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Validating the Revised Scale for Caregiving Self-Efficacy: A Cross-National Review

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Abstract

Background and Objectives: This article reviews an instrument used in cross-national research with dementia family caregivers—the Revised Scale for Caregiving Self-Efficacy (RSCSE). Although the RSCSE has been translated into multiple languages, few studies have examined scale performance across samples. We examine congruence of psychometric, reliability, and validity data to inform research and practice.

Methods: We conducted citation searches using Scopus, Google Scholar, Web of Science, and PsycINFO. Identified dementia caregiving studies cited the original RSCSE article and described results of English and/or non-English translations of the scale.

Results: Peer-reviewed published studies ($N = 58$) of dementia family caregivers included data for Arabic, Chinese, English, French, Italian, and Spanish translations of the RSCSE; the majority (72%) reported use of non-English translations. Studies utilizing confirmatory factor analytic approaches reported findings consistent with the original development study. Internal consistency, convergent/discriminant validity, and criterion validity indices were congruent across diverse cross-national caregiving samples assessed with different translations. Data supported the RSCSE's sensitivity to change following specific psychosocial caregiving interventions.

Discussion: The reliability and validity of different translations of the RSCSE support continued use with cross-national samples of dementia family caregivers. Limitations of the scale point to the need for further self-efficacy measurement development within caregiving domains. Consistent with Bandura's discussion of social cognitive theory in cultural contexts, personal agency for caregiving challenges remains generalizable to cross-national populations. This review discusses the implications for cross-cultural research and practice.

Keywords: Dementia, Intervention Outcome, Measurement, Psychometrics

The construct of self-efficacy has been useful in advancing psychosocial research and practice with dementia family caregivers. Grounded in Bandura's (1997, 2002, 2012) social cognitive theory, self-efficacy beliefs reflect confidence in the ability to execute specific behaviors in response to situational demands. Unlike general constructs such as mastery or self-esteem, self-efficacy varies across multifaceted task demands. Self-efficacy beliefs have been demonstrated to influence the initiation of coping, expenditure of effort, and the degree that behaviors are sustained in challenging situations (Bandura, 1997). Relevant to family caregiving, self-efficacy beliefs show strong predictive validity across health conditions and domains of health behaviors (Anderson, Winett, & Wojcik, 2007; Plotnikoff, Lippke, Courneya, Birkett, & Sigal, 2008).

Careful attention to measurement is needed when applying the self-efficacy construct to caregiving responses and change processes. Bandura (2006) recommends that self-efficacy scales focus on specific functional domains and include behaviorally detailed items that progressively increase in difficulty. Items should reflect multifaceted task demands and gradations of challenges or impediments, allowing for assessment of patterns of strengths and limitations in perceived capability.

Two scales were originally developed to assess family caregiving self-efficacy in the domains of problem-solving and self-care (Zeiss, Gallagher-Thompson, Lovett, Rose, & McKibbin, 1999). These scales demonstrated good internal consistencies, test-retest reliabilities, and were related to measures of depression and burden. Data from independent samples of dementia caregivers were then used to revise and extend these scales, leading to development of the Revised Scale for Caregiving Self-Efficacy (RSCSE; Steffen, McKibbin, Zeiss, Gallagher-Thompson, & Bandura, 2002). The RSCSE assesses caregivers' confidence in responding to three high challenge domains of dementia caregiving: Obtaining Respite (SE:OR; e.g., *'...ask a friend or family member to stay with NAME for a day when you need time for yourself?'*); Managing Disruptive Behaviors (SE:MB; e.g., *'When NAME forgets your daily routine and asks when lunch is right after you've eaten ... answer without raising your voice?'*); and Controlling Upsetting Thoughts (SE:CT; e.g., *'...control worrying about future problems that might come up with NAME?'*). These three domains reflect distinct and common behavioral and cognitive challenges for dementia family caregivers. Following Bandura's (2006) guidelines, domain-specific items are presented in order from lower to greater challenge (based on mean scores in the development sample) and represent gradations of challenges or impediments to successful performance. Items reflecting self-esteem, locus of control, or outcome expectations are avoided.

Confirmatory factor analyses supported the purported three-factor structure, with data consistent with subscale reliability and convergent/discriminant validity (Steffen et al., 2002). The final version of the RSCSE consists of

15 items (5 items per subscale). Due to the domain specificity of the self-efficacy construct and the differing relationships between subscale scores and other coping and health outcome variables, no total score was examined or recommended by the scale developers.

The RSCSE has been evaluated in several reviews of caregiving-specific instruments. In a selective review of self-efficacy measures (Betz, 2013), scale development for the RSCSE was described as exemplifying high research standards. A separate evaluation of caregiving measures rated the RSCSE as within the top third of scales meeting 10 criteria (Harvey et al., 2008). The scale has also been discussed in dementia-specific reviews of conceptual models of stress and health (Crellin, Orrell, McDermott, & Charlesworth, 2014), health care triads (i.e., primary care physicians, family caregivers, and persons with dementia; Fortinsky, 2001), and within the international caregiving intervention research literature (McKechnie, Barker, & Stott, 2014). A recent review of positive psychology scales for family dementia caregivers evaluated measurement studies on seven criteria and evaluated the original RSCSE article as moderate in quality (Stansfeld et al., 2017). Specifically, quality of data and methodology within the Steffen and colleagues (2002) study was described as well-designed and reported for content validity, internal consistency, construct validity, and agreement (test-retest reliability). The original study was evaluated as lacking information in several key measurement domains (e.g., criterion validity, responsiveness, floor and ceiling effects, and interpretability; Stansfeld et al., 2017), pointing to the value of investigators reporting additional information about the scale.

Self-efficacy beliefs have been demonstrated to predict caregiving physical and mental health outcomes (Crellin, Orrell, et al., 2014) and are sensitive to the impact of relevant psychosocial interventions (McKechnie et al., 2014). Dementia caregiving research and clinical practice with diverse (Yeo & Gallagher-Thompson, 2006) and cross-national populations (Losada et al., 2006) has significantly expanded. As a part of these developments, the RSCSE has been used in published studies by investigators across North America, Europe, the Middle East, and Asia representing a range of disciplines (e.g., human development, medicine, nursing, occupational therapy, psychiatry, psychology, public health, social work, and sociology). The RSCSE has been translated into multiple languages, however, few studies have examined scale performance across samples. Although other measures of caregiving self-efficacy are available in the literature, the RSCSE has been cited with sufficient frequency to merit a review examining the reliability, validity, and utility of the published translations. In this article, we aim to:

- (1) Identify published studies utilizing the RSCSE,
- (2) Describe data on RSCSE reliability and validity, including factor structure, reported for the English version and published translations of the scale,

- (3) Reflect on further research developments using the RSCSE, and
- (4) Provide recommendations about the utility of the RSCSE in research and practice settings.

Method

Inclusion criteria consisted of (a) empirical studies reporting use of the RSCSE in data collection with (b) dementia family caregivers (i.e., Alzheimer disease, other neurocognitive disorders, cognitively impaired) of (c) older adults living in a (d) range of community and residential care settings, with the (e) studies published in English language professional journals, and excluding (f) case studies and research with very small sample sizes ($N < 10$). Citations listed for the [Steffen and colleagues \(2002\)](#) measurement article in Scopus ($n = 159$), Web of Science ($n = 70$), and Google Scholar ($n = 312$) were identified and exported into bibliographic management software (i.e., EndNote). Two different search processes were used within PsycINFO ($n = 109$); first, the name of the scale was inserted as a phrase in double quotes with and without a hyphen (“Revised Scale for Caregiving Self-Efficacy,” “Revised Scale for Caregiving Self Efficacy”) searching within all text. The second PsycINFO search used the Cited References feature, specifying author, year and the phrase search “Revised Scale for Caregiving Self-Efficacy” in double quotes. Citations from all of the combined above procedures ($N = 650$) were exported into EndNote, with duplicates identified and removed by EndNote. [Figure 1](#) depicts the outcomes for the various steps in the extraction process, which were completed by the first author. Facets of study quality are noted in the review, including attention to sample size and research design (e.g., discussion of intervention studies separated by those utilizing randomized clinical trial (RCT) versus quasi-experimental (pre–post) design).

Results

A total of 58 published articles were identified as eligible for inclusion and are presented in [Tables 1](#) and [2](#) in alphabetical order by first author. [Table 1](#) displays the published works for the scale administered via interview ($n = 46$), and [Table 2](#) displays studies using self-report data collection strategies ($n = 12$).

Information about the scale’s performance has been organized with attention to translation procedures, psychometric properties, factor structure, validity, and utility within a cross-cultural perspective. Our review of these selected works has been organized by the function served by the RSCSE within the published research: (a) evaluating the scale’s psychometrics and factor structure, (b) conceptual model testing (predictors of RSCSE scores, or RSCSE scores as predictors of physical and mental health indices), and (c) as outcomes within interventions (i.e., providing support for the scale’s construct validity and sensitivity to

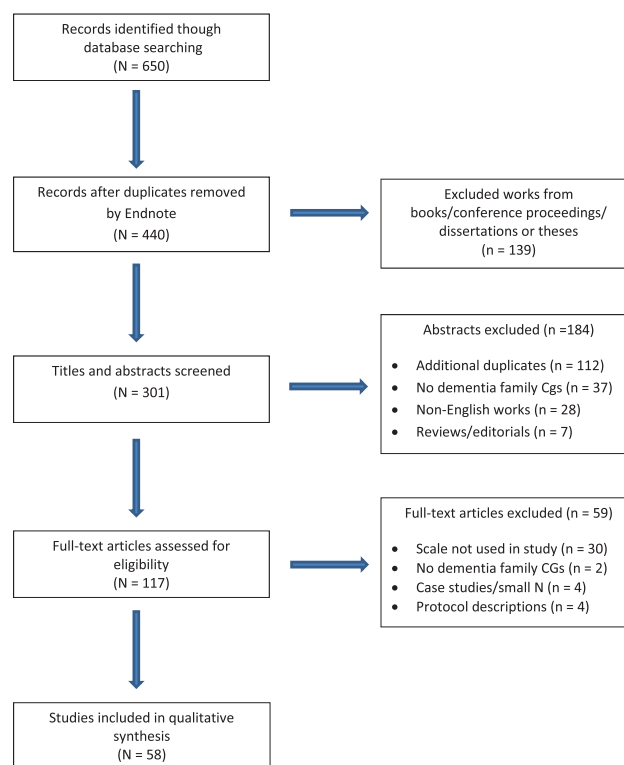


Figure 1. Flow chart of review process.

change). Within these specific functions, works are identified in subscript by the number corresponding with their position in the review tables, and provided in brackets following the relevant citation. We pay particular attention to translation procedures and support for validity of non-English translations of the scale.

Translation Strategies

The World Health Organization ([WHO, 2017](#)) recommends a process of translating instruments for research purposes to achieve different language versions that are conceptually equivalent—rather than linguistically or literally equivalent. WHO guidelines include the following steps: (a) forward translation by a native speaker of the target language; (b) bilingual expert panel back translation; (c) pretesting; and (d) final version. In a methods review of the instrument translation process by [Maneesriwongul and Dixon \(2004\)](#), strengths and weaknesses of these various steps have been explored. From that review, the instruments below meet the criteria for proper translation procedures to produce conceptually equivalent versions of the RSCSE. Of the 58 studies identified in this review as using the RSCSE, almost three-fourths ($n = 42$; 72%) have used non-English translations.

Arabic ($n = 1$)

There is one published study reporting use of an Arabic translation of the RSCSE ([Séoud & Ducharme, 2015](#))_[38], conducted in Lebanon. The authors report following the

Table 1. Predictive Studies and RCTs Using Interview Format of Revised Scale for Caregiving Self-Efficacy ($n = 48$)

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
1. Au and colleagues (2009)	China (Hong Kong)/Chinese	$N = 134$; 75% female; 58% adult children	Predict depressive symptoms	SE:OR $\alpha = .89$; SE:MB $\alpha = .91$; SE:CT $\alpha = .90$	^a RSCSE subscales partially mediated the path between social support and depression
2. Au, Lau, and colleagues (2010)	China (Hong Kong)/Chinese	$N = 134$; 75% female; 58% adult children	Predict depressive symptoms	SE:OR $\alpha = .89$; SE:MB $\alpha = .91$; SE:CT $\alpha = .90$	^a SE:CT mediated link between perceived physical health support and depression
3. Au, Li, and colleagues (2010)	China (Hong Kong)/Chinese/ Cantonese	$N = 27$; 100% female; 34% spouses/SO; 52% adult children	RCT outcome	SE:OR $\alpha = .92$; SE:MB $\alpha = .95$; SE:CT $\alpha = .86$	^a SE:MB and SE:CT improved in treatment group compared to control group
4. Au and colleagues (2014)	China (Hong Kong)/Chinese/ Cantonese	$N = 60$; 76.7% female; 38.3% spouses; 60% adult children	RCT outcome	Not reported	No differences in SE:OR or SE:CT change following intervention, relative to comparison group
5. Cheng, Lam, Kwok, Ng, and Fung (2013)	China (Hong Kong)/Chinese	$N = 99$; 71% female; 55% adult children	Measurement refinement and validation	SE:OR $\alpha = .92$; SE:MB $\alpha = .86$; SE:CT $\alpha = .75$	^a CFA of shortened scale supported three-factor model ($\chi^2 = 29.09$, $df = 23$, ns; RMSEA = .05) SE:CT moderated relationship between challenging behaviors and role overload and burden
6. Cheng, Kwok, and Lam (2014)	China (Hong Kong)/Chinese	$N = 395$; Data originating from two studies; 86% female; 27% spouse/sibling; 73% intergenerational	To support concurrent validity of Zarit Burden Interview	SE:OR $\alpha = .95$; SE:MB $\alpha = .87$; SE:CT $\alpha = .77$	^a RSCSE subscales negatively correlated with three of the four factors for Zarit Burden Interview
7. Cheng, Fung, Chan, and Lam (2016)	China (Hong Kong)/Chinese	$N = 129$; 81% female; 27% spouse; 71% adult children	Mediate outcome of RCT	SE:OR $\alpha = .94$; SE:MB $\alpha = .88$; SE:CT $\alpha = .80$	^a 3-item version of SE:CT subscale was primary mediator of outcome for a benefit-finding intervention
8. Cheng and colleagues (2017)	China (Hong Kong)/Chinese	$N = 96$; 87% female; 24% spouse; 76% younger generation	Mediate outcome of RCT	SE:OR $\alpha = .96$; SE:MB $\alpha = .84$; SE:CT $\alpha = .75$	^a 3-item version of SE:CT subscale was mediator of outcomes for a benefit-finding intervention
9. Coon, Thompson, Steffen, Sorocco, and Gallagher-Thompson (2003)	USA/English	$N = 169$; 100% female; 57% spouse; 43% adult children	RCT outcome	Not reported	^a Intervention effect for both SE:MB and SE:CT relative to waitlist control. SE:CT partially mediated intervention impact on both anger and depressed mood.

Table 1. Continued

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
10. Crellin, Charlesworth, and Orrell (2014)	England (UK)/English	$N = 245$; 71% female; 62% spouse; 29% adult children	To support concurrent validity of Caregiver Efficacy Scale	Not reported	^a RSCSE subscales significantly correlated with Caregiver Efficacy Scale assessing confidence in dealing with behavioral and psychological symptoms of dementia
11. Crespo and Fernández-Lansac (2014)	Spain/Spanish	$N = 111$; 74% female; 51% adult children	Predict well-being	SE:OR $\alpha = .87$; SE:MB $\alpha = .93$; SE:CT $\alpha = .90$	^a Support for convergent and discriminant validity, with predicted varying relationships between the three subscales and depression, anxiety, anger, burden, and self-esteem
12. Cristancho-Lacroix and colleagues (2015)	France/French	$N = 49$; 65% female; 59% adult children	RCT outcome	Not reported	No intervention effect for RSCSE subscales
13. Depp and colleagues (2005)	USA/English and Spanish	$N = 238$; 100% female; 42% spouses/SOs; 58% adult children	Impact of ethnicity and kinship status on self-efficacy	Caucasian: SE:OR $\alpha = .89$; SE:MB $\alpha = .90$; SE:CT $\alpha = .89$ Hispanic/Latino: SE:OR $\alpha = .88$; SE:MB $\alpha = .88$; SE:CT $\alpha = .85$	^a Level of acculturation did not relate strongly with self-efficacy. Hispanic/Latinos higher on two of the three self-efficacy scales than Caucasian caregivers.
14. Ducharme, Lévesque, Lachance, Kergoat, and Coulombe (2011)	Canada (Québec)/French	$N = 122$; 78% female; 36% spouses/SOs; 64% adult children	Descriptive study of caregiving characteristics within 9 months of Alzheimer's diagnosis	$\alpha = .86-.90$	^a Self-efficacy differences by gender (lower scores for women) and by kinship (lower scores for spouses)
15. Ducharme, Lévesque, Lachance, Kergoat, Legault, and colleagues (2011)	Canada (Québec)/French	$N = 111$; 79% female; 34% spouses/SOs; 52% adult children	RCT outcome	$\alpha = .86$	^a Intervention effect for a total RSCSE score relative to waitlist control
16. Ducharme, Lachance, Lévesque, Kergoat, and Zarit (2012)	Canada (Québec)/French	$N = 97$; 81% female; 36% spouses/SOs; 55% adult children	RCT outcome at 6 months	Baseline $\alpha = .89$; Follow-up $\alpha = .91$	^a Intervention effect for a total RSCSE score relative to waitlist control, $\eta^2 = .04$
17. Ducharme, Lachance, Kergoat, and colleagues (2015)	Canada (Québec)/French	$N = 96$; 79% female; 66% spouses/SOs; 25% adult children	Comparison of caregivers for early- and late-onset dementia patients	$\alpha = .74-.92$	No differences as hypothesized between caregivers of early- and late-onset caregivers in the three RSCSE subscales
18. Ducharme, Lachance, Lévesque, Zarit, and Kergoat (2015)	Canada (Québec)/French	$N = 89$; 80% female; 49% adult children	RCT outcome	$\alpha = .90$	^a Intervention effect for a total RSCSE score relative to waitlist control, for participants with and without an added booster session

Table 1. Continued

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
19. Gallagher-Thompson and colleagues (2007)	USA/Mandarin, Cantonese, and English	N = 45; 100% female; 31% spouse	RCT outcome	Reported mean $\alpha = .90$	^a SE moderated treatment impact. Participants low in SE improved most for in-home behavior management intervention.
20. Gant, Steffen, and Lauderdale (2007)	USA/English	N = 32; 100% male; 88% spouse	RCT outcome	Not reported	Improvement pre to post for both conditions. No differential improvement for more intensive intervention.
21. George and Steffen (2014)	USA/English	N = 52; 100% female; 57% spouses/SO; 38% adult children	Longitudinal model predicting physical and mental health	Not reported	^a SE:CT predicted better SF-12 physical health indices and lower psychoactive medication usage at 18 months postintervention
22. Gilliam and Steffen (2006)	USA/English	N = 74; 100% female; 52% spouses/SO; 43% adult children	Predict depressive symptoms	SE:MB $\alpha = .88$	^a SE-MB negatively correlated with depressive symptoms, after controlling for number of behavior problems and level of cognitive impairment
23. Gonyea, López, and Velásquez (2016)	USA/Spanish	N = 67; 95% female; 25% spouse; 57% adult children	RCT outcome	Total score $\alpha = .86$	^a CBT intervention effect for a total RSCSE score relative to psychoeducational control
24. Grano, Lucidi, and Violani (2017)	Italy/Italian	N = 108; 57% female; 50% spouse; 47% adult children	Predict depressive symptoms using SEM with longitudinal data	SE:OR $\alpha = .86$; SE:MB $\alpha = .92$; SE:CT $\alpha = .86$	^a SE:CT partially mediated link between perceived physical health support and depression
25. Holland, Thompson, Tzuang, and Gallagher-Thompson (2010)	USA/Mandarin, Cantonese, and English	N = 47; 100% female; 39% spouses/SO; 61% adult children	Predict diurnal cortisol patterns	Total RSCSE $\alpha = .90$	^a Belief in Asian values associated with more normal cortisol patterns and with higher RSCSE scores
26. Liu and Huang (2016)	Taiwan/Chinese/Mandarin	N = 115; 66% female; 26% spouse; 71% adult children	Predict burden and self-esteem	SE:OR $\alpha = .94$; SE:MB $\alpha = .96$; SE:CT $\alpha = .96$	^a SE:OR partially mediated link between family functioning and burden. Other paths were nonsignificant.
27. Lopez, Romero-Moreno, Marquez-González, and Losada (2012)	Spain/Spanish	N = 122; 80% female; 36% spouses; 57% adult children	Interaction with spirituality to predict well-being	Cited Peñacoba, Losada, López, and Márquez-González (2008) CFA which supports three-factor model, loadings ranged from .45-.94, $\alpha = .84$.	^a Spirituality and self-efficacy had additive effect on well-being. High self-efficacy and high spirituality group had lower levels of depression.

Table 1. Continued

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
28. Márquez-González, Losada, López, and Peñacoba (2009)	Spain/Spanish	N = 180; 78% female; 57% adult children	Validation study of Spanish translation	SE:OR α = .86; SE:MB α = .79; SE:CT α = .82	^a Support for reliability and convergent/discriminant validity of Spanish translation
29. Marziali and colleagues (2010)	Canada/English	N = 232; 75% female; 56% spouses; 36% adult children	Evaluate assessment battery	α = .70–.90	^a Support for inclusion of scale within standardized assessment battery. SE significantly predicted self-reported physical and mental health, and plan for institutionalization.
30. Montoro-Rodriguez and Gallagher-Thompson (2009)	USA/Spanish and English	N = 185; 100% female; 39% spouse/SO	Evaluate socio-cultural model of stress and caregiver burden	α = .81–85	^a SE:CT inversely related to burden scores. Ethnicity had direct and indirect influence on burden via SE:CT.
31. Nogales-González, Romero-Moreno, Losada, Márquez-González, and Zarit (2015)	Spain/Spanish	N = 231; 79% female; 58% adult children	Predict well-being	SE:MB α = .80	^a SE:MB partially moderated the relationship between patient behavior problems and caregiver reactions. High SE caregivers were less upset by increasing number of disruptive and depressive behaviors.
32. Peñacoba and colleagues (2008)	Spain/Spanish	N = 202; 78% female; 36% spouses; 57% adult children	Measurement study	Not reported	^a CFA supported three-factor model ($\chi^2 = 120.86$, $df = 87$; GFI = 0.93; IFI = 0.97; CFI = 0.97; RMSEA = .04). Factor loadings ranged 0.45–0.94.
33. Rabinowitz, Mausbach, Thompson, and Gallagher-Thompson (2007)	USA/English and Spanish	N = 256; 100% female; 38% spouses/SOs; 52% adult children	Predict cumulative health risk	SE:OR α = .84; SE:MB α = .89; SE:CT α = .89	^a SE:OR and SE:CT associated with fewer caregiver health risk behaviors; SE:CT associated with improved dietary practices
34. Rabinowitz, Mausbach, and Gallagher-Thompson (2009)	USA/English and Spanish	N = 256; 100% female; 61% spouses/SOs	Test model of caregiver depression	SE:OR α = .89; SE:MB α = .89; SE:CT α = .88	^a SE:MB and SE:CT had direct inverse relationship with depressive symptoms. SE:MB moderated relationship between patient behavior problems and caregiver depression.

Table 1. Continued

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
35. Rabinowitz, Saenz, Thompson, and Gallagher-Thompson (2011)	USA/English and Spanish	N = 256; 100% female; 61% spouses/SOs	Test model predicting health risk	SE:OR α = .89; SE:MB α = .89; SE:CT α = .88	^a Depressive symptoms mediated the relationship between self-efficacy (SE:OR, SE:CT) and cumulative health risk
36. Romero-Moreno and colleagues (2011)	Spain/Spanish	N = 167; 77.20% female; 34.30% spouses; 60.20% adult children	Test SE as moderator of the relationship between stressors and distress	SE:MB α = .80; SE:CT α = .82	^a SE:MB did not moderate the relationship between patient behavior problems and burden; SE:CT moderated the relationship between burden and distress (depression and anxiety). Support for construct validity of scale, showing inverse relationships between SE:MB and burden; and between SE:CT and depression/anxiety
37. Romero-Moreno, Márquez-González, Mausbach, and Losada (2012)	Spain/Spanish	N = 130; 83.08 female; 34.62% spouses; 61.53% adult children; (n = 116 at 3 month f/u ; n = 82 at 12 month f/u)	Conceptual model testing; predict depression longitudinally	SE:CT α = .78 (sole domain used in study)	^a Longitudinal analyses demonstrate that increases in SE:CT predicted decreases in depression over time
38. Séoud and Ducharme (2015)	Lebanon/Arabic	N = 140; 100% female; 18.6% wives; 69.3 adult daughters	Predict resilience	Total RSCSE α = .91	^a RSCSE total score associated with a measure of resilience after accounting for control variables
39. Steffen (2000)	USA/English	N = 33; 75.8% female; 54.5% spouses; 36.4% adults children	RCT outcome	SE:MB = .84	^a SE:MB scores were improved following both in-home and group-based interventions relative to control condition
40. Steffen and colleagues (2002)	USA/English	Study 1: N = 169; 100% female; 57% wives; 39% adult daughters Study 2: N = 145; 80% female; 46% spouse; 46% adult children	Measurement development	Study 1: SE:OR α = .88; SE:MB α = .84; SE:CT α = .86 Study 2: SE:OR α = .85; SE:MB α = .82; SE:CT α = .85	^a Original measurement development article. First sample used for scale refinement and exploratory factor analysis. Second sample used for CFA. Support for concurrent and discriminant validity examined with both data sets.

Table 1. Continued

Author (publication year)	Country/language	Sample	Use of measure	Alpha (α)	Findings ^a
41. Steffen and Gant (2015)	USA/English	$N = 74$; 100% female; 52% wives; 43% adult daughters	RCT outcome	Not reported	^a Telehealth behavioral coaching showed greater improvement in SE:OR and SE:MB relative to comparison condition
42. Waelde, Meyer, Thompson, Thompson, and Gallagher-Thompson (2017)	USA/English	$N = 31$; 100% female	RCT outcome	SE:CT $\alpha = .80$	SE:CT did not improve in meditation intervention group, relative to comparison condition
43. Waelde, Thompson, and Gallagher-Thompson (2004)	USA/English and Spanish	$N = 12$; 100% female; 50% wives; 50% adult daughters	^b Quasi-experimental study outcome	Not reported	^a Significant improvement in SE:CT scores following yoga-meditation intervention
44. Wawrziczny and colleagues (2017a)	France/French	$N = 125$; 60% female; 100% spouses	Modeling distress	SE:OR $\alpha = .83$; SE:MB $\alpha = .90$; SE:CT $\alpha = .83$	SE subscales did not show strong relationships with other variables and were excluded from the final model.
45. Wawrziczny and colleagues (2017b)	France/French	$N = 150$; 59.3% female; 100% spouses	Describe characteristics of cgs for early- and later-onset patients	Early onset: SE:OR $\alpha = .86$; SE:MB $\alpha = .86$; SE:CT $\alpha = .84$ Late onset: SE:OR $\alpha = .83$; SE:MB $\alpha = .89$; SE:CT $\alpha = .83$	^a Spouse cgs of early onset patients had lower average SE:CT scores compared to spouses of late onset individuals
46. Williams and colleagues (2010)	USA/English	$N = 116$; 78% female; 40% spouses; 50% adult children	RCT outcome	Not reported	No improvement in SE subscale scores following video-based skills intervention relative to wait list control

^aIndicates findings support hypothesized function of RSCSE in study.

^bPre-post design without a comparison group.

Table 2. Predictive Studies and RCTs Using Self-Report Format of Revised Scale for Caregiving Self-Efficacy ($n = 12$)^a

Author (publication year)	Country/ language	Sample	Use of measure	Alpha (α)	Findings ^a
47. Easom, Alston, and Coleman (2013)	USA/English	$N = 85$; 78% female; 49% adult children	^b Quasi-experimental study outcome	Not reported	No intervention effect for a total RSCSE score. Improved SE for worry about future (one item from SE:CT).
48. Farran and colleagues (2011)	USA/English	$N = 82$; 77% female; 55% spouse, 35% adult children	Support validity of Caregiver Assessment of Behavioral Skill-Self-Report (CAB-SR)	Not reported	^a SE:CT subscale correlated with four of the seven CAB-SR subscales
49. Glueckauf, Ketterson, Loomis, and Dages (2004)	USA/English	$N = 21$; 86% female; 62% spouses/SO; 38% adult children	^b Pilot quasi-experimental study outcome	Not reported	^a Significant pre-post intervention improvement in all three subscales
50. Glueckauf and colleagues (2007)	USA/English	$N = 14$; 71% female; 29% spouses/SO; 57% adult children	RCT outcome	Not reported	^a Significant pre-post intervention improvement in SE:OR and SE:MB for treatment compared to control
51. Hou and colleagues (2014)	China (Hong Kong)/ Cantonese	$N = 141$; 83% female; 40% spouses/SO; 45% adult children	RCT outcome	Not reported	^a Mindfulness-based stress reduction intervention showed greater improvement in SE:CT relative to control
52. Kwok and colleagues (2013)	China (Hong Kong)/ Cantonese	$N = 38$; 74% female; 10% spouses/SO; 87% adult children	RCT outcome	SE:OR $\alpha = .90$; SE:MB $\alpha = .93$; SE:CT $\alpha = .92$	^a Psychoeducation administered by telephone showed greater improvement in SE:OR relative to control. SE:MB showed nonsignificant trend for intervention impact.
53. Kwok and colleagues (2014)	China (Hong Kong)/ Cantonese	$N = 36$; 72% female; 16% spouses/SO; 78% adult children	^b Quasi-experimental study outcome	SE:MB $\alpha = .95$; SE:CT $\alpha = .91$	^a Dementia severity moderated impact of online CBT intervention on SE:CT
54. Lorig and colleagues (2012)	USA/English	$N = 60$; 82% female; 62% spouses/SO; 68% caring for dementia patients	^b Quasi-experimental study outcome	Not reported	^a Significant improvement in total SE score following online intervention
55. MacDougall and Steffen (2017)	USA/English	$N = 158$; 100% female; 17% spouse; 60% adult children	Predict emotional eating	SE:CT $\alpha = .90$	^a SE:CT predicted lower rates of emotional eating after controlling for other predictors

Table 2. Continued

Author (publication year)	Country/ language	Sample	Use of measure	Alpha (α)	Findings ^a
56. Marziali and Garcia (2011)	Canada/English and French	<i>N</i> = 91; 72% female; 74% spouses/SO; 26% adult children	RCT outcome	Not reported	^a Significant improvement in total SE score following two online interventions. Change in SE scores for video group predicted change in distress.
57. Sadak and colleagues (2015)	USA/English	<i>N</i> = 130; 80% female; 63% spouse/SO; 25% adult children	Support concurrent validity of PBH-LCI:D scale	α = .90	Correlation between RSCSE and PBH-LCI:D nonsignificant
58. Wang, Yip, and Chang (2016)	Taiwan/Chinese	<i>N</i> = 72; 78% female; 21% spouse/SO; 79% adult children	Test SE as a mediator of the relationship between stress- ors and depression.	Not reported	^a SE:CT partially mediated rela- tionship between stressors and depression.

^aIndicates findings support hypothesized function of RSCSE in study.

^bPre-post design without a comparison group.

translation processes recommended by Haccoun (1987), including parallel back-translation.

Chinese ($n = 15$)

For participants preferring Chinese language materials in studies conducted in the USA, Gallagher-Thompson and colleagues (Gallagher-Thompson et al., 2007_[19]; Holland et al., 2010_[25]) followed the WHO guidelines (WHO, 2017). WHO steps 1 and 2 were followed by pilot testing in the target groups to ensure that the meaning of the questions and the response options were accurately preserved. Au and colleagues (Au et al., 2009_[1]; Au, Lau, et al., 2010_[2]; Au, Li, et al., 2010_[3]) piloted the above Chinese translation with dementia caregivers in Hong Kong, and reported that no changes were deemed necessary. Cheng and colleagues (2013, 2014, 2016, 2017)_[5-8] performed their Chinese translation, back-translation, and piloting of the English-language scale independently of Gallagher-Thompson's and Au's research groups. These authors also reported not encountering any problems with the translation and that the items have been relevant for Hong Kong Chinese caregivers. Studies using Chinese translations of the scale have been conducted in China ((Au et al., 2009_[1]; Au, Lau, et al., 2010_[2]; Au, Li, et al., 2010_[3]; Au et al., 2014_[4]; Cheng et al., 2013_[5], 2014_[6], 2016_[7], 2017_[8]; Hou et al., 2014_[51]; Kwok et al., 2013_[52], 2014_[53]; Liu & Huang, 2016_[26]; Wang et al., 2016_[58]) and the USA (Gallagher-Thompson et al., 2007_[19]; Holland et al., 2010_[25]).

French ($n = 9$)

Cristancho-Lacroix and colleagues (2015_[12]) reported using the French Canadian translation of the RSCSE (Marziali & Garcia, 2011)_[56] with Parisian caregivers using face-to-face interviews. To adapt verbal expressions from French Canadian to Metropolitan French, several words were replaced. The authors reported that a few of the SE:CT items were considered "not applicable" by some participants, possibly due to cultural and religious issues. For instance, some French participants originating from Asiatic and Maghreb countries rejected SE:CT items that referred to thinking about caregiving situations as unpleasant or unfair. A few SE:MB items were considered too similar by some participants and interviewers had to explain to clarify them. Ducharme, Lévesque, Lachance, Kergoat, and Coulombe (2011)_[14] reported using a parallel-back translation procedure described by Haccoun (1987) for their French Canadian translation of the RSCSE, which was then used for subsequent projects. Studies using French translations of the scale were conducted in Canada (Ducharme, Lévesque, Lachance, Kergoat, & Coulombe, 2011_[14]; Ducharme, Lévesque, Lachance, Kergoat, Legault, et al., 2011_[15]; Ducharme et al., 2012_[16]; Ducharme, Lachance, Kergoat, et al., 2015_[17]; Ducharme, Lachance, Lévesque, et al., 2015_[18]; Marziali & Garcia, 2011_[56]) and France (Cristancho-Lacroix et al., 2015_[12]; Wawrziczny et al., 2017a_[44], 2017b_[45]).

Italian ($n = 1$)

There is one published study reporting use of an Italian translation of the RSCSE (Grano et al., 2017)^[24]; translation details were provided in an article published in an Italian-language journal.

Spanish ($n = 16$)

The first known Spanish translation was developed by Gallagher-Thompson and colleagues for participants in the United States using WHO (2017) guidelines (Depp et al., 2005^[13]; Montoro-Rodriguez & Gallagher-Thompson, 2009^[30]; Rabinowitz et al., 2007^[33], 2009^[34], 2011^[35]; Waelde et al., 2004^[43]). Márquez-González and colleagues (2009)^[28] described a Spanish version of the RSCSE for studies in Spain, following recommendations for adapting tests (Hambleton & Patsula, 1998) similar to WHO guidelines. The researchers did not report difficulties applying the scale to Spanish populations, as the concept of SE exists in the Spanish culture with the same meaning it has in Anglo-Saxon language and culture. Thus, construct equivalence was assumed; four translators highly proficient in both English and Spanish languages and familiar with both cultures translated and back-translated the instrument.

In a separate process, Crespo and Fernández-Lansac (2014) developed another Spanish translation of the scale. Two researchers from their group translated the RSCSE without substantive changes from the published English language version, including the instructions, items content, and order or response choices. This version was later revised and edited by two other members of the research group. The final draft was finally reviewed and piloted by Spanish-speaking people with no knowledge of the English version to ascertain that the meaning in Spanish was close enough to the original version in its entirety. Studies using Spanish translations of the scale have been conducted in Spain (Crespo & Fernández-Lansac, 2014^[11]; Lopez et al., 2012^[27]; Márquez-González et al., 2009^[28]; Nogales-González et al., 2015^[31]; Peñacoba et al., 2008^[32]; Romero-Moreno et al., 2011^[36], 2012^[37]) and the United States (Depp et al., 2005^[13]; Gallagher-Thompson et al., 2007^[19]; Gonyea et al., 2016^[23]; Holland et al., 2010^[25]; Montoro-Rodriguez & Gallagher-Thompson, 2009^[30]; Rabinowitz et al., 2007^[33], 2009^[34], 2011^[35]; Waelde et al., 2017^[42]).

RSCSE Psychometrics and Factor Structure

As shown in Table 1, internal reliabilities for interview administrations of the RSCSE have been strong: SE:OR $\alpha = .84-.95$; SE:MB $\alpha = .79-.95$; SE:CT $\alpha = .75-.92$. The original scale developers presented the RSCSE as multidimensional and recommended averaging scores across all three domains; some investigators have nonetheless treated the scale as unidimensional (full-scale $\alpha = .70-.92$). Although not as frequently reported, reliability indices for RSCSE collected via self-report have been similar; these are reported in Table 2 (SE:OR $\alpha = .90$; SE:MB $\alpha = .93-.95$; SE:CT $\alpha = .91-.92$; full-scale: $\alpha = .90$).

Two confirmatory factor analytic studies support the three-factor structure identified in the original development article. Using a sample of caregivers from Hong Kong and a Chinese translation of the scale, Cheng and colleagues (2013)^[5] performed a confirmatory factor analysis (CFA), analyzing the covariance matrix of the items using maximum likelihood estimation for CFA. The three-factor model fit the data very well, resulting in a nonsignificant chi square after letting the residuals of two items load freely. The fit of the original three-factor model for one of the Spanish translations was assessed by Peñacoba and colleagues (2008)^[32] through CFA. A good fit of the data to the original three-factor structure of the scale was obtained by allowing a covariance between the errors from items 4 and 5 (both items from the SE:OR subscale).

For the remainder of this review, relevant works are listed and then described within Tables 1 and 2. More complete descriptions of the studies and key findings are provided in the Supplementary Appendix A.

Predictors of Self-Efficacy

Several studies conducted in the United States and Canada have examined demographic (i.e., ethnicity, kinship, gender) and caregiving-context predictors of self-efficacy among English, French, and Spanish-speaking caregivers (Depp et al., 2005^[13]; Ducharme, Lévesque, Lachance, Kergoat, & Coulombe, 2011^[14]; Ducharme, Lachance, Kergoat, et al., 2015^[17]; Montoro-Rodriguez & Gallagher-Thompson, 2009^[30]; Wawrziczny et al., 2017b^[45]). Ethnicity (i.e., being Hispanic/Latino), kinship (e.g., being a daughter/daughter-in-law), gender (e.g., male), and onset (e.g., late onset) have been found to be directly related to caregivers' level of self-efficacy.

Caregiving Self-Efficacy as a Predictor of Physical Health

Several studies have utilized the RSCSE to predict variables related to physical health, including research conducted in Hong Kong (Au, Lau, et al., 2010^[2]) and in the United States (George & Steffen, 2014^[21]; Holland et al., 2010^[25]; MacDougall & Steffen, 2017^[55]; Rabinowitz et al., 2007^[33], 2011^[35]). Across these, data suggest complex bi-directional relationships between self-efficacy, depression, and health risk. Specifically, SE:CT has been found to be positively associated with better health behaviors, health-related quality of life, emotional eating, along with less utilization of psychotropic medications.

Caregiving Self-Efficacy as a Predictor of Mental Health

The RSCSE has been used as a predictor of mental health outcomes in caregivers. Although the majority of the studies focused on depressed mood/depressive symptoms, some examined perceived burden, anger, and positive indices such

as resilience. Direct effects between self-efficacy and mental health outcomes have been found in research conducted in Canada, Italy, Lebanon, Spain, Taiwan, and the United States (Crespo & Fernández-Lansac, 2014^[11]; Gilliam & Steffen, 2006^[22]; Liu & Huang, 2016^[26]; Lopez et al., 2012^[27]; Marziali et al., 2010^[29]; Romero-Moreno et al., 2012^[37]; Séoud & Ducharme, 2015^[38]). Mediation relationships have been found in China (Au et al., 2009^[1]; Wang et al., 2016^[58]), Taiwan (Liu & Huang, 2016^[26]), and Italy (Grano et al., 2017^[24]). Wawrziczny and colleagues (2017a)^[44] did not find that the subscales contributed to the final model of spousal distress (i.e., depression, health problems, disrupted schedule, and psychological distress) in French spousal caregivers. Moderating effects of specific RSCSE subscales have received support in the literature, in Hong Kong by Cheng and colleagues (2013^[5]), in Spain (Márquez-González et al., 2009^[28]; Nogales-González et al., 2015^[31]; Romero-Moreno et al., 2011^[36]) and in the United States (Rabinowitz et al., 2009^[34]). In general terms, results from different studies show that SE:MB and SE:CT moderate the impact of stressors on distress (i.e., burden, depressive, and anxiety symptoms), buffering the effects of stressors.

Intervention Research

In our review of interventions reporting use of the RSCSE, nine randomized clinical trials (RCTs) and five quasi-experimental studies designated the RSCSE as a primary outcome measure, with an additional five RCTs reporting results for the RSCSE as a secondary measure of outcome or as a mediator or moderator of outcome. No publications used a cut-off score to determine eligibility for inclusion, and there was support for RSCSE being sensitive to change with statistically significant findings in most reports (Au, Li, et al., 2010^[3]; Cheng et al., 2016^[7], 2017; Coon et al., 2003^[9]; Ducharme, Lévesque, Lachance, Kergoat, Legault, et al., 2011^[15]; Ducharme et al., 2012^[16]; Ducharme, Lachance, Lévesque, et al., 2015^[18]; Gallagher-Thompson et al., 2007^[19]; Gant et al., 2007^[20]; Glueckauf et al., 2004^[49], 2007^[50]; Gonyea et al., 2016^[23]; Hou et al., 2014^[51]; Kwok et al., 2013^[52], 2014^[53]; Lorig et al., 2012^[54]; Marziali & Garcia, 2011^[56]; Steffen, 2000^[39]; Steffen & Gant, 2015^[41]). Five studies reported nonsignificant findings for the RSCSE (Au et al., 2014^[4]; Cristancho-Lacroix et al., 2015^[12]; Easom et al., 2013^[47]; Waelde et al., 2017^[42]; Williams et al., 2010^[46]). Pretreatment subscale means varied across the publications (ranges SE:OR 47.0–70.7; SE:MB 55.5–72.9; SE:CT 54.2–70.0; Total score 53.0–71.8), as did post-treatment means (ranges SE:OR 54.7–74.4; SE:MB 59.8–81.1; SE:CT 59.7–81.0; Total score 62.0–78.3).

Several quasi-experimental studies, utilizing single group pre-post designs, have included the RSCSE as a measure of intervention impact. Of these five studies, four reported intervention effects on RSCSE scores (Glueckauf et al., 2004^[49]; Kwok et al., 2014^[53]; Lorig et al., 2012^[54]; Waelde et al., 2004^[43]) while one examined effects on a

RSCSE total score and did not (Easom et al., 2013)^[47]. Due to the lack of control or comparison groups, the results of those studies should be interpreted with caution. We present them as pilot studies worth some consideration due to the novel components of either the sample or approach to intervention delivery.

In summary, our review of the 21 published intervention studies utilizing the RSCSE as a primary or secondary outcome variable concludes that 17 (81%) reported that significant changes were observed in the RSCSE subscales or total score, suggesting that the scale can be used as a measure of outcome or as a mediator or moderator of treatment effects.

Discussion

The construct of SE appears to be relevant and readily measurable in diverse cultures. Considering our first aim of identifying published studies using the RSCSE, a number of empirical studies (58) have been found that have used the scale, with translations in Arabic, Chinese, English, French, Italian, and Spanish. In response to our second aim, all of the reviewed studies support the internal reliability of the subscales (Cronbach's alpha ranging from .79 to .95). Although the majority of studies followed Steffen and colleagues' (2002) recommendations for collecting data via interview, a sufficient number of studies have reported strong reliabilities and outcomes to justify self-report administration as well. In terms of the factor structure of the RSCSE, cross-national researchers were able to include the same items in the three subscales, which translated fairly well across multiple languages and cultures. In addition, the three-factor structure addressing respite, disruptive behaviors and upsetting thoughts has been confirmed for Chinese (Cheng et al., 2013)^[4] and Spanish (Peñacoba et al., 2008)^[30] caregivers. From the reviewed studies conducted in individualistic (e.g., the United States) and more collectivistic (e.g., China) cultures, these findings provide preliminary support for the cross-national utility of the scale. Despite the above, the Depp and colleagues (2005)^[13] study conducted in the United States suggests possible differences by ethnicity in SE mean scores. Specifically, when compared to Caucasian participants, Hispanic/Latina caregivers reported higher self-efficacy on two of the three subscales (SE:MB, SE:CT). Future studies should examine measurement invariance before using the RSCSE for comparisons across cultural or ethnic groups.

The impact of culture in the caregiving process has been recognized by models such as the socio-cultural stress and coping model (Aranda & Knight, 1997; Losada et al., 2010). Constructs such as coping and *familism* (i.e., placing priority of family needs over individual ones) vary in presentation or play a different role in the stress and coping process depending on the cultural or ethnic background of caregivers. Differences in predictors or effects of SE in different cultural groups are plausible. Several components

of SE may play a greater role or may be more relevant as treatment targets in one culture compared with others (e.g., asking a friend/relative to stay with the care-recipient for a day when the caregiver needs a break may be more difficult for those from a collectivist cultural background than for someone from an individualistic cultural background). Being aware of these differences could result in greater cultural sensitivity when designing and delivering interventions.

In addition to analyzing the functioning of the RSCSE scale in different cultures, another needed area of further research has to do with examining differences in RSCSE scores by gender. Only the study by [Ducharme, Lévesque, Lachance, Kergoat, and Coulombe \(2011\)](#) analyzed gender differences in the RSCSE, finding lower SE ratings for women than for men. This was echoed by [Gant and colleagues' \(2007\)](#) study^[20], whose sample of male-only caregivers reported relatively high SE scores at baseline. Self-efficacy is domain specific, such that SE in one domain does not suggest SE in other domains. Therefore, gender differences in SE are likely different depending on the specific domain assessed. Investigators who include male caregivers are encouraged to report data separated by gender. Moreover, there is a need to address the cultural basis of such gender differences as they are likely influenced by gender stereotyping and modeling opportunities for caregiving behaviors.

[Steffen and colleagues \(2002\)](#) recommended against averaging all items together as a total score. A number of studies confirm this point; the three subscales show differential associations with physical and mental health indices and respond differentially to select interventions. Although some have successfully used a total RSCSE score to demonstrate treatment effects ([Ducharme, Lévesque, Lachance, Kergoat, Legault, et al., 2011](#)^[15]; [Ducharme, Lachance, Lévesque, et al., 2015](#)^[18]; [Gonyea et al., 2016](#)^[23]; [Lorig et al., 2012](#)^[54]; [Marziali & Garcia, 2011](#)^[56]), one study using a total score resulted in null findings ([Easom et al., 2013](#)^[47]). To limit the number of variables, we suggest targeting a specific RSCSE subscale a priori for analysis. There are some valid concerns regarding score distribution and ceiling effects, as relatively high pretreatment means for the SE:MB and the SE:CT subscales have been reported by some of the studies in this review. To improve sensitivity to change, we encourage investigators to add higher challenge items and continue measurement development work.

An important limitation of this measure is related to its development within the context of mid-stage Alzheimer disease. The three subscales reflect specific domains that were considered key to supporting caregivers of an individual experiencing significant dementia-related impairment. There may well be additional caregiving domains that are important to capture in SE assessment (e.g., communicating with other family members, planning for the future). The SE:OR subscale is limited in not applying to caregivers of persons in early-stage dementia who can be safely

left alone, or when the patient resides with another family member or care provider. Similarly, the SE:MB subscale is entirely specific to moderate levels of cognitive impairment, and highly questionable for use in other caregiving situations (i.e., level of cognitive impairment that are severe, mild, or nonexistent.)

Although the SE:CT subscale is the least specific to the caregiving situation, and thus the most generalizable, that subscale also comes with limitations and cautions. There is a risk that caregivers may have difficulty understanding instructions and resort to rating the frequency of negative cognitions rather than their ability to control them. For example, [Romero-Moreno and colleagues \(2011\)](#)^[36] recommend paying special attention during interview administration of this subscale, to confirm caregiver understanding of the items. Similarly, [Cristancho-Lacroix and colleagues \(2015\)](#)^[12] note that not all items in the SE:CT subscale translated well conceptually for some participants from Asiatic or Maghreb countries. The focus on “controlling” thoughts is also more consistent with second-wave cognitive therapies (e.g., cognitive therapy, Beck’s Cognitive Behavioral Therapy), as opposed to third-wave interventions that focus on changing the function of cognitions rather than the content of the thought (e.g., acceptance and commitment therapy, Mindfulness-based CBT). Thus, future scale development could usefully lead to a cognitively focused subscale with revised items or a revised instruction that is more compatible with mindfulness-oriented interventions. Overall, given the support for use of the SE-CT subscale with dementia caregivers ([Cheng et al., 2013](#)^[5]; [Crellin, Orrell, et al., 2014](#)) and its applicability within other caregiving situations, we continue to see utility for this subscale but call for careful attention to way it is administrated.

By virtue of its brevity, short administration time, and sensitivity to change following relevant interventions, the RSCSE has utility for a number of clinical applications. The three domains can function as targeted areas within multi-component interventions. The subscale(s) having the lowest rating can guide therapists or facilitators of intervention groups to the area(s) of focus, while serving as indicators for monitoring responsiveness to the intervention. The literature does not yet support use of a specific cut-off score or clinically meaningful change score. Our tentative recommendation based on experience with samples of help-seeking caregivers is that subscale mean scores below 70 merit attention within treatment settings, with 10-point improvements signifying important gains in confidence to manage important aspects of caregiving. Investigators should explore cut-off scores and indicators of clinically significant change in future research.

All these considerations stem from the present review, which, though extensive, has limitations that are worthy of attention. Because our review focused solely on works published in English language journals, we have omitted several translations and adaptations of the RSCSE that may be useful to potential users. Moreover, the inclusion criteria

established for our review precluded consideration of adaptations for use with caregivers of other conditions besides dementia. Taking these limitations into account, we must be cautious about generalizing the conclusions to broader samples of caregivers.

In summary, the reliability and validity of different translations of the Revised Scale for Caregiving Self-Efficacy appears solid and supports continued use of this measure with cross-national samples of dementia family caregivers. The use of the scale shows significant benefit within the caregiver intervention research literature; this is important given the growth of caregiver interventions across the cross-national community (Gallagher-Thompson et al., 2012).

Supplementary Material

Supplementary data are available at *The Gerontologist* online.

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