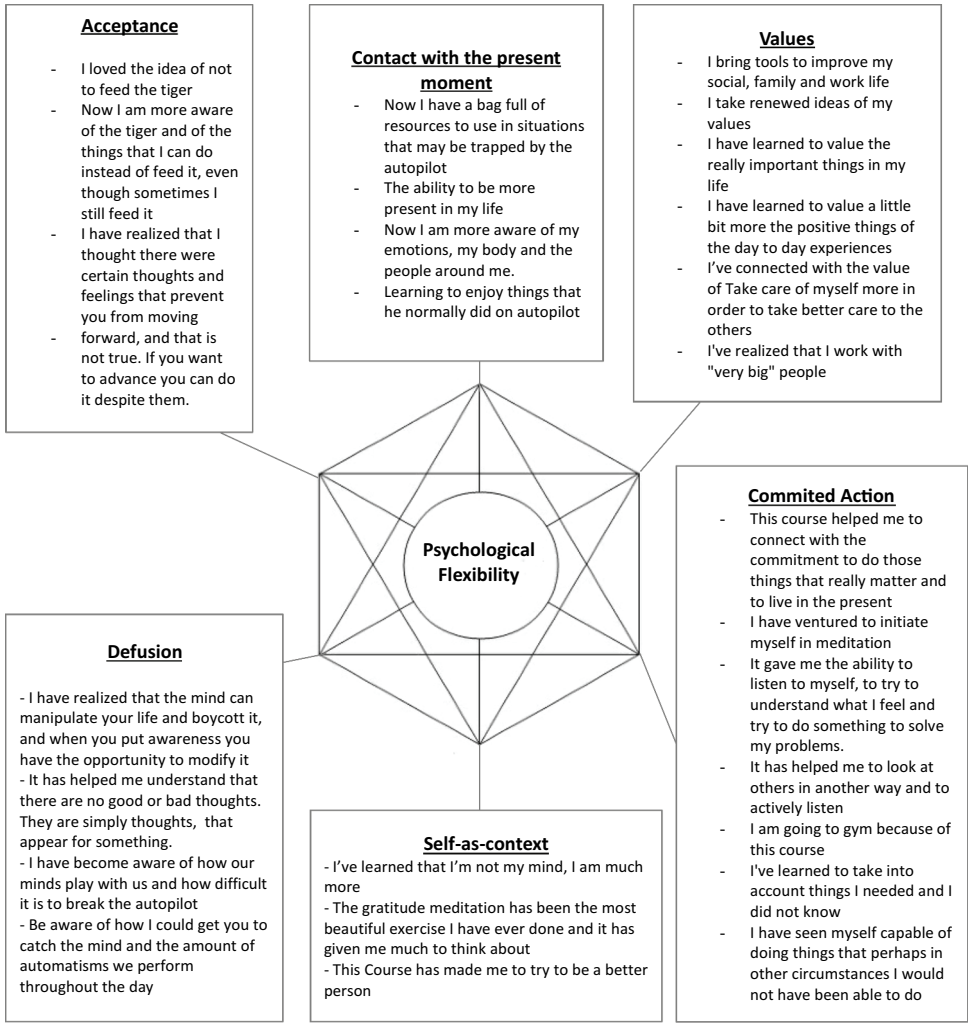

Figure 3. Qualitative assessments of the participants about the usefulness of the course. The answers are categorized based on the different domains of the ACT Hexaflex.

One of the main limitations was that the fulfillment of the tasks (homework) was not systematically recorded, and for that reason a differential analysis of the importance of this variable could not be made when explaining the changes observed in the intervention group. In future research, it would be interesting to consider this aspect and assess the extent to which the completion of the tasks between sessions is decisive to explain the results observed in our research.

Another important limitation was the fact that the interventions were delivered by only one psychologist. Having at least one other instructor would have significantly increased the generalization of the results. In addition, the psychologist who delivered the interventions was a colleague of the participants. This fact facilitated the dynamization of the groups and the rapid creation of a climate of trust, but it also was a bias at the time of assessing the intervention form and duration. On the other hand, since very sensitive and intimate topics were discussed in the intervention group, perhaps some participants felt it was difficult to open up to someone they knew. In addition, the low levels of reliability of the MBI depersonalization subscale could compromise some of the results obtained. Perhaps the familiarity with the trainer could have biased the participant responses, leading them to under-score on the depersonalization scale in order to not show themselves as insensitive or bad workers. Further studies are needed to support these preliminary results and to examine the effects ACT interventions on dementia care workers' burnout and well-being.

Finally, it would have been interesting to collect data about the emotional well-being and health of patients with dementia before and after the intervention to determine to what extent the healthcare workers ACT intervention improves the quality of care. In this sense, the emotional well-being of the workers could improve communication with patients and the assistance provided to them, having an impact on their health and their emotions. This is a critical issue that future research should address.

Clinical implications

- ACT interventions may be appropriate for preventing dementia care workers' Burnout, reducing anxiety and emotional exhaustion.
- ACT interventions may increase the life satisfaction and personal accomplishment of dementia care workers.

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