






# Psychometric properties of the Turkish version of the scale for positive aspects of caregiving experience

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## Abstract

**Purpose:** To assess the psychometric properties of the Turkish version of the Scale for Positive Aspects of Caregiving Experience (SPACE).

**Design and Methods:** The methodological descriptive study was conducted with 228 family caregivers of people with dementia (PwD) in Turkey, Izmir, between March 2018 and December 2019.

**Findings:** The Turkish version of SPACE is a valid and reliable measurement tool to evaluate the positive experiences of caregivers of PwD in the Turkish society.

**Practice Implications:** It is thought that this measurement tool will be useful for researchers working with primary caregivers in Turkey.

## KEYWORDS

caregiver, dementia, positive aspects, reproducibility of results

## 1 | INTRODUCTION

With the increase in the elderly population, the incidence of dementia, one of the chronic diseases, is rapidly increasing. According to World Health Organization (2019) data, approximately 50 million individuals have dementia worldwide. About 60% of these individuals live in low and middle-income countries, and 10 million new cases are detected each year (World Health Organization [WHO], 2019). According to a global prevalence study investigating countries and regions between the years 1990 and 2016, 754.169 individuals have dementia in Turkey, 35.355 individuals have lost their life due to dementia, and 462.429 individuals have suffered from disabilities due to dementia (GBD, 2016 Dementia Collaborators). Dementia is a chronic and progressive syndrome that causes deterioration in cognitive functions beyond what is expected from normal aging, affecting memory, thinking, orientation, comprehension, calculation, learning capacity, language, and reasoning (WHO, 2019).

People with dementia (PwD) usually receive outpatient treatment, and care of the individual and the management of the disease are mostly provided by their families in a home environment (Alzheimer's Association, 2021). Caregiving is a process in which caregivers provide physical, emotional, social, and financial support to

the PwD (Kate et al., 2012). Due to the problems caused by the caregiving process, caregivers experience problems such as care burden, emotional stress, depression, anxiety, obesity, increased risk of chronic diseases such as hypertension and diabetes, sleep problems, smoking, and dementia (Abdollahpour et al., 2012; Cotelos et al., 2015; Dassel et al., 2017; Laks et al., 2016).

Caregiving not only is associated with negative outcomes but also has a positive effect on caregivers. However, positive experiences with care are a less researched area than care burden (Kate et al., 2012). Studies conducted on this subject report that caregivers find meaning in the care process, and their endurance, personal development, and commitment increase. They accept the disease in a shorter period and more easily. Moreover, they become attached to the caregiving role and enjoy the process. Their patience and tolerance increase, and they use humor even under difficult conditions. Studies further report that caregivers are grateful for paying their debts to the society, and they support other caregivers, have a closer relationship with the patient, and experience less care burden (Cheng et al., 2016; Dias et al., 2015; Lau & Cheng, 2017). Identifying and supporting the positive aspects of caregiving can reduce the effects of negative experiences and emotions in the caregiving process (Dias et al., 2015). Thus, studies with valid and reliable measurement tools

developed to evaluate this concept are needed. Developed by Kate, Grover, Kulhara, and Nehra in 2012, the “Scale for Positive Aspects of Caregiving Experience (SPACE)” is a scale used to examine the positive experiences of caregivers (Kate et al., 2012). No psychometric analysis of this scale exists in Turkish society. This study aims to test the validity and reliability of the Turkish version of SPACE.

The research question of the study was as follow:

Is the SPACE valid and reliable measurement for Turkish caregivers of PwD?

## 2 | METHODS

### 2.1 | Design and sample

The methodological descriptive study design was used. The sample size suggested in scale validity and reliability studies is 5 and 10 times more than the number of items in the scale (Sousa & Rojjanasrirat, 2011). An estimated sample size of 220–440 represents between 5 and 10 times the 44 items in the scale. Between March 2018 and December 2019, 228 individuals were recruited from a neurology and geriatrics outpatient clinic using nonprobability convenience sampling.

Inclusion criteria for caregivers were as follows: a person who is identified as the primary caregiver with daily activities for a PwD; has provided care to a PwD for at least 1 year, 4 h a day or more; has lived with the patient; has voluntarily accepted to participate in the research; has no hearing or speaking impairment; is literate in Turkish; and was 18 years and older at the time of the study. Exclusion criteria for caregivers were as follows: people diagnosed with any psychiatric disorders.

Family caregivers were mostly female (60.5%) with a mean age of 55.58 years (range: 23–92 years, standard deviation: 13.08). Of the caregivers, 51% were children of PwD. PwD were mostly female (67.1%) with a mean age of 73.07 years (standard deviation: 9.32). Most common type of dementia was Alzheimer's disease (68.4%).

## 2.2 | Instruments

### 2.2.1 | Socio-demographic form

This form was developed by the researchers to collect data on the socio-demographic characteristics of caregivers and PwD. The data were used only describe the participants characteristics. Information about PwD was obtained from caregivers and outpatient clinic records.

### 2.2.2 | Scale for positive aspects of caregiving experience

SPACE comprises 44 items, each rated on a five-point scale (range: 0–4) with the highest attainable score of 176. This scale was divided into four sub-scales, including “Caregiving personal gains” (item 7, 17,

18, 19, 20, 21, 27, 29, 30, 31, 32, 33, 34, and 35), “Motivation for caregiving role” (item 1, 2, 3, 4, 5, 6, 8, 9, 13, 15, 16, 22, and 28), “Caregiver satisfaction” (item 10, 11, 12, 14, 23, 24, 25, and 26), and “Self-esteem and social aspect of caring” (item 36, 37, 38, 39, 40, 41, 42, 43, and 44). A higher score indicated a more positive caregiving experience. Scores obtained for each item were added to obtain the total score. The total score was divided by the total number of items included in the domain to derive the final score for the total. There is no cut-off value of SPACE. The Cronbach's alpha of the total scale is 0.923 (Kate et al., 2012). The scale items in Turkish are provided in Appendix 1.

### 2.3 | Psychometric analyses

Statistical Package for the Social Sciences version 21.0 (SPSS Inc) and Analysis of Moment Structures (AMOS) 24.0 were used for statistical evaluation of the data.

## 2.4 | Validity

### 2.4.1 | Translation of the SPACE scale

First, the language validity of the scale was analyzed to test the validity of the scale for the Turkish language. The scale was translated from English to Turkish by the researchers. The researchers collaborated to create a Turkish version of the scale. The test items from the original version for translation were subjected to decentered (meaning) translation. The forward translated version was then back-translated by a professional bilingual translator unfamiliar with either the English or Turkish version of the scale to ensure the accuracy of the translation. The translated English form and the original form were compared by the researchers. No items were changed.

### 2.4.2 | Content validity

Content validity was confirmed by nine experts, five of whom were academician of nurses (four internal medicine nursing and one psychiatric nursing) who was experts in dementia care, two were geriatricians who were experts in dementia care, one was a clinical nurse who was an expert in dementia care, and one was an informal caregiver.

The experts' opinions were assessed by using the Polit-Beck content validity index (CVI). The scale-level content validity index (S-CVI) and item-level content validity indexes (I-CVI) were calculated (Polit et al., 2007). Experts ranked their opinions as follows: 1 (“inappropriate”), 2 (“should be made more appropriate”), 3 (“appropriate but needs minor changes”), and 4 (“highly appropriate”). In this technique, the number of experts who scored three or four is divided by the total number of experts to calculate the I-CVI. The average I-CVI across items defines the S-CVI (averaging method). A CVI score above 80% represents excellent agreement.

### 2.4.3 | Pilot study

After language and content validity was confirmed, a pilot study was conducted with 22 family caregivers conforming to the sampling criteria, and the final version of the scale was established. The sample of the pre-application was selected with purposive sampling method. Pre-application data were excluded from this study. In the literature, it was recommended that the scale should be assessed in a small pilot study in which the scales are administered to a group of 20–30 persons not included in the sample (Sousa & Rojjanasrirat, 2011).

### 2.4.4 | Construct validity

Explanatory factor analyses (EFA) and confirmatory factor analyses (CFA) were used for construct validity. Whether the data were sufficient and suitable for factor analysis was determined using the Kaiser–Meyer–Olkin (KMO) coefficient and Bartlett Sphericity test. The principal component and varimax return methods were used to determine the construct validity of the scale. For CFA, the authors analyzed Pearson  $\chi^2$ , degree of freedom, root mean square error of approximation (RMSEA), goodness-of-fit index (GFI), comparative fit index (CFI), and normal fit index as the GFIs.

### 2.4.5 | Reliability

Reliability was determined using Cronbach's alpha, ceiling and floor effects, and Hotelling's T-squared test for response bias.

## 2.5 | Ethical considerations

Written permission was obtained from the researcher (Dr. Sandeep Grover) by e-mail to adapt the SPACE to Turkish. Before proceeding with the study, approval was obtained from the Neurology and Geriatrics Department of Dokuz Eylul University Hospital and from the Ethical Committee of Dokuz Eylul University (approval number: 2017/27-31). Participants were informed about the aim and design of the study. Oral and written informed consent was obtained from the participants.

## 3 | RESULTS

### 3.1 | Validity

#### 3.1.1 | Content and language validity

For language and content validity, the opinions of nine experts were sought. The experts were asked to evaluate the items in terms of language and content. Validity was assessed by using both I-CVI and S-CVI, that is, the Polit–Beck content validity index. Total instrument refers to the percentage of the total items rated by the experts as

fairly or highly relevant based on a four-point scale. A CVI score above 80% represents excellent agreement. In this study, the mean I-CVI value of the scale was 0.96, and the mean S-CVI value was 0.95.

#### 3.1.2 | Structure validity

Structural validity shows how accurately the measuring tool can measure an abstract phenomenon (concept, dimension, etc.) (Hair et al., 2010). EFA and CFA were performed to investigate the construct validity of the scale.

#### 3.1.3 | Exploratory factor analysis

Based on the factor analysis results, the Kaiser–Meyer–Olkin coefficient (KMO) was 0.812, the Bartlett test result was  $\chi^2 = 3970.318$ , and statistical significance was observed ( $p < 0.001$ ). Factor loadings of only two of the 44 items were below 0.30. When the critically reviewed of the items, since the removal of these two items could not affect the integrity of the scale. For this reason, two items (item 1 and 4) were removed from the scale. The four subscales were determined to explain 39.480% of the total variance. The items included in the sub-scales differ from the original scale. Therefore, sub-scales were renamed. The Turkish version of the SPACE with 42-items “Satisfaction with caregiving process” subscale contains item 2, 8, 9, 10, 11, 12, 21, 22, 23, 24, 26, 34, 36, and 42; “Satisfaction with personal development” subscale contains item 15, 16, 17, 19, 27, 28, 29, 30, 31, 32, and 33; “Readiness for caregiving role” subscale contains item 1, 3, 4, 6, 13, 14, 20, 25, 35, and 37; “Spiritual aspects of caregiving” subscale contains item 5, 7, 18, 38, 39, 40, and 41.

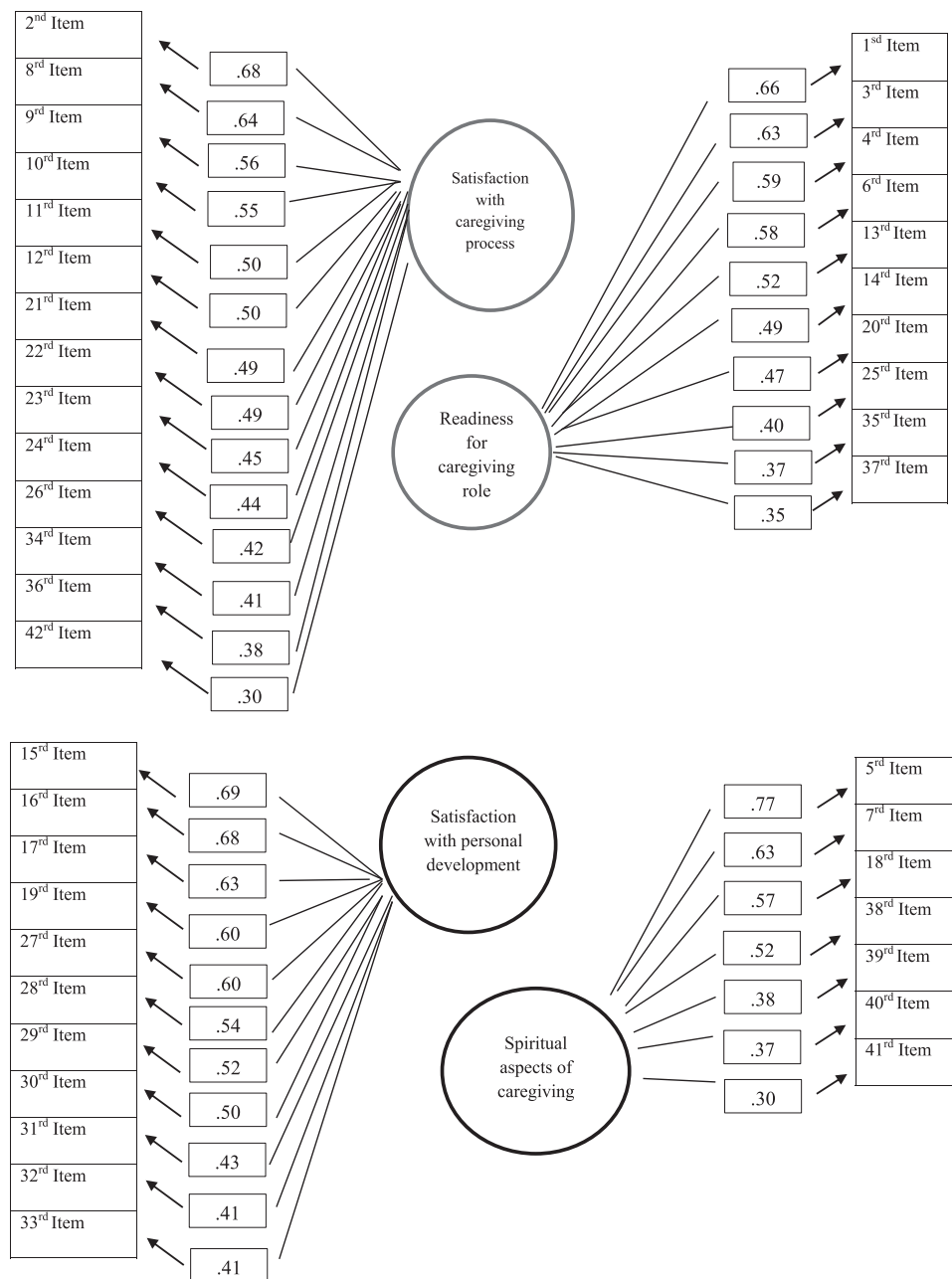
#### 3.1.4 | Confirmatory factor analysis

CFA revealed the factor loadings for all items in the scale. Factor loadings of 42 items were between 0.305 and 0.685 for the “Satisfaction with caregiving process” subscale, between 0.417 and 0.699 for the “Satisfaction with personal development” subscale, between 0.355 and 0.669 for the “Readiness for caregiving role” subscale, and between 0.309 and 0.773 for the “Spiritual aspects of caregiving” subscale (Figure 1). Model fit indicators were determined as follows: CFI = 0.771, GFI = 0.776, Chi-square/degree of freedom ( $\chi^2/df$ ) = 1.964,  $p < .001$ , and 90% confidence interval (CI) of RMSEA = 0.065 (Figure 1).

## 3.2 | Reliability

### 3.2.1 | Internal consistency analysis

The Cronbach's  $\alpha$  value calculated for SPACE (42 items) was 0.898, and the values calculated for the sub-scales were as



**FIGURE 1** Confirmatory factor analysis

follows: 0.842 for Satisfaction with caregiving process, 0.819 for Satisfaction with personal development, 0.795 for Readiness for caregiving role, and 0.655 for Spiritual aspects of caregiving.

### 3.2.2 | Response bias

Response bias was evaluated to test whether the participants answered the scale in line with their own opinions or with the expectations of the community or researcher while completing the scale. Because of this test, Hotelling's T-squared = 1131.571 of the scale were determined to be significant ( $p < 0.001$ ).

## 4 | DISCUSSION

### 4.1 | Validity

In this study, the Turkish version of SPACE was prepared and the language validity criterion was fulfilled as the first step of scale adaptation studies. Construct validity shows how accurately a tool measures an abstract phenomenon (concept, dimension, etc.) (Hair et al., 2010). EFA was performed to analyze the construct validity of the scale. A KMO value of 0.60 and above is sufficient (Hair et al., 2010; Polit & Beck, 2010). The significant Bartlett test result ( $p < 0.001$ ) showed that the Turkish version of SPACE was suitable for

factor analysis. As total variance explained (TVE) increases, the factor structure of the scale increases and TVE is expected to be at least 40% (Hair et al., 2010; Polit & Beck, 2010). The TVE in this study was 39.480%. It was slightly under 40%. The original scale comprises four sub-scales and 44 items. The Turkish version of the scale include 42 items with four subscale based on the results of EFA. A factor loading of 0.30 and above for each item within a subscale indicates that the item is in the correct subscale (Hair et al., 2010; Polit & Beck, 2010). In the Turkish version of the scale, the items included in the sub-scales differ from the original scale. The sub-scales have therefore been renamed. CFA is a method based on the evaluation of fit indices showing the fit between data and structure. In this study, CFA was conducted as part of construct validity to test whether the items were adequately represented in the sub-scales and whether the sub-structures were sufficient to explain the original structure of the scale. With the construct concept validity, the qualities measured by the scale were investigated, and then, we tried to explaining the meanings of the scores obtained by the people completing the scale (Hair et al., 2010; Polit & Beck, 2010).

The high correlation between the observed variables causes the  $\chi^2$  value to increase. The ratio of the degrees of freedom, which is an important criterion of the  $\chi^2$  test, to  $\chi^2$  can be used as a fit criterion. A ratio of less than five is considered as an indicator of good fit (Coffman & MacCallum, 2005). In this study, the value obtained by dividing the chi-square value by the degrees of freedom was determined as 1.964, indicating a good fit. A CFI value of >0.90 indicates an acceptable fit, >0.80 indicates a sometimes possible for acceptance (Hair et al., 2010). The CFI value for this study was found to be 0.771. This value shows us that there is a lower than expected fit but acceptable as a limited. An RMSEA value of 0.05 or less is considered necessary for fit (RMSEA < 0.05). RMSEA = 0 indicates perfect fit.  $0.05 \leq \text{RMSEA} < 0.10$  represents a logical fit of the created model (Harrington, 2009). In this study, the RMSEA value of the scale was found to be 0.06, indicating the presence of an acceptable fit. The GFI statistic was between 0 and 1, and values close to 1 indicate a good fit. When GFI is >0.70, the factor model well explains the original variability and the model are usable (Harrington, 2009). The GFI value of this study was 0.776. These results showed that the structure of the SPACE could accurately and effectively measure the positive experiences of PwD caregivers. No comparison could be made due to the lack of other psychometric study for SPACE in adaptation of different cultures.

## 4.2 | Reliability

The internal consistency coefficient was examined to test the reliability of the scale. Scale items should be interrelated and form a whole. In Likert-type scales, internal consistency is determined by calculating Cronbach's alpha reliability coefficient. This coefficient is a measure of the internal consistency and homogeneity of the items in the scale. The higher the Cronbach  $\alpha$ , the more consistent the items in the scale are, and they predict the components of the same

feature. Since the Turkish version of SPACE is a Likert-type scale, Cronbach's alpha value was calculated. A Cronbach's alpha value of 0.70 and above is sufficient for measurement tools (Hair et al., 2010; Polit & Beck, 2010). In this study, the Cronbach's alpha value of the entire scale was 0.898, and that of the sub-scales ranged between 0.655 and 0.842, indicating that the scale has high internal consistency.

Response bias was evaluated to test whether the people included in this study answered the scale based on their own opinions or according to the expectations of the society or the researcher while completing the scale (Hair et al., 2010; Polit & Beck, 2010). Based on this test, Hotelling's T-squared = 1131.571 was obtained for the scale ( $p < 0.001$ ). Therefore, we concluded that no response bias existed.

## 5 | CONCLUSION

In conclusion, the Turkish version of SPACE is a valid and reliable measurement tool to evaluate the positive experiences of caregivers of PwD in the Turkish population. It is thought that this measurement tool will be useful for researchers working with primary caregivers in Turkey.

### 5.1 | Implications for nursing practice

Dementia is a disease with intense bio-psycho-social problems that affect both individuals, family members, and public health. They usually experience negative situations such as caregiver burden, anxiety, loneliness, and depression. Nurses play a key role in the effective management of this process and providing support for primary caregivers. It is important to reveal and support the positive aspects that caregivers experience in this process. This scale developed for this purpose is thought to be important for the use of healthcare professionals.

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### CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

### AUTHOR CONTRIBUTIONS

Seher Gönen Şentürk: Literature search, study design, data collection, analysis of data, manuscript preparation, reviews of the manuscript.

Burcu Akpınar Söylemez: Literature search, study design, data collection, analysis of data, the manuscript preparation, review of the manuscript. Merve Aliye Akyol: Literature search, study design, data collection, analysis of data, manuscript preparation, review of the manuscript. Ahmet Turan Işık: Literature search, study design, reviews of the manuscript. Özlem Küçükgüçlü: Literature search, study design, analysis of data, manuscript preparation, and review of the manuscript.

#### DATA AVAILABILITY STATEMENT

All data generated or analyzed during this study are included in this article and further inquiries can be directed to the corresponding author.

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#### REFERENCES

- Abdollahpour, I., Noroozian, M., Nedjat, S., & Majdzadeh, R. (2012). Caregiver burden and its determinants among the family members of patients with dementia in Iran. *International Journal of Preventive Medicine*, 3(8), 544–551.
- Alzheimer's Association. (2021). 2021 Alzheimer's disease facts and figures. <https://www.alz.org/media/documents/alzheimers-facts-and-figures.pdf>
- Cheng, S. T., Mak, E. P., Lau, R. W., Ng, N. S., & Lam, L. C. (2016). Voices of Alzheimer caregivers on positive aspects of caregiving. *Gerontologist*, 56(3), 451–460. <https://doi.org/10.1093/geront/gnu118>
- Coffman, D. L., & MacCallum, R. C. (2005). Using parcels to convert path analysis models into latent variable models. *Multivariate Behavioral Research*, 40(2), 235–259. [https://doi.org/10.1207/s15327906mbr4002\\_4](https://doi.org/10.1207/s15327906mbr4002_4)
- Cotelo, N. V., Rodríguez, N. F., Pérez, J. A., Iglesias, J. C., & Lago, M. R. (2015). Burden and associated pathologies in family caregivers of Alzheimer's disease patients in Spain. *Pharmacy Practice (Granada)*, 13(2), 521. <https://doi.org/10.18549/pharmpract.2015.02.521>
- Dassel, K. B., Carr, D. C., & Vitaliano, P. (2017). Does caring for a spouse with dementia accelerate cognitive decline? Findings from the health and retirement study. *Gerontologist*, 57(2), 319–328. <https://doi.org/10.1093/geront/gnv148>
- Dias, R., Santos, R. L., Sousa, M. F., Nogueira, M. M. L., Torres, B., Belfort, T., & Dourado, M. C. N. (2015). Resilience of caregivers of people with dementia: A systematic review of biological and psychosocial determinants. *Trends Psychiatry Psychother*, 37(1), 12–19. <https://doi.org/10.1590/2237-6089-2014-0032>
- GBD 2016 Dementia Collaborators. (2019). Global, regional, and national burden of Alzheimer's disease and other dementias, 1990–2016: A systematic analysis for the global burden of disease study 2016. *Lancet Neurology*, 18, 88–106. [https://doi.org/10.1016/S1474-4422\(18\)30403-4](https://doi.org/10.1016/S1474-4422(18)30403-4)
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis: A global perspective* (7th ed.). Prentice Hall.
- Harrington, D. (2009). *Confirmatory factor analysis*. Oxford University Press.
- Kate, N., Grover, S., Kulhara, P., & Nehra, R. (2012). Scale for positive aspects of caregiving experience: Development, reliability, and factor structure. *East Asian Arch Psychiatry*, 22(2), 62–69.
- Laks, J., Goren, A., Dueñas, H., Novick, D., & Kahle-Wroblewski, K. (2016). Caregiving for patients with Alzheimer's disease or dementia and its association with psychiatric and clinical comorbidities and other health outcomes in Brazil. *International Journal of Geriatric Psychiatry*, 31(2), 176–185. <https://doi.org/10.1002/gps.4309>
- Lau, B. H., & Cheng, C. (2017). Gratitude and coping among familial caregivers of persons with dementia. *Aging & Mental Health*, 21(4), 445–453. <https://doi.org/10.1080/13607863.2015.1114588>
- Polit, D. F., & Beck, C. T. (2010). *Essentials of nursing research: Appraising evidence for nursing practice* (7th ed.). Wolters Kluwer Health/Lippincott Williams & Wilkins.
- Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. *Research in Nursing and Health*, 30(4), 459–467. <https://doi.org/10.1002/nur.20199>
- Sousa, V. D., & Rojjanasrirat, W. (2011). Translation, adaptation and validation of instruments or scales for use in cross-cultural health care research: A clear and user-friendly guideline. *Journal of Evaluation in Clinical Practice*, 17(2), 268–274. <https://doi.org/10.1111/j.1365-2753.2010.01434.x>
- World Health Organization. (2019). *Dementia*. <https://www.who.int/news-room/fact-sheets/detail/dementia>.

#### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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