

# Effect of support groups on caregiver's quality of life

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## Abstract

The objective of this study was to evaluate the effect that participating in support groups for caregivers has on the quality of life and psychotropic drug use of family caregivers of adults with limitations in activities of daily living. A controlled quasi-experimental longitudinal design was used with 134 caregivers (64 in the experimental group and 70 in the control group). The outcomes were health-related quality of life (EuroQol 5D3L test) and psychotropic drug use (no/yes). The analyses were performed using SPSS and R statistical software. An interaction was observed between the condition and the level of limitations in activities of daily living of the care receiver, having an effect on the caregiver's psychotropic drug use ( $p = 0.003$ ), with this use being lower among caregivers who attend support groups when their relatives present fewer limitations in activities of daily living. Moreover, the quality of life was higher in the post-test in the experimental group ( $B = 8.66, p = 0.015$ ). In conclusion, support groups could improve the caregiver's quality of life and decrease psychotropic drug use when the care receiver has low limitations in activities of daily living.

## KEYWORDS

Anxiety, Family caregiver, Quality of life, Psychotropic drug use, Support group

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## INTRODUCTION

Aging—as well as disabling diseases such as dementia, Parkinson's disease, cardiovascular pathologies, mental disorders, or addictions—increases the need for family care (Pihet et al., 2017; WHS 2020) to provide medication, emotional support, or whatever suits the signs and symptoms and allows to observe the evolution of a disease (Lima-Rodríguez et al., 2015).

Good family care reduces the risk of a patient being hospitalized or the need for emergency services. Moreover, it reduces family anxiety when it is paired with family-centered care and support for the family caregiver (Deek et al., 2016).

However, family caregivers usually suffer from unsatisfied needs related to diet, physical exercise, or leisure time (Tatangelo et al., 2018), together with a feeling of guilt. Full dedication to providing care can affect caregivers' health and quality of life, especially when there is only one person who takes on the caregiver role (Sandstedt et al., 2018; Ullgren et al., 2018). Caregivers are even more prone than the rest of the population to developing anxiety and/or depression symptoms and sleep disorders (Carod-Artal et al., 2013; Dahlrup et al., 2015; Jamani et al., 2018; Morimoto et al., 2003) and to using psychotropic drugs such as antidepressants and anxiolytics (Camargos et al., 2012; Sallim et al., 2015). A meta-analysis on the prevalence of mental health disorders among caregivers of people with Alzheimer's disease showed a prevalence of depression of 34.0% (2.51 times more likely in spouse caregivers), anxiety of 43.6%, and psychotropic drug use of 27.2% (Sallim et al., 2015). Moreover, previous studies showed the relationship between psychotropic drug use and the caregiver burden (Treichel et al., 2020), as well as the lack of social support (Camargos et al., 2012; Colell et al., 2014; Mateo et al., 1997; Pérez et al., 2009).

Support groups (SGs) are an example of social care provided to caregivers. SGs are made up of people who share a common problem, and they gather voluntarily and freely in order to cope with and overcome their situation through personal and/or social changes (Ahmadi, 2018). In 1994, Monking (1994) showed that attending SGs reduces the burden and physical complaints of those who care for people with mental health disorders. Other authors found that different types of caregiver SGs—especially for people with Alzheimer's and other dementias—had positive effects on psychological well-being, depression, burden, and social support (Chien et al., 2011; Guay et al., 2017), as well as on self-efficacy and quality of life (Parker-Oliver et al., 2017), although the effects on the latter were not conclusive (Cheng & Zhang, 2020). Regarding psychotropic drug use, previous authors stated that SGs could help to reduce drug prescription (Hunot et al., 2007; Pfeiffer et al., 2011).

The integration of psychosocial processes, such as the exchange of emotions and feelings, experiences and information, as well as peer learning, could translate into the benefits mentioned. SGs help caregivers to express repressed emotions, which gives them a sense of relief and protection. The exchange of experiences allows to validate these experiences and produces the feeling of having something in common, but also a feeling of autonomy in caring. In this exchange, there is open discussion, information, and advice. Regarding the information, this involves anything related to community resources and coping and problem-solving strategies. Being part of a new group allows people to increase their social network, reducing feelings of loneliness and promoting continuity of care (Bernabéu-Álvarez et al., 2020; Cipolletta et al., 2019; Toseland et al., 1990; Trail et al., 2020). When the SGs are led by professionals, the caregivers can learn new skills for behavioral change, identifying barriers, and problem-solving (Domínguez Orozco, 2012; Guay et al., 2017).

We decided to carry out this study because we did not find any studies that assessed the effect of SGs on caregivers' psychotropic drug use, and neither did we find any controlled experimental or quasi-experimental studies in our field that evaluate the effect of SGs on caregivers' quality of life. We started from the hypothesis that support groups have a positive impact on

health-related quality of life and reduce the psychotropic drug use of caregivers of people with limitations in activities of daily living, compared to those who do not participate in SGs.

## METHOD

### Study design

We used a quasi-experimental longitudinal design with an experimental group (EG) and a control group (CG) and took measurements at the beginning of the study and 6 months after. CONSORT guidelines (Montgomery et al., 2018) were followed. The data collection process was carried out between January and September 2016 in Primary Health Care areas in Seville, Huelva, and Cadiz (Spain).

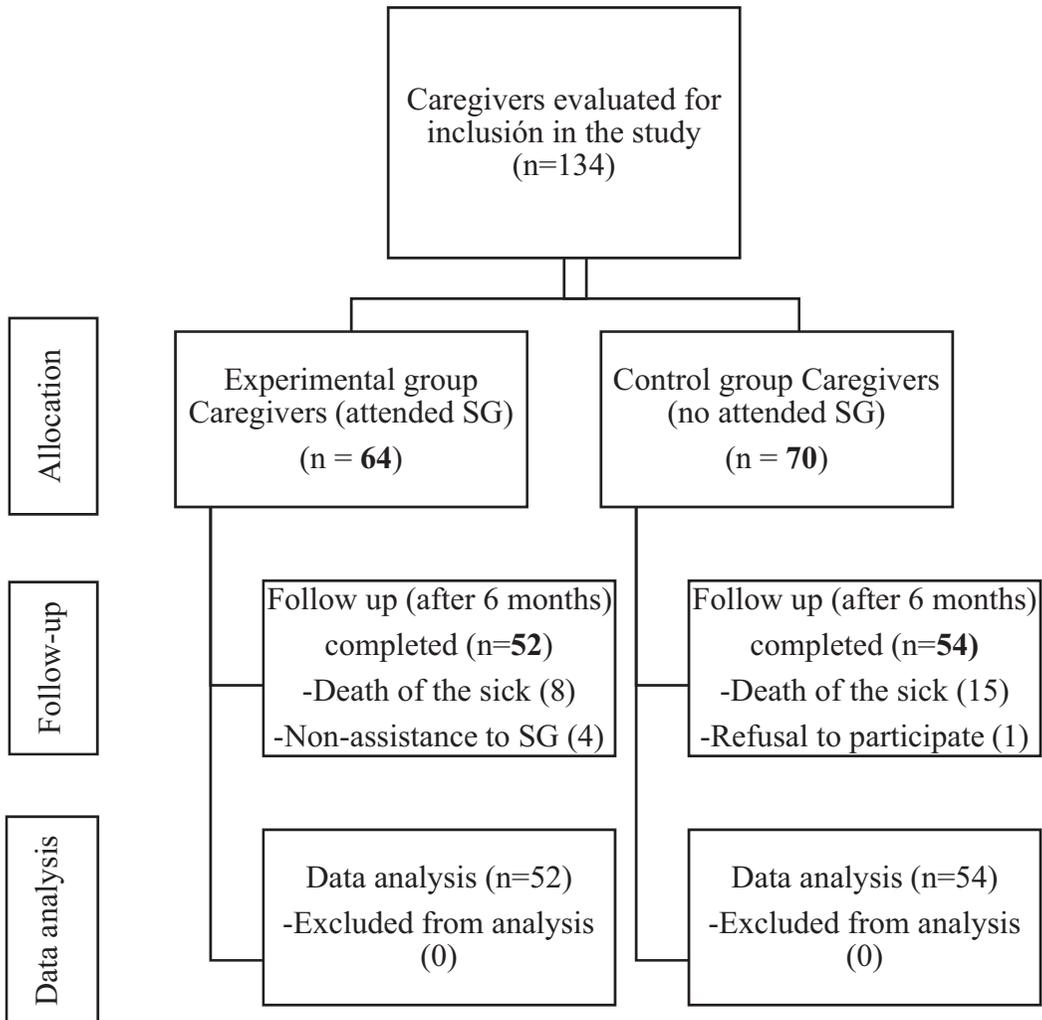
### Population and sample

The study population were caregivers of adult people with limitations in activities of daily living (people who need help to carry out certain basic activities of daily living at least once a day, every day [Ministry of equality and social policies, 2016]).

A sample size of 51 participants was estimated for each group (experimental and control groups) in order to perform a one-tailed comparison of the averages between two independent groups (*t*-test), with an alpha error of 5%, a power of 80%, and a mean effect size ( $d = 0.5$ ), taking into account a drop-out rate of 40% (Berger-Höger et al., 2019; Walters, 2004). The program G\*Power 3.1.7. was used. Finally, in the pre-test, there were 134 caregivers, 64 in the EG (47.8%), and 70 in the CG (52.2%). The caregivers were selected through intentional sampling, and they were stratified by geographical area, with 47.8% living in urban areas and 52.2% living in rural areas. In the post-test, the attrition rate was 20.9%, with reasons being the death of the relative, discontinued attendance at the SGs (in the EG), and refusal to continue participating in the study (Figure 1, Table 1).

The participants in the EG must have been taking part in support groups for less than a year and attending at least 60% of the sessions. Ten SGs for caregivers were recruited, two for caregivers of people with Alzheimer's, one of people with epilepsy, two of people with addictions, one of people with Parkinson's disease, one of people with mental disorders, and three of people with limitations in activities of daily living without a specific pathology. The SGs were led by professionals, consisting of psychologists (5), nurses (3), and social workers (1), except two SGs that were led by the caregivers themselves. The number of participants ranged between 4 and 15. The frequency of meetings was biweekly for half of the groups and weekly for the other half. The duration of sessions oscillated between one hour and a half, and two hours. They were open groups that participants could join or leave without a session limit established over time. Among the support techniques used were free expression of emotions, offering of mutual support, identification of stressful situations and behaviors that could be changed, knowledge of what the illness entails, and acquisition of empowerment tools. Resources such as specific literature, music, relaxation techniques, laughter therapy, or professional support could be used.

To avoid selection bias whenever it was possible, the participants in the CG were selected from the same geographical area, and we tried to make it so that the relative of the caregiver in the CG had a similar pathology to that of the caregiver in the EG. However, it was difficult to match both groups, mainly due to difficulties of finding similar caregivers or because some caregivers declined to participate in the study. As a consequence, there were differences in



**FIGURE 1** Flow diagram for the sample differences between pre-test and post-test *Note.* Flow diagram for the sample differences between pre-test and post-test (after 6 months; eligibility, allocation, follow-up, data analysis) as specified in the Consort Statement (Moher et al., 2005)

some characteristics of the caregivers, as well as in the limitations in activities of daily living of the relatives of both groups (Table 1).

## Measurement

The independent variable was the caregivers' attendance/non-attendance at the SGs. The dependent variables were the health-related quality of life, measured through EuroQol-5D, and the use of psychotropic drugs. These variables were measured at the beginning of the study and 6 months after.

EuroQol-5D-3L (Brooks, 1996; Herdman et al., 2001) comprises five health dimensions (mobility, self-care, activity, pain/discomfort, and anxiety/depression), and each one of them has three levels of severity, which are no problems, some or moderate problems, and serious problems. The second part of EQ-5D-3L is the overall quality of life index, a 20-centimeter vertical

**TABLE 1** Baseline characteristics of participants by condition

Variable	Total	Experimental group	Control group	Baseline difference	<i>p</i>
Age (25–80)	58.43 (11.95)	59.19 (13.51)	57.73 (10.38)	0.496 <sup>c</sup>	0.482
Relationship					
Parents	16 (11.9%)	8 (12.5%)	8 (11.4%)	21.160 <sup>a</sup>	0.001
Spouse	45 (33.6%)	33 (51.6%)	12 (17.1%)		
Son/daughter	55 (41%)	15 (23.4%)	40 (57.1%)		
Other	18 (13.4%)	8 (12.5%)	10 (14.3%)		
Educational level					
Without studies or Primary education	41 (30.6%)	20 (31.3%)	21 (30%)	5.584 <sup>a</sup>	0.134
Compulsory secondary education	35 (26.1%)	12 (18.8%)	23 (32.9%)		
Baccalaureate/ Vocational training	37 (27.6%)	18 (28.1%)	19 (27.1%)		
University studies	21 (15.7%)	14 (21.9%)	7 (10%)		
Gender					
Male	25 (18.7%)	19 (29.7%)	6 (8.6%)	9.823 <sup>a</sup>	0.002
Female	109 (81.3%)	45 (70.3%)	64 (91.4%)		
Area					
Urban	64 (47.8%)	41 (64.1%)	23 (32.9%)	13.049 <sup>a</sup>	0.001
Rural	70 (52.2%)	23 (35.9%)	47 (67.1%)		
Years caring	10.01 (10.24)	12.16 (12.7)	8.06 (6.83)	2029 <sup>b</sup>	0.346
Daily hours caring	19.35 (6.63)	18.69 (7.05)	19.96 (6.2)	2001 <sup>b</sup>	0.232
Ill's dependence level ( <i>Barthel test</i> )					
Totally	39 (29.1%)	7 (10.9%)	32 (45.7%)	28.661 <sup>a</sup>	0.000
High	43 (32.1%)	19 (29.7%)	24 (34.3%)		
Partially	27 (20.1%)	18 (28.1%)	9 (12.9%)		
Minimally	8 (6.0%)	7 (10.9%)	1 (1.4%)		
Independent	17 (12.7%)	13 (20.3%)	4 (5.7%)		
Social support ( <i>MOS test</i> )					
Good	103 (76.9%)	42 (65.6%)	61 (87.1%)	8.705 <sup>a</sup>	0.003
Bad	31 (23.1%)	22 (34.4%)	9 (12.9%)		
Likelihood of illness ( <i>The Social Readjustment Rating Scale</i> )					
Low	73 (54.5%)	34 (53.1%)	39 (55.7%)	7.663 <sup>a</sup>	0.022
Intermediate	46 (34.3%)	18 (28.1%)	28 (40%)		
High	15 (11.2%)	12 (18.8%)	3 (4.3%)		
Caregiver's relative illness					
Neurological disease	22 (16.4%)	12 (18.8%)	10 (14.3%)	53,719 <sup>a</sup>	0.000
Dementias	30 (22.4%)	22 (34.4%)	8 (11.4%)		
Pluripathology	53 (39.6%)	7 (10.9%)	46 (65.7%)		
Mental or addictions	24 (17.9%)	22 (34.4%)	2 (2.9%)		
Cancer or palliative	5 (3.7%)	1 (1.5%)	4 (5.7%)		

Note: m (SD) = missing values per variable.

<sup>a</sup> $\chi^2$  = chi-square.

<sup>b</sup>*U* = Mann–Whitney test.

<sup>c</sup>ANOVA.

visual analogue scale measured in millimeters. It ranges from 0 (worst imaginable health status) to 100 (best imaginable health status).

The use of psychotropic drugs was measured in daily doses, and participants were asked how many psychotropic drugs they consumed per day in order to relax, to improve their mood, to reduce anxiety, or to fall asleep, using as examples lorazepam, alprazolam, fluoxetine, escitalopram, or diazepam. Later, answers were transformed into a qualitative variable (“Yes”/“No”), given the heterogeneity in the daily doses.

In addition, characteristics of the caregivers were measured as confounders and consisted of gender, age in years, relationship with the person with limitations in activities of daily living (parent, spouse, son/daughter, other), time dedicated to caregiving (measured in hours of the day), years dedicated to caregiving, educational level (no studies or just primary education [similar to grades 1–6 in the United States], compulsory secondary education [similar to grades 7–10], secondary school or professional training [grades 10–12], and university studies) and area of residence (urban vs. rural, considered rural if the population totaled 30,000 or less), social support measured through the MOS scale (Londoño et al., 2012), and stressful life events measured through the Holmes and Rahe Stress Scale (Holmes & Rahe, 1967; Tescari Quiñones & Poveda De Agustín, 2012).

The MOS Social Support Scale measures the quantity (overall social support) and the quality of social support based on nineteen items with five answer options that explore the following domains of social support: emotional/informational support, tangible support, affective support, and positive social interactions. The minimum score is 19, and the maximum is 94. The higher the score, the better the person perceived their social support (Londoño et al., 2012). Cronbach's alpha value for this study was  $\alpha = 0.94$ . We use the cut-off point of 57 to differentiate good support from bad support.

The Stress Scale consists of forty-three items that reflect different stressful life events which are given specific scores. The final impact is obtained by adding the score of the different events that the person suffered in the last year. The risk of getting sick can be considered low risk (<150 points), moderate risk (between 150 and 300 points), and high risk (more than 300 points). Cronbach's alpha value for this study was  $\alpha = 0.67$ .

Furthermore, the level of limitations in activities of daily living of the caregiver's relative was measured using the Barthel Index that assesses performance in different activities of daily living (bathing, grooming, dressing, feeding, toilet use, mobility, climbing stairs, and bowel/bladder control). The range varies between 0 (greater limitations in activities of daily living) and 100 points (fewer limitations in activities of daily living), with 5 cut-off points: total limitation (0–20), high limitation (21–60), partial limitation (61–90), minimal limitation (91–99), and no limitation (100 points; Mahoney & Barthel, 1965). This questionnaire showed Cronbach's alpha index of 0.943.

## Procedure

The recruitment for the EG was carried out through the people responsible for/moderators of the SGs. They were found through key informants from the health services or the university and through association finders (Lafuente-Robles, 2015). We contacted the person in charge of the SG via e-mail and telephone, and we presented the study to them. The participants in the CG were recruited through family nurses who work in the health centers from the geographical areas in which the participants of the EG were recruited.

Data collection was carried out in primary care centers or in the homes of the participants (CG) and in the places where the participants of the EG meet. The questionnaires were hetero administered to avoid information loss (Haneuse, 2016; Pannucci & Wilkins, 2010).

## Statistical analysis

For the descriptive analysis of the data, frequencies and percentages were used for qualitative variables, while means and standard deviations were used for quantitative variables. In the bivariate analysis, to check the differences between the CG and EG in the pre-test and post-test, as well as the difference between those who remained and those who dropped out, Pearson's chi-squared test was used for qualitative variables, and the  $F$  test (or its non-parametric alternatives, the Mann–Whitney's  $U$ -test, and the Kruskal–Wallis test) was used for quantitative variables. In order to check the difference between the pre-test and the post-test in the outcome variables (health-related quality of life and psychotropic drug use dimensions), we used the McNemar test; and the Wilcoxon test was used for the overall quality of life index.

Finally, in order to determine those variables associated with the caregiver's health-related quality of life (overall quality of life index) and the use of psychotropic drugs, multivariate analyses were carried out using linear regression models and binary logistic models, respectively. At the beginning, the models included all the possible confounders, as well as their interactions with the intervention. Later, for the selection of the final model, the analysis was done based on the theory and statistic criteria. Thus, the non-significant interactions ( $p > 0.05$ ) were removed from the model, and the confounders that achieved at least one of the following criteria were maintained:  $p < 0.10$ , or that they produced a sufficiently large change (of 20% or greater) in the magnitude of the  $\beta$  coefficient of the other independent variables that remained in the model (Hosmer & Lemeshow, 2000; Katz, 2006; Vetter & Mascha, 2017).

The SPSS PASW Statistics 18.0 and R and Rcommander 3.5.2 software were used for the analyses. The null hypothesis with risk error of 5% was rejected (Field & Babbie, 2011).

## RESULTS

### Comparison of baseline data

The initial sample consisted of 134 caregivers with an average age of 58.43 years (SD 11.95), the majority of them being women (CG [91.4%] vs. EG [70.3%];  $p = 0.002$ ). The caregivers were mainly spouses or sons/daughters (with a significant difference between EG and CG;  $p = 0.001$ ) who had been caring for their relative for around 10 years, dedicating an average time of 19.35 h a day to caregiving (SD 6.63). Almost a third of them had a low level of education (lower than secondary education), without significant differences between the EG and the CG. 64.1% of participants in the EG lived in an urban area versus 32.9% in the CG ( $p = 0.001$ ). Most of them had good social support (CG = 87.1% vs. EG = 65.6%,  $p = 0.003$ ). Most of the caregivers' relatives had high limitations in activities of daily living (32.1%), with a statistical difference between CG and EG in the average of the Barthel test (33.86 [SD 30.99] vs. 65.62 [SD 31.58];  $p < 0.001$ , respectively). The average impact of stressful life events was of 153.3 points (SD 115.1). According to the measurement of stressful life events, the risk of getting ill was higher for the caregivers in the EG (18.8%) than those in the CG (4.3%,  $p = 0.022$ ).

### Attrition

When comparing those who remained and those who dropped out, both in the bivariate analysis and through binary logistic regression, only the level of limitations in the activities of daily living of the caregiver's relative and the area of residence were correlated, with the latter being marginally correlated. The fewer the limitations in activities of daily living of the caregiver's

relative, the higher the probability of the caregiver remaining in the study (OR 1.02,  $p = 0.011$ ). The caregivers who lived in urban areas dropped out of the study more frequently than those who lived in rural areas (OR 0.45,  $p = 0.076$ ; Table S1).

## Psychotropic drug use

Around 38% of the sample consumed psychotropic drugs at the beginning of the study (34.4% in the EG and 41.4% in the CG). After 6 months, the EG reduced the consumption to 30.8%, while the consumption increased up to 46.3% in the CG, even though the differences were not statistically significant (Table S2). Regarding the daily dose, in the pre-test, the mean was 0.49 (SD 0.87) in the EG and 0.65 (SD 0.97) in the CG; in the post-test, it was 0.59 (SD 1.29) in the EG and 0.67 (SD 0.93) in the CG.

In the bivariate analysis, the use of psychotropic drugs correlated with gender (7.1% in men vs. 92.9% in women,  $p = 0.008$ ), average age (56.11 [SD 11.91] in non-consumers vs. 62.05 [SD 10.42] in consumers,  $p = 0.010$ ), and the average number of years spent caregiving (8.69 [SD 8.59] in non-consumers vs. 13.90 [SD 13.67] years of caregiving in consumers,  $p = 0.036$ ). Thus, the consumption of psychotropic drugs was higher in women, the older the age and the greater the number of years they had spent providing care.

In the multivariate analysis for the outcome psychotropic drug use, a significant statistical interaction was found ( $p = 0.003$ ) between attending SGs and the level of limitations in activities of daily living of the caregiver's relative (Barthel test). This interaction revealed that belonging to the EG had a statistically significant positive effect on those caregivers whose relative showed lower limitations in activities of daily living. Furthermore, the use of psychotropic drugs was higher in women than in men (OR 8.95,  $p = 0.049$ ). Moreover, the caregiver's age (OR 1.07,  $p = 0.004$ ) and the number of years spent caregiving (OR 1.11,  $p = 0.008$ ) were positively associated with the use of psychotropic drugs and, marginally, with the level of limitations in the activities of daily living of the caregiver's relative (OR 1.02,  $p = 0.094$ )—that is, a higher score in the Barthel test (Table 2).

In Figure 2, the use of psychotropic drugs is compared in the post-test according to the condition (EG vs. CG) and the level of limitations in activities of daily living of the caregiver's relative. It was found that, below percentile 50—that is, with higher limitations in activities of daily living—the use of psychotropic drugs is higher in the EG versus in the CG (50% vs. 42%,  $X^2 = 0.312$  [ $p = 0.577$ ]). However, above percentile 50—lower limitations in activities of daily living—psychotropic drug use is lower in the EG versus in the CG (22.2% vs. 61.1%;  $X^2 = 7.958$  [ $p = 0.005$ ]), this association being statistically significant.

## Quality of life

Regarding the EQ-5D-3L's dimensions, the percentage of participants with anxiety problems was reduced in the EG (71.9% with problems in the pre-test and 50% with problems in the post-test,  $p = 0.031$ ), whereas in the CG, it remained stable (71.4% with problems in the pre-test and 74% in the post-test). Moreover, the difference in the post-test was also statistically significant and favorable to the EG ( $p = 0.001$ ). The post-test also highlights that 61.1% of the caregivers in the CG had extreme problems in the activity dimension, compared to 5.8% in the EG, the difference being significant ( $p = 0.001$ ). However, it is necessary to note that there were already differences in this dimension in the pre-test and, using the McNemar test with gathered data (problems vs. no problems in activity), no statistically significant difference was found between the pre-test and the post-test in both groups.

**TABLE 2** Multivariate regression model for dependent variable: psychotropic drugs

	Estimate	Std. error	<i>p</i>	OR	95% Confidence interval	
					Lower	Higher
Psychotropic drugs (pre-test) [T. Yes]	3.16	0.69	0.000	23.52	6.85	105.77
Attendance to SG [T. Yes]	1.91	1.23	0.119	6.79	0.60	82.31
Ill's dependence (Barthel test)	0.02	0.01	0.094	1.02	0.99	1.05
Gender [T. Female]	2.19	1.11	0.048	8.95	1.23	101.55
Age	0.07	0.03	0.040	1.07	1.01	1.14
Years caring	0.10	0.04	0.008	1.11	1.03	1.20
SG [T. Yes] by Ill's dependence	-0.07	0.02	0.003	0.93	0.89	0.97

Note:  $R^2 = 0.492$ . Adjusted  $R^2 = 0.455$ .  $F = 13.55$ .  $p = 0.000$ .

Regarding the EQ-5D-3L overall quality of life index, significant differences were found in the post-test, with a score of 71.35 (SD 15.6) in the EG versus 58.70 (SD 20.9) in the CG ( $p = 0.001$ ). Moreover, the index improved over time in the EG ( $p = 0.022$ ), while it worsened in the CG (not significant).

In the bivariate analysis, the EQ-5D-3L overall quality of life index also correlated with gender (75.24 [13.1] for men vs. 62.35 [19.96] for women,  $p = 0.004$ ), use of psychotropic drugs (69.1 [17.84] for non-consumers vs. 57.69 [20.19] for consumers,  $p = 0.005$ ), and the level of limitations in activities of daily living of the caregiver's relative (Rho Spearman = 0.210,  $p = 0.031$ ). Thus, the quality of life index was lower in caregivers who did not attend SGs, in women, in users of psychotropic drugs and in caregivers of adults with significant limitations in activities of daily living.

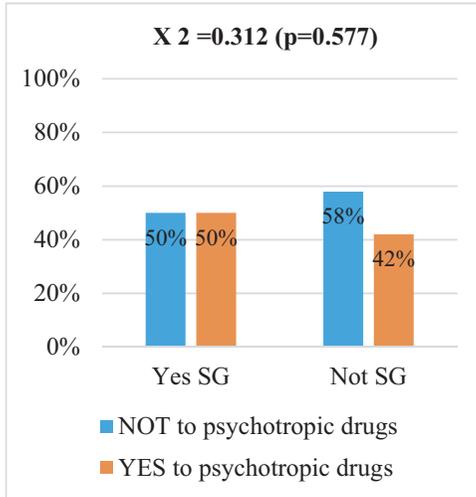
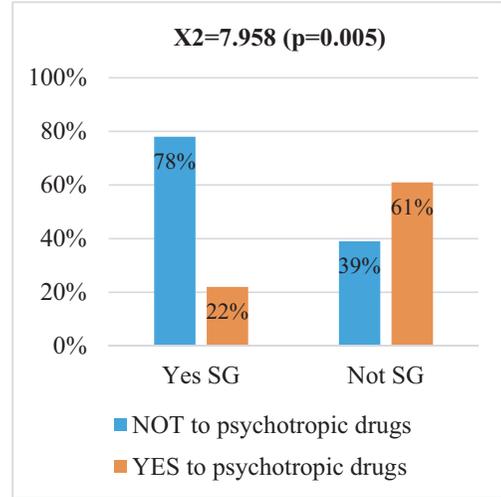
In the multivariate analysis (Table 3), a statistically significant effect of the caregivers' attendance at SGs on the EQ-5D-3L overall quality of life index was found, which was 8.66 points higher in the EG ( $p = 0.015$ ). Furthermore, regarding the relationship with the relative, parents obtained 11.49 points less than spouses on the EQ-5D-3L overall quality of life index ( $p = 0.032$ ). Similarly, sons and daughters had a lower score than spouses, but this association was not significant ( $p = 0.061$ ).

## DISCUSSION

The aim of this study was to find out the effect of attending caregivers' SGs on psychotropic drug use and on health-related quality of life, as well as to understand other sociodemographic variables associated with these outcomes.

Attendance at SGs seems to significantly influence the reduction of the use of psychotropic drugs among the caregivers when their relative has fewer limitations in activities of daily living. This interaction could be explained by the notion that the fewer the limitations in activities of daily living the relative has, the more the caregiver can attend the groups and benefit from them (Biegel et al., 2004; Ussher et al., 2008). Previous authors point to online support groups as a strategy to allow caregivers to attend the groups, as well as to provide the relative professional care while the family caregivers attend the SGs (Wynter et al., 2015).

It was found that psychotropic drug use was more common among women (almost 9 times more than men), and another associated factor was the number of years spent providing care. The European Monitoring Centre for Drugs and Drug Addiction indicates that Europe is the

*< 50 Percentile III's dependence level**> 50 Percentile III's dependence level*

**FIGURE 2** Psychotropic drug consumption by condition and level of dependence. *Note.* Psychotropic drug consumption by condition and level of dependence (percentile 50) of the patient measured with the Barthel test

**TABLE 3** Multivariate regression model for dependent variable: Quality of Life

	Estimate	Std. Error	<i>t</i> Value	<i>p</i>
Quality of Life (Pre-test)	0.46	0.08	5.69	0.000
Attendance to SG [T. Yes]	8.66	3.48	2.49	0.014
Relationship [T. Son/daughter]	-7.69	4.05	-1.89	0.061
Relationship [T. Other]	-4.42	5.75	-0.77	0.444
Relationship [T. Parents]	-11.49	5.27	-2.18	0.032

*Note:*  $R^2 = 0.351$ . Adjusted  $R^2 = 0.319$ .  $F = 10.82$ .  $p = 0.000$ .

territory with the highest average use of anxiolytics in the world and, within Europe, Spain is one of the countries where their use is more prevalent. According to the Spanish Drug Agency (2015), the use of psychotropic drugs has been increasing since 2000, and the National Health Survey (2017) showed that 4.8% of the population uses antidepressants and 10.7% uses anxiolytics or hypnotics—with women, housewives, unemployed people, and people with a low educational level being those who use psychotropic drugs to a greater extent (Secades et al., 2003). In Spain, we have not found any study that shows the prevalence of psychotropic drug use in caregivers; however, the study by Sallim et al. (2015) showed a higher consumption than in the general population. In this study, around 38% of the sample used psychotropic drugs at the beginning of the study, which is a higher percentage than what was found in the Spanish general population. George and Steffen (2014) studied the relationship between the self-efficacy of caregivers and their psychotropic drug use and found an inversely proportional correlation, which suggested the need to perform psychosocial interventions with caregivers to reduce this use.

Regarding caregivers' health-related quality of life, it was found to be higher in the EG—it increased in the EG while it significantly decreased in the CG, showing the effect of participating in SGs. Piersol et al. (2017) observed similar results in their systematic review of professional-led SGs for caregivers of people with Alzheimer's disease and other major

neurocognitive disorders. In contrast, a recent meta-review, in which reviews of SGs for caregivers of people with dementia were included, the results on the caregivers' quality of life were inconclusive (Cheng & Zhang, 2020).

In terms of the dimensions of caregivers' health-related quality of life, anxiety seems to benefit from caregiver SGs when compared EG and CG, because the percentage of caregivers with anxiety problems was significantly reduced in the EG, while it increased in the CG. Regarding activity, a difference was found between both groups in the post-test, with a higher percentage of participants without problems in the EG than in the CG—although there was already a difference in the pre-test. This could be related to the fact that, in the EG, the caregivers' relatives had fewer limitations in activities of daily living or that in the CG there were more women than men, who usually have more problems with activity (Biegel et al., 2004; Mendes et al., 2019; Stackfleth et al., 2012; Ussher et al., 2008). However, the percentage of extreme activity problems in the CG was 10 times higher than in the EG. In the post-test, figures for extreme problems in activity are around 10 points higher in the CG than in the EG, which could also be linked to attendance at the SGs. Previous authors highlighted that these groups also teach caregivers physical self-care (Bernabéu-Álvarez et al., 2020).

In addition to attendance at the SGs, another variable associated with the caregivers' health-related quality of life was the relationship with the adult with limitations in activities of daily living. Providing care for sons and/or daughters had negative associations, perhaps because of the complexity of having a dependent child (González et al., 2017; Sischo et al., 2017; Tseng et al., 2016).

Regarding the caregiver's profile, it is that of a woman who cares for her partner or parents and has a low educational level. This coincides with previous studies that suggest that most (approximately 65%) caregivers are heterosexual women who provide care for their parents or husbands (Lopez Hartmann et al., 2016; Reczek & Umberson, 2016), although other studies found a change in this trend, as men are becoming more and more involved with the care sector (Reinhard et al., 2008). Furthermore, among older couples, spouses are the first to provide care, which means they are at a higher risk of frailty (Potier et al., 2018). At a political level, caregiving is still viewed as a female job, but there is also growing concern that the availability of family caregiving may decrease due to the incorporation of women into the labor market. This could be alleviated through public policies that promote support to the caregiver by providing home care services (Bauer & Sousa-Poza, 2015). Other authors highlight the growing interest in virtual support groups (Mallya et al., 2020; Smith-Merry et al., 2019; Wright et al., 2010), especially during the current COVID-19 pandemic (Lauritzen et al., 2015; Porcel-Gálvez et al., 2020).

Regarding the processes that may have influenced the effects on the improvement of the quality of life and the reduction in psychotropic drug use, the SGs, through the exchange of knowledge, experiences, strengths, and skills, can facilitate the personal growth of their members, improve their problem-solving abilities, their self-efficacy, and their self-esteem, thus cushioning their anxiety or depression (Candy et al., 2011; Gräbel et al., 2010; Wang et al., 2012). Moreover, attending SGs is associated with greater social support (Christensen et al., 2019).

## Limitations and strengths

Given that this is a quasi-experimental study, we must point out the existence of selection bias and confusing factors, which makes it difficult to draw conclusions and generalize the results. The selection and allocation of participants were not random. In addition, we included caregivers of people with different health problems, including people with cognitive impairments or dementia, which increases the potential for selection bias, as the caregivers of these people may have unique needs. In the experimental group, the support groups were heterogeneous in terms of whether they were led by a professional or not, the frequency of

the meetings, the duration of the sessions, and the illness of the caregiver's relative. Although we tried to select caregivers with similar characteristics in the EG and the CG, significant differences were observed in the pre-test. Therefore, in the EG, almost 52% of the caregivers were spouses, while in the CG, 57% cared for one of their parents. In addition, 64% of the EG lived in urban areas, with this figure being 33% of the CG. Moreover, the level of limitations in activities of daily living was higher among caregivers' relatives in the CG than in the EG (Barthel test). These differences could influence the direction of the results. For instance, people that give care to their parents could have less quality of life than those that give care to their partners for two reasons; on the one hand, the role caring for a partner could be better socially accepted. On the other hand, a person that look after a parent could have less time because also takes care of other relatives, like his/her children or works outside home, which could influence negatively in the capacity of assisting to the SGs as well to the quality of life. To control this number of possible confounding variables, in the multivariate regression analysis, a combination of a theoretical and statistical approaches was used to mitigate the effect of the confounding factors both in psychotropic drug use and in health-related quality of life (overall index EQ-5D-3L). Initially, all the variables were included in the analysis as confounders; then, they were eliminated one by one when they did not modify the meaning of the results (the elimination was made based on the significance and the variation of the coefficients; Vetter & Mascha, 2017).

Finally, a significant source of bias is the complexity of considering psychotropic drug use as an outcome, due to the number of variables that can influence it. However, we decided to include this element because previous studies highlighted the high prevalence and impact of the use of psychotropic drugs on caregivers (George, & Steffen, 2014; Sallim et al., 2015). For all these reasons, we must be cautious with the interpretation of the results.

As strengths, we highlight that our findings are based on a multicenter quasi-experimental study which focuses on important outcomes related to the health of caregivers, and it could reveal the effect of support groups for caregivers of people with limitations in activities of daily living, regardless of their pathology. Furthermore, we have not found any previous study that both assesses the effect of SGs on caregivers' psychotropic drug use, or the factors associated with it, and uses a longitudinal design.

## CONCLUSIONS

Support groups could improve caregivers' health-related quality of life, especially in the anxiety dimension. They can also help to reduce psychotropic drug use among caregivers whose relatives have low limitations in activities of daily living. The implementation of these groups must be promoted in public health services, and there must be contributions to their development and autonomous maintenance over time. There need to be more studies that use more homogeneous groups and randomized clinical trial designs, as well as those that further explore the potential of technology-based SGs.

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## ETHICAL APPROVAL

All the participants gave written informed consent. The study was approved by the Andalusian Biomedical Research Ethics Committee.

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## SUPPORTING INFORMATION

Additional supporting information may be found online in the Supporting Information section.

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