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# Supporting partners of people with aphasia in relationships and conversation (SPPARC)–the impact of the aphasia family support program on relatives of individuals with aphasia : a study from Türkiye

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## Abstract

**Aims** This study aimed to translate the SPPARC family program, which was prepared for the relatives and loved ones of individuals with aphasia, into Turkish and to investigate its effects on the psychosocial status of the families.

**Methods** This study was conducted with 40 participants (28 female, 12 male, mean age  $42 \pm 7.82$  years, range 20–65 years). Participants were over 18 years old, lived in the same household as the individual with aphasia or played an active caregiving role, were native Turkish speakers, and had technology literacy. Participants were allocated into two groups: experimental and control. Outcome measures included the Depression Anxiety Stress Scale (DASS), the Caregiver Burden Scale (CBS), and the World Health Organization Quality of Life Scale (WHOQOL-BREF). The significance level was set at  $p < .05$ .

**Results** Pre-test scores did not differ significantly between groups. Post-program analyses indicated that participants in the experimental group showed significant reductions in depression, anxiety, and stress compared to pre-test scores, while the control group showed no improvements. Between-group analyses also favored the experimental group for DASS total, depression, anxiety, and CBS scores (all  $p < .05$ ).

**Conclusion** The Turkish adaptation of the Aphasia Family Support Programme (Phase 1 of SPPARC) may have positive effects on psychological well-being and caregiver burden.

**Keywords** Aphasia, Family support programme, Depression, Anxiety, Stress, Caregiver

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## Introduction

Stroke, as defined by the World Health Organization, is a clinical condition characterized by the sudden onset of focal cerebral dysfunction due to vascular causes [1, 2]. Aphasia, which often develops after stroke, results from cortical or subcortical damage to the left hemisphere and leads to impairments in comprehension, expression, reading, and writing [3]. This sudden condition affects not only individuals with aphasia but also their families, who face emotional, psychological, and social challenges.

Previous studies have shown that family members of people with aphasia experience caregiver burden, role confusion, and reduced quality of life [4]. They also report increased stress, depression, and anxiety [5]. Support programs can provide education, coping strategies, and social support, which are essential for families [6, 7].

The Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC) program is a structured intervention designed to support both communication and psychosocial needs of individuals with aphasia and their families. The program focuses on providing education, psychosocial support, and communication-related strategies for family members, aiming to improve interaction and reduce caregiver burden [8].

Although family support programs have been reported to have positive effects on caregivers of individuals with aphasia [6–8], their implementation in different cultural contexts remains limited. Given its structured approach and focus on both psychosocial support and communication strategies, SPPARC was considered an appropriate intervention for adaptation in the Turkish context. In particular, there is no study examining the applicability of the SPPARC program in Turkish populations or evaluating its effects on caregiver-related psychosocial outcomes.

Therefore, this study aimed to translate and adapt Phase 1 of the SPPARC program into Turkish and to investigate its effects on psychological well-being, caregiver burden, and quality of life among relatives of individuals with aphasia. It was hypothesized that participants in the intervention group would show greater improvements in psychological well-being and caregiver burden compared to the control group.

## Methods

This study was carried out at the Language and Speech Therapy Department of the Graduate Education Institute of Anadolu University. The study was conducted following the principles of the Helsinki Declaration and the Good Clinical Practice guidelines. It was approved by the Ethics Committee of Anadolu University (Ethics Committee no: 61070–16.10.2020). All participants involved in the study were provided with information about the research, and informed consent was obtained from all

subjects. This study was designed as a quasi-experimental study.

Participants were recruited from rehabilitation centers and university clinics. Inclusion criteria were: age  $\geq 18$ , living with or actively caring for a person with aphasia, native Turkish speaker, and technology literacy. Exclusion criteria included severe psychiatric or neurological conditions. However, information regarding the use of medications for psychological conditions was not systematically recorded. Informed consent was obtained by trained researchers. Detailed clinical and sociodemographic variables such as education level, relationship to the individual with aphasia, aphasia severity, and comorbidities were not systematically recorded.

Forty participants who met the inclusion criteria were allocated into two groups according to their availability and willingness to attend the scheduled online program. The experimental group consisted of relatives who were able to participate in the SPPARC Family Support Program, whereas the control group included relatives who met the same inclusion criteria but could not attend the sessions because of scheduling or personal constraints. Therefore, random allocation was not performed. This allocation procedure reflects the practical conditions of the study but may have introduced selection bias, particularly because participants who were able to attend the program may have differed from controls in motivation, time availability, or readiness to engage in caregiver education.

Outcome measures were collected at baseline and immediately post-program by independent researchers who were not involved in program delivery. Measures included: *-Depression Anxiety Stress Scale (DASS-21)*.

- *Caregiver Burden Scale (CBS)*.
- *World Health Organization Quality of Life Scale (WHOQOL-BREF)*.

### Depression anxiety stress scale (DASS)

The Depression Anxiety Stress Scale (DASS) was developed by Lovibond and Lovibond [9] to assess individuals' levels of depression, anxiety, and stress. The Turkish adaptation of the scale was conducted by Akın and Çetin [10]. The DASS-21 consists of 21 items and uses a five-point Likert scale for evaluation. The validity and reliability study of the DASS-21 was carried out by Yılmaz et al. [11]. Each subscale (Depression, Anxiety, and Stress) has a possible score range of 7–35, with higher scores indicating more severe symptoms. According to the scoring criteria: For depression: 0–4 is considered normal, 5–6 mild, 7–10 moderate, 11–13 severe, and 14 and above indicate very severe depression. For anxiety: 0–3 is considered normal, 4–5 mild, 6–7 moderate, 8–9 severe, and 10 and above indicate the presence of severe anxiety. For

stress: 0–7 is considered normal, 8–9 mild, 10–12 moderate, 13–16 severe, and 17 and above indicate the presence of very severe stress.

#### Caregiver burden scale (CBS)

The Caregiver Burden Scale (CBS) is the Turkish adaptation of the Zarit Burden Interview, originally developed by Zarit et al. [12] to assess the difficulties experienced by caregivers of elderly individuals. The adaptation, validity, and reliability of the scale in Turkish were carried out by İnci [13]. The scale consists of 22 items and uses a five-point Likert-type evaluation. The possible scores range from a minimum of 0 to a maximum of 88. The scores are interpreted as follows: 0–20 indicates little or no burden, 21–40 indicates moderate burden, 41–60 indicates severe burden, and 61–88 indicates an extreme burden [14]. A higher score on the scale indicates a higher level of perceived burden.

#### World health organization quality of life scale-short form (WHOQOL-BREF)

The World Health Organization Quality of Life Scale (WHOQOL-BREF) was translated into Turkish by Eser et al. [15]. The short form consists of 26 items and uses a five-point Likert scale. It includes four domains related to quality of life: physical health, psychological well-being, social relationships, and environment. Additionally, it covers aspects of general quality of life and overall health. The possible scores range from a minimum of 26 to a maximum of 135, with lower scores indicating a higher level of perceived problems. The scores are categorized as follows: 26–49 is considered very poor, 50–69 poor, 70–99 good, and 100 and above very good [16].

#### Implementation of the aphasia family support program (AFASEP)

The Supporting Partners of People with Aphasia in Relationships and Conversation (SPPARC) is a structured intervention program designed to support the psychosocial and communication-related needs of individuals with aphasia and their families. The program consists of two phases: [1] a Family Support Program focusing on education and psychosocial support, and [2] Communicative Partner Training aimed at improving communication skills.

In the present study, only Phase 1 of the SPPARC program was implemented. Phase 2 was not included due to the constraints of online delivery and the need for interactive group-based sessions.

The SPPARC program was translated into Turkish by two independent bilingual experts. The translated version was reviewed for clarity and linguistic appropriateness, and minor modifications were made based on consensus. However, a formal cross-cultural validation process was not conducted within the scope of this study.

The SPPARC Family Support Program (Phase 1) was delivered online by certified speech-language therapists using a structured manual and standardized materials. Each participant received eight weekly sessions of 30 min. To accommodate all 40 participants within the 8-week period, sessions were scheduled in parallel.

The program was delivered using a predefined structure, and all sessions followed the same content framework. Session adherence was monitored through attendance tracking.

The experimental implementation process is described in Table 1. All participants in the experimental group completed the intervention, and no dropouts were observed.

In the family support program provided within the scope of the research, stroke, aphasia, types of aphasia, problems that may accompany aphasia, communication problems that aphasic individuals and their relatives may experience and solutions will be explained. Information was provided about institutions and educational opportunities that aphasic individuals or relatives of aphasic individuals can reach for help. The content of the Family Support Program is showed in Table 2.

#### Statistical analysis

Statistical analysis was conducted using the SPSS 29.0.2.0 software. Mean, standard deviation, frequency, and percentage values were used in the descriptive statistics of the data. The normality of the variables was assessed using the Kolmogorov-Smirnov test. The normality assumption was tested for each parameter, and due to the failure to meet the normality assumption and the relatively small sample size, non-parametric tests, specifically the Wilcoxon Signed-Rank Test and the Mann-Whitney

**Table 1** Experimental implementation process

| Group        | Pre -test                  | AFASEP<br>(8 session) | Post-test                                                                          |
|--------------|----------------------------|-----------------------|------------------------------------------------------------------------------------|
| Experimental | DASS<br>CBS<br>WHOQOL-BREF | Done                  | DASS CBS<br>WHOQOL- BREF<br>Education evaluation form<br>+<br>Social validity form |
| Control      | DASS<br>CBS<br>WHOQOL-BREF | None                  | DASS<br>CBS<br>WHOQOLBREF<br>None                                                  |

**Table 2** The content of family support program

| Session      | Aim                                         | Content                                                                                                                                                                                                                                       |
|--------------|---------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1st session  | Introduction to the program                 | What is STROKE?<br>What is Transient Ischemic Attack?<br>How does recovery occur after a stroke?<br>What are the causes of stroke?                                                                                                            |
| 2nd session- | Aphasia                                     | Auditory comprehension and speech difficulties.<br>What is aphasia?<br>Aphasia and auditory comprehension,<br>Aphasia and expressive language.                                                                                                |
| 3rd session- | Strategies to help individuals with aphasia | How can I help auditory comprehension?<br>How can I help them speak?                                                                                                                                                                          |
| 4th session  | Problems accompanying with aphasia          | What is dysarthria? What is apraxia? What is hemiparesis? Problems with vision and visual fields.<br>Epilepsy, swallowing problems<br>The evaluation of the support program: Goals and achievements regarding the course of the first 4 weeks |
| 5th session  | Feelings after a stroke                     | How does aphasia affect interpersonal relationships?<br>Feelings after a stroke.<br>What can you change?<br>Aphasia and depression.<br>Changes after aphasia are discussed from the perspective of individuals with aphasia                   |
| 6th session  | Feelings after a stroke                     | How does aphasia affect family dynamics?<br>How does stroke and aphasia affect spouses?<br>Changes for spouses?<br>It is discussed as the experiences of relatives of individuals with aphasia.                                               |
| 7th session  | Living with aphasia                         | What can I do?<br>What can I change?<br>Strategies for coping with aphasia.<br>Coping with other people's reactions.<br>Coping with the attitudes of strangers.<br>More about aphasia                                                         |
| 8th session  | A general review                            | Distribution of final tests.<br>Evaluation of the program.                                                                                                                                                                                    |

**Table 3** Demographic features of participants

| Variable                                | Experimental Group<br>(n = 20) | Control Group<br>(n = 20) |
|-----------------------------------------|--------------------------------|---------------------------|
| Gender (Female/Male)                    | 16 / 4                         | 12 / 8                    |
| Mean age (years)                        | 42 ± 7.8                       | 43 ± 8.1                  |
| Time since stroke (< 1 year / ≥ 1 year) | 8 / 12                         | 8 / 12                    |

U Test, were used for data analysis. The significance level was set at  $p < .05$ .

In addition, group-level change scores (post-test minus pre-test differences) were calculated based on mean values to provide an estimate of between-group differences over time. As individual-level data were not available for all measures, these results are presented descriptively.

An estimated post-hoc power analysis was performed based on observed post-test between-group differences. Cohen's  $d$  values were calculated using pooled standard deviations, with alpha set at 0.05 and equal group sizes of 20 participants per group.

Effect sizes were calculated to assess the magnitude of differences between groups. In addition, 95% confidence intervals were reported where applicable.

## Results

Baseline characteristics (age, gender, time post-onset) did not differ significantly between groups (Table 3).

The pre-test scale scores of the experimental and control groups on the DASS, CBS, and WHOQOL-BREF scales are presented in Table 4. At baseline, significant differences were observed between groups in the depression and stress subscales of the DASS ( $p < .05$ ), while other measures did not differ significantly.

Post-test comparisons showed that the experimental group demonstrated greater improvements in depression, anxiety, and caregiver burden compared to the control group. No significant differences were observed for stress and WHOQOL-BREF domains. (Table 5). Effect size estimates indicated moderate to large effects for depression, anxiety, and caregiver burden outcomes. Confidence intervals supported the direction of the observed differences between groups.

Group-level change scores (post-test minus pre-test) were calculated to provide an estimate of improvement over time. The experimental group showed greater reductions in DASS total, anxiety, stress, and caregiver

**Table 4** Pre-test data for experimental and control groups assessments

| PRE-TEST             | Experimental Group<br>Mean ± SD | Control Group<br>Mean ± SD | *p        |
|----------------------|---------------------------------|----------------------------|-----------|
| DASS                 |                                 |                            |           |
| DASS total score     | 59,20 ± 13,62                   | 59,90 ± 12,36              | ,100 (NS) |
| Depression           | 21,35 ± 4,24                    | 29,50 ± 10,41              | ,006*     |
| Anxiety              | 18,85 ± 5,10                    | 16,20 ± 5,22               | ,152 (NS) |
| Stress               | 19,25 ± 5,89                    | 14,65 ± 4,41               | ,009*     |
| CBS                  | 37,15 ± 8,18                    | 37,45 ± 6,77               | ,839 (NS) |
| WHOQOL               |                                 |                            |           |
| WHOQOL (total score) | 57,85 ± 23,46                   | 63,30 ± 20,67              | ,386 (NS) |
| Health               | 20,75 ± 11,45                   | 25,50 ± 7,16               | ,084 (NS) |
| Psychological        | 13,15 ± 6,01                    | 16,30 ± 10,32              | ,163 (NS) |
| Social               | 10,5 ± 4,29                     | 8,55 ± 2,54                | ,391 (NS) |
| Environment          | 12,80 ± 4,16                    | 12,00 ± 5,42               | ,467 (NS) |

CBS; Caregiver Burden Scale, DASS; Depression Anxiety Stress Scale, WHOQOL; World Health Organization Quality of Life Scale-Short Form, SD: Standard Deviation. \* Mann–Whitney U test was used for between-group comparisons. \*  $p < .05$ ,  $p \geq .05 \rightarrow$  NS (Not Significant)

**Table 5** Post-test scores of experimental and control groups (Mann-Whitney U Test)

| Measure                | Experimental<br>Mean ± SD | Control<br>Mean ± SD | *p-value   |
|------------------------|---------------------------|----------------------|------------|
| DASS total             | 46.95 ± 13.45             | 57.20 ± 11.28        | 0.017*     |
| Depression             | 16.90 ± 5.14              | 22.80 ± 2.93         | < 0.001*   |
| Anxiety                | 15.25 ± 4.55              | 19.85 ± 5.60         | 0.009*     |
| Stress                 | 14.70 ± 4.48              | 14.55 ± 5.70         | 0.913 (NS) |
| Caregiver Burden (CBS) | 27.15 ± 6.76              | 35.40 ± 6.62         | 0.001*     |
| WHOQOL total           | 72.25 ± 23.64             | 64.60 ± 19.52        | 0.409 (NS) |
| WHOQOL Health          | 28.10 ± 10.17             | 24.40 ± 9.16         | 0.226 (NS) |
| WHOQOL Psychological   | 20.25 ± 12.45             | 17.80 ± 7.84         | 0.628 (NS) |
| WHOQOL Social          | 11.05 ± 5.38              | 10.45 ± 3.39         | 0.883 (NS) |
| WHOQOL Environment     | 14.85 ± 7.63              | 11.95 ± 4.17         | 0.241 (NS) |

DASS; Depression Anxiety Stress Scale, WHOQOL; World Health Organization Quality of Life Scale-Short Form, SD: Standard Deviation. \* Mann–Whitney U test was used for between-group comparisons. \*  $p < .05$ ,  $p \geq .05 \rightarrow$  NS (Not Significant)

**Table 6** Group-level change scores (post-test – pre-test) and between-group differences

| Measure                | Experimental Δ<br>(Post–Pre) | Control Δ<br>(Post–Pre) | Be-<br>tween-<br>group<br>ΔΔ |
|------------------------|------------------------------|-------------------------|------------------------------|
| DASS total             | –12.25                       | –2.70                   | –9.55                        |
| Depression             | –4.45                        | –6.70                   | + 2.25                       |
| Anxiety                | –3.60                        | + 3.65                  | –7.25                        |
| Stress                 | –4.55                        | –0.10                   | –4.45                        |
| Caregiver Burden (CBS) | –10.00                       | –2.05                   | –7.95                        |
| WHOQOL total           | + 14.40                      | + 1.30                  | + 13.10                      |

DASS; Depression Anxiety Stress Scale, WHOQOL; World Health Organization Quality of Life Scale-Short Form, CBS; Caregiver Burden Scale

**Table 7** Within-group comparisons of experimental group (Wilcoxon Signed-Rank Test)

| Measure                | Pre<br>Mean ± SD | Post<br>Mean ± SD | z-value | *p-value   |
|------------------------|------------------|-------------------|---------|------------|
| DASS total             | 59.20 ± 13.62    | 46.95 ± 13.45     | -3.826  | < 0.001*   |
| Depression             | 21.35 ± 4.24     | 16.90 ± 5.14      | -3.735  | < 0.001*   |
| Anxiety                | 18.85 ± 5.10     | 15.25 ± 4.55      | -3.421  | 0.001*     |
| Stress                 | 19.25 ± 5.89     | 14.70 ± 4.48      | -3.511  | < 0.001*   |
| Caregiver Burden (CBS) | 37.15 ± 8.18     | 27.15 ± 6.76      | -3.456  | 0.001*     |
| WHOQOL total           | 57.85 ± 23.46    | 72.25 ± 23.64     | -3.750  | < 0.001*   |
| WHOQOL Health          | 20.75 ± 11.45    | 28.10 ± 10.17     | -2.615  | 0.009*     |
| WHOQOL Psychological   | 13.15 ± 6.01     | 20.25 ± 12.45     | -3.142  | 0.001*     |
| WHOQOL Social          | 10.50 ± 4.29     | 11.05 ± 5.38      | -0.596  | 0.552 (NS) |
| WHOQOL Environment     | 12.80 ± 4.16     | 14.85 ± 7.63      | -0.854  | 0.393 (NS) |

DASS; Depression Anxiety Stress Scale, WHOQOL; World Health Organization Quality of Life Scale-Short Form, SD: Standard Deviation. \* Wilcoxon Signed-Rank test was used for within-group comparisons. \*  $p < .05$ ,  $p \geq .05 \rightarrow$  NS (Not Significant)

**Table 8** Estimated post-hoc power analysis based on post-test between-group differences

| Outcome                | Cohen's d | Estimated power |
|------------------------|-----------|-----------------|
| DASS total             | 0.83      | 0.72            |
| Depression             | 1.41      | 0.99            |
| Anxiety                | 0.90      | 0.79            |
| Stress                 | 0.03      | 0.05            |
| Caregiver Burden Scale | 1.23      | 0.97            |
| WHOQOL total           | 0.35      | 0.19            |

DASS; Depression Anxiety Stress Scale, WHOQOL; World Health Organization Quality of Life Scale-Short Form

burden, as well as greater improvements in quality of life compared to the control group.

However, due to baseline differences between groups, particularly in depression and stress subscales, these findings should be interpreted with caution. (Table 6)

Within the experimental group, significant pre- to post-test improvements were observed in DASS total, depression, anxiety, stress, CBS, and WHOQOL-BREF total, health, and psychological domains (all  $p < .05$ ). However, no improvements were observed in the social and environmental domains. These results are summarized in Table 7.

The estimated post-hoc power analysis showed adequate statistical power for depression, anxiety, and caregiver burden outcomes, while the power was lower for DASS total and WHOQOL total scores. The estimated power for stress was very low, consistent with the absence of a meaningful post-test between-group difference (Table 8).

## Discussion

This study was conducted to evaluate the effects of the SPPARC (Supporting Partners of People with Aphasia in Relationships and Conversation) Aphasia Family Support Program on the families of individuals with aphasia. In line with the study's objectives, psychological conditions were assessed using the Depression, Anxiety, and Stress Scale, while the levels of impact on their social lives were determined using the Caregiver Burden Scale and the World Health Organization Quality of Life Scale.

The findings of this study suggest that the Turkish adaptation of the SPPARC Family Support Program may improve psychological well-being and reduce caregiver burden among relatives of individuals with aphasia. Reductions in depression, anxiety, and stress levels observed in the experimental group are consistent with previous studies reporting the benefits of family-centered interventions [7, 17]. These improvements may be explained by increased knowledge about aphasia, improved coping strategies, and enhanced awareness among caregivers. Providing structured information and support may help caregivers better understand the condition and manage its emotional and practical challenges.

Rice et al. [18] conducted a study in which a support program was implemented for the relatives of individuals with aphasia and demonstrated that participants in the program experienced positive changes in their anxiety levels and physical health complaints afterward. In our study, statistical analyses reveal significant reductions in the anxiety levels of the relatives of individuals with aphasia both before and after the family support program.

When examining stress levels, it has been observed that the training provided to both individuals with aphasia and their caregivers has a positive effect on reducing the caregivers' stress [19]. Knowledge about stroke, aphasia, and communication skills for both the individual with aphasia and the family members contributes to a decrease in the caregiver's stress level [20, 21]. Howe et al. [7] found in their studies that aphasia family programs could address communication issues between the person with aphasia and their family member, and that these programs led to a reduction in the caregiver's stress. Hinckley et al. [22] reported that after a 2-day program involving individuals with aphasia and their families, there was an increase in social relationships between family members and individuals with aphasia, an enrichment of their knowledge about aphasia, and a reduction in their communication-related stress levels. In this study, stress levels significantly decreased following the intervention in the experimental group, which is consistent with previous studies reporting the beneficial effects of structured family support programs. Pre-test and post-test data also indicate that this reduction in stress levels

positively reflects on the quality of care. These results are consistent with the literature.

When examining all subscales of the Depression, Anxiety, and Stress Scale, no significant difference was found between the pre-test results of the experimental and control groups. However, significant differences were observed between the post-test results of the experimental and control groups. When evaluating the within-group findings of this study, significant differences were found between the pre-test and post-test data of the experimental group, whereas no significant difference was found between the pre-test and post-test data of the control group. It is thought that this change may be attributed to the support program implemented.

Morimoto et al. [23] demonstrated that as the dependency of the person receiving care increases, the caregiving burden also increases. Bakas et al. [24] showed a significant reduction in caregiving burden before and after a family program in his study. Magnus et al. [25], in the study conducted after the SEPA family program, compared the scores from the Caregiver Burden Scale and the World Health Organization Quality of Life Scale before and after the program. While no statistically significant difference was found in the Caregiver Burden Scale, a descriptive reduction in caregiving burden was observed. Both the pre-test and post-test findings of the experimental group, as well as the post-test data comparison between the experimental and control groups, showed a significant reduction in caregiving burden levels. Similarly, Rouch et al. [26] demonstrated in a recent study that family education reduces caregiving burdens not only in the field of aphasia but also in all chronic conditions.

Hoen et al. [27] conducted a study in which a support program was implemented for individuals with aphasia and their close contacts. The program was evaluated using a psychological well-being scale before and after its implementation. After the program, which aimed to address communication issues caused by aphasia and enhance partner communication, significant differences were found between pre-test and post-test results for 32 out of 35 participants. Worrall et al. [28] found significant increases in quality of life and self-reported well-being scores in the post-test and follow-up results of the Aphasia Ask program. Draper et al. [19] evaluated the quality of life of caregivers of individuals with aphasia who participated in a 4-week support program and observed significant positive changes in their quality of life post-program. Avent et al. [6] showed that learning communication-supportive strategies, addressing counseling needs, and increasing knowledge levels for caregivers positively impact both the rehabilitation process of the individual with aphasia and the caregiver's quality of life due to improved communication quality [5, 6]. It is

also noted that accessing information about aphasia and increasing knowledge reduces negative effects on spouses and aids in interaction during the rehabilitation process [29].

In this study, both the pre-test and post-test findings of the experimental group and the post-test data comparison between the experimental and control groups show significant differences in the physical health and psychological domains of the quality of life scale. Based on these findings, it can be seen that the support program benefited the physiological and psychological health of relatives of individuals with aphasia. Quality of life improved in physical and psychological domains but not in social or environmental domains. The lack of improvement in social and environmental domains may be related to the individual and online nature of the intervention, which limited opportunities for social interaction. This is consistent with previous findings suggesting that group-based interventions are more effective in improving social outcomes [30]. The selection of DASS, CBS, and WHOQOL-BREF was appropriate, as they reflect the theoretical aims of SPPARC to reduce psychological distress, caregiving burden, and improve quality of life. However, only Phase 1 was implemented; Phase 2 (Communicative Partner Training) may further enhance communication outcomes and should be evaluated in future studies.

Limitations include lack of randomization, small sample size, reliance on online delivery, and potential effects of spontaneous recovery in participants less than 12 months post-onset. No a priori power analysis was conducted. These limitations reduce generalizability but do not diminish the observed positive trends. Aphasia severity was not systematically assessed, which may have influenced caregiver burden and psychological outcomes. In addition, change score analyses were performed at the group level due to the absence of individual-level data, which limits the ability to perform more robust statistical comparisons. The absence of detailed clinical and sociodemographic data may have influenced the observed outcomes and should be considered when interpreting the results. Since the power analysis was performed post hoc and based on observed group differences, these findings should be interpreted cautiously and should not replace an a priori sample size calculation. In addition, the control group consisted of participants who were unable to attend the program, which may have introduced motivational differences between groups. This may have resulted in a more motivated experimental group, potentially influencing the outcomes. In addition, The Turkish version of the SPPARC program was not formally validated through a standardized cultural adaptation process. Future studies should involve

larger, randomized samples, incorporate both phases of SPPARC, and evaluate long-term follow-up outcomes.

## Conclusion

This study suggests that the Turkish adaptation of the SPPARC (Supporting Partners of People with Aphasia in Relationships and Conversation) Family Support Program may have positive effects on psychological well-being, caregiver burden, and quality of life among relatives of individuals with aphasia. However, these findings should be interpreted with caution due to methodological limitations, including the lack of randomization, baseline differences between groups, and limited sample characterization. Further studies with larger, randomized samples and more comprehensive clinical data are needed to confirm these findings and to better understand the long-term effects of such interventions.

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## Author contributions

ÇEC, ETÖ designed the study and wrote the study proposal. ÇEC, ETÖ conducted data collection. ÇEC, ETÖ, MÇ analyzed the data. MÇ, ÇEC wrote the final draft of the manuscript and prepared tables. MÇ submitted the manuscript to the journal. All authors have read and approved the final manuscript.

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## Data availability

All data analyzed in this study were included in the manuscript. The datasets used in the analysis or entered into statistical software can be obtained from the corresponding author upon making a reasonable request.

## Declarations

### Ethics approval and consent to participate

The study was conducted following the principles of the Helsinki Declaration and the Good Clinical Practice guidelines. It was approved by the Ethics Committee of Anadolu University (Ethics Committee no: 61070 – 16.10.2020). Information on the study's goals, the confidentiality of the data they submitted, their ability to withdraw from the study, and access to the study's results were all given to the participants. Before sampling, the required permissions were obtained from the appropriate authorities, and all subjects provided written informed consent.

### Consent for publication

Not applicable.

### Competing interests

The authors declare no competing interests.

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## References

1. Caplan D, Michaud J, Hufford R (2013) Dissociations and associations of performance in syntactic comprehension in aphasia and their implications for the nature of aphasic deficits. *Brain Lang* 127(1):21–33
2. World Health Organization (2001) IFC: International Classification of Functioning, Disability and Health.2001

3. Sheppard SM, Sebastian R (2021) Diagnosing and managing post-stroke aphasia. *Expert Rev Neurother* 21(2):221–234
4. Brown K, Worrall L, Davidson B et al (2011) Living successfully with aphasia: Family members share their views. *Top Stroke Rehabil* 18(5):536–548
5. Le Dorze G, Signori FH (2010) Needs, barriers and facilitators experienced by spouses of people with aphasia. *Disabil Rehabil* 32(13):1073–1087
6. Avent J, Glista S, Wallace S et al (2005) Family information needs about aphasia. *Aphasiology* 19(3–5):365–375
7. Avent J, Glista S, Wallace S et al Howe T, Davidson B, Worrall L (2012) 'You needed to rehab... families as well': family members' own goals for aphasia rehabilitation. *Int J Lang Commun Disord* 47(5):511–521
8. Lock S, Wilkinson R, Bryan K et al (2001) Supporting partners of people with aphasia in relationships and conversation (SPPARC). *Int J Lang Communication Disorders* 36(sup1):25–30
9. Lovibond PF, Lovibond SH (1995) The structure of negative emotional states: Comparison of the depression anxiety stress scales (DASS) with the beck depression and anxiety inventories. *Behav Res Ther* 33(3):335–343
10. Akin A, Çetin B (2007) Depression Anxiety Stress Scale (DASS): Validity and Reliability Study. *Educational Sci Theory Pract* 7(1):241–268
11. Yilmaz O, Hakan BOZ, Arslan A (2017) Validity-reliability study of the Turkish short form of the Depression Anxiety Stress Scale (DASS 21). *J Finance Econ Social Res* 2(2):78–91
12. Zarit SH, Reever KE, Bach-Peterson J (1980) Relatives of the impaired elderly: correlates of feelings of burden. *Gerontologist* 20(6):649–655
13. Inci FH (2006) Adaptation, validity and reliability of the caregiving burden scale into Turkish. Unpublished Master's Thesis, Denizli: Pamukkale University Health Sciences Institute
14. Fertelli TK, Tuncay FÖ (2019) The Relationship Between Caregiver Burden, Social Support and Quality of Life in Stroke Individual Caregivers. *J Acad Res Nurs* 5(2):107–115
15. Eser E, Fidaner H, Fidaner C et al (1999) Psychometric properties of the WHOQOL-100 and WHOQOL-BREF. *J Psychiatry Psychol Psychopharmacol* (3P) 7(Suppl 2):23–40
16. Yıldırım A, Hacıhasanoğlu R (2011) Quality of life in health care workers and affecting variables. *J Psychiatric Nurs* 2(2):61–68
17. Purdy M, Hindenlang J (2005) Educating and training caregivers of persons with aphasia. *Aphasiology* 19(3–5):377–388
18. Rice B, Paull A, Muller DJ (1987) An evaluation of a social support group for spouses of aphasic partners. *Aphasiology* 1(3):247–256
19. Draper B, Bowring G, Thompson C et al (2007) Stress in caregivers of aphasic stroke patients: a randomized controlled trial. *Clin Rehabil* 21(2):122–130
20. Linebaugh CW, Young-Charles HY (1978) The counseling needs of the families in clinical aphasiology: Proceedings of the conference (pp. 304–313). BRK Publishers
21. Simmons Mackie N, Worrall L, Murray LL et al (2017) The top ten: best practice recommendations for aphasia. *Aphasiology* 31(2):131–151
22. Hinckley JJ, Packard ME (2001) Family education seminars and social functioning of adults with chronic aphasia. *J Commun Disord* 34(3):241–254
23. Morimoto SS, Kanellopoulos D, Manning KJ et al (2015) Diagnosis and treatment of depression and cognitive impairment in late-life. *Ann NY Acad Sci* 1345(1):36
24. Bakas T, Farran CJ, Austin JK et al (2009) Content validity and satisfaction with a stroke caregiver intervention program. *J Nurs Scholarsh* 41(4):368–375
25. Magnus BH, Dias RF, Beber BC (2019) Effects of a short educational program about aphasia (SEPA) on the burden and quality of life of family caregivers of people with aphasia. *Codas* 31(4):e20180218
26. Rouch SA, Fields BE, Alibrahim HA et al (2021) Evidence for the Effectiveness of Interventions for Caregivers of People With Chronic Conditions: A Systematic Review. *Am J Occup Ther* 75(4):7504190030
27. Hoen B, Thelander M, Worsley J (1997) Improvement in psychological well-being of people with aphasia and their families: Evaluation of a community-based programme. *Aphasiology* 11:681–691
28. Worrall L, Ryan B, Hudson K et al (2016) Reducing the psychosocial impact of aphasia on mood and quality of life in people with aphasia and the impact of caregiving in family members through the Aphasia Action Success Knowledge (Aphasia ASK) program: study protocol for a randomized controlled trial. *Trials* 17:153
29. Maviş İ, Özbabalık D (2006) Neurologically Based Communication Problems in Old Age and Speech and Language Therapy. *J Social Sci* 6(1):1–18
30. Van Der - A, Smith L, Davis S et al (2005) Therapy and support services for people with long-term stroke and aphasia and their relatives: a six-month follow-up study. *Clin Rehabil* 19(4):372–380

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