



# CANADIAN STROKE BEST PRACTICE RECOMMENDATIONS

## Vascular Cognitive Impairment Evidence Tables

7<sup>th</sup> Edition, Update 2024

*Support for Individuals with VCI, Their Families and Caregivers*

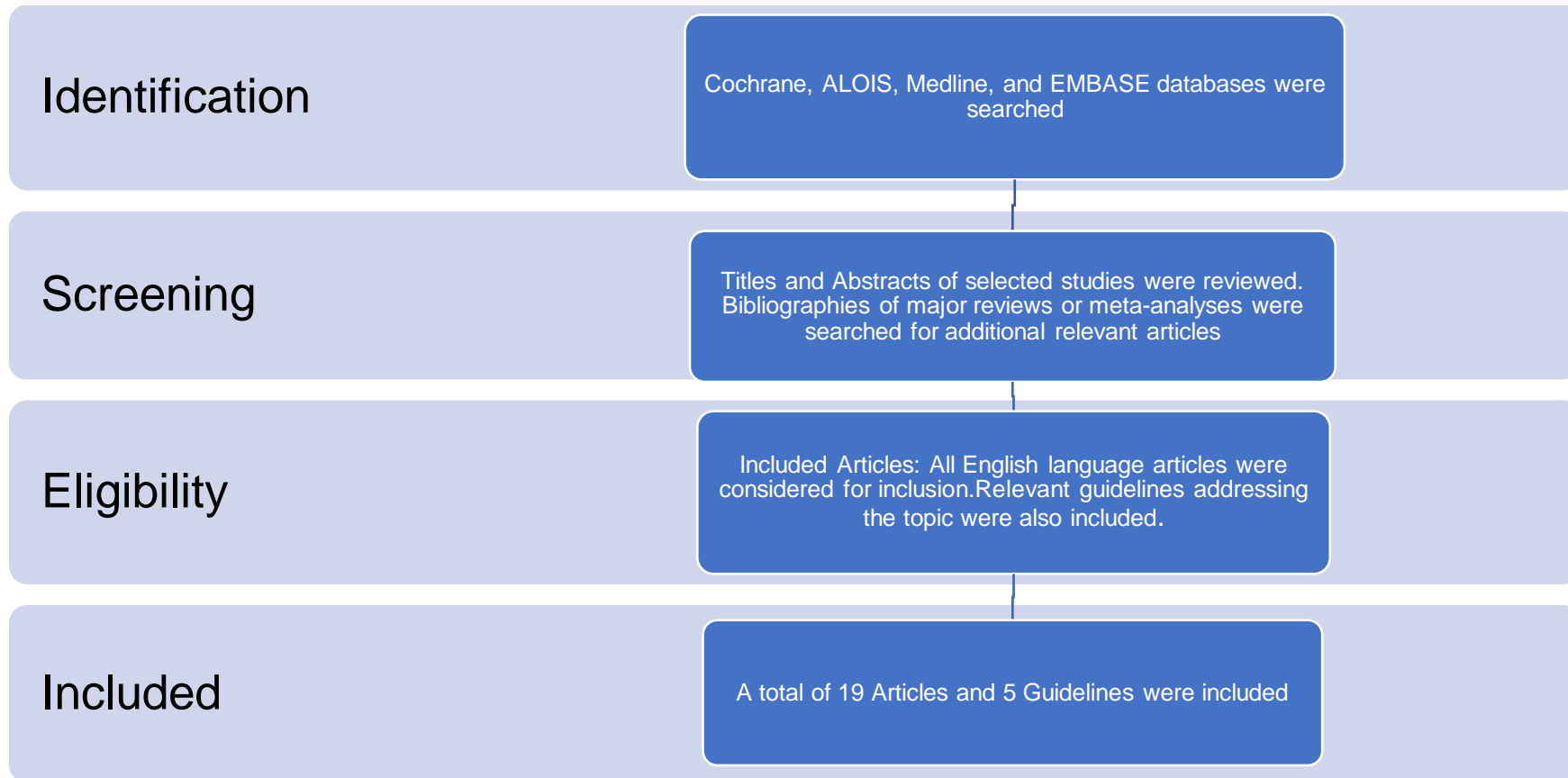
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Vascular Cognitive Impairment Writing Group and in collaboration with the  
Canadian Stroke Consortium CanStroke Recovery Clinical Trials Platform.*

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## Search Strategy



Pubmed, EMBASE and the Cochrane Central Register of Controlled Trials databases were search using the terms vascular dementia OR dementia OR cognitive impairment OR small vessel disease AND rehabilitation AND caregiver OR Carer OR family AND support. Titles and abstract of each article were reviewed for relevance. Bibliographies were reviewed to find additional relevant articles. A total of 5 guidelines and 19 articles were included and were separated into separate categories designed to answer specific questions.

## Published Guidelines

Guideline	Recommendations
<p><b>Scottish Intercollegiate Guidelines Network (SIGN). Assessment, diagnosis, care and support for people with dementia and their carers 2023. (SIGN publication no. 168). [November 2023].</b></p> <p>Available from URL: <a href="http://www.sign.ac.uk">http://www.sign.ac.uk</a></p> <p>(selected)</p>	<p><i>Grief and dementia</i> Healthcare professionals should be aware that carers of people with dementia may experience pre-death grief from the point of diagnosis and throughout the stages of dementia, and sensitively enquire about these experiences: • worsening pre-death grief as dementia becomes more severe • worsening pre-death grief at transition points, such as when the person with dementia is moved to long-term care.</p> <p><i>Non-pharmacological approaches for distressed behaviours</i> For carers of people with dementia, provision of tailored psychoeducation and skills training may be considered. Components may include: • problem solving • identifying triggers • coping strategies for distressed behaviour • stress reduction • cognitive restructuring • communication skills • crisis management.</p>
<p><b>Ismail Z, Black SE, Camicioli R, Chertkow H, Herrmann N, Laforce R Jr, Montero-Odasso M, Rockwood K, Rosa-Neto P, Seitz D, Sivananthan S, Smith EE, Soucy JP, Vedel I, Gauthier S; CCCDTD5 participants.</b></p> <p>Recommendations of the 5<sup>th</sup> Canadian Consensus Conference on the diagnosis and treatment of dementia.</p> <p><i>Alzheimers Dement.</i> 2020 Aug;16(8):1182-1195. doi: 10.1002/alz.12105.</p> <p>(selected)</p>	<p>3. Psychoeducational interventions for caregivers aim at the development of problem-focused coping strategies while psychosocial interventions address the development of emotion-focused coping strategies. These can include education, counseling, information regarding services, enhancing carer skills to provide care, problem solving, and strategy development. We recommend considering psychosocial and psychoeducational interventions for caregivers of people living with dementia. 2C</p>
<p><b>Winstein CJ, Stein J, Arena R et al. on behalf of the American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Quality of Care and Outcomes Research.</b></p> <p><b>Guidelines for adult stroke rehabilitation</b></p>	<p>It may be useful for the family/caregiver to be an integral component of stroke rehabilitation. Class IIb; LOE A</p> <p>It may be reasonable that family/caregiver support include some or all of the following on a regular basis: Class IIb, LOE A</p> <ul style="list-style-type: none"> <li>• Education</li> <li>• Training</li> <li>• Counseling</li> <li>• Development of a support structure</li> <li>• Financial assistance</li> </ul> <p>It may be useful to have the family/caregiver involved in decision making and treatment planning as early as possible and</p>

Guideline	Recommendations
<p><b>and recovery: a guideline for healthcare professionals from the American Heart Association/American Stroke Association.</b></p> <p><i>Stroke</i> 2016;47:e98–e169.</p>	<p>throughout the duration of the rehabilitation process. Class IIb, LOE B</p>
<p><b>Intercollegiate Stroke Working Party. National clinical guideline for stroke, 5<sup>th</sup> Edition. London: Royal College of Physicians, 2016.</b></p>	<p><b>2.16.1 (F)</b></p> <p>After a person with stroke has returned to the home or care home setting, their carer should:</p> <ul style="list-style-type: none"> <li>– have their need for information and support reassessed whenever there is a significant change in circumstances (e.g. if the health of the carer or the person with stroke changes);</li> <li>– be reminded and assisted in how to seek further help and support.</li> </ul> <p><b>6.5.1 Recommendations (Commissioning long-term services)</b></p> <p>Commissioners should ensure that, between health and social services and other agencies, people with stroke can:</p> <ul style="list-style-type: none"> <li>– receive the practical (e.g. housing, employment) and emotional support they need to live with long-term disability;</li> <li>– access suitable social and leisure activities outside their homes;</li> <li>– receive maintenance interventions (e.g. provision of exercise programmes and peer support) to enhance and maintain health and well-being.</li> </ul> <p>Commissioners in health and social care should ensure that the carers of people with stroke:</p> <ul style="list-style-type: none"> <li>– are aware that their needs can be assessed separately;</li> <li>– are able to access the advice, support and help they need;</li> <li>– are provided with information, equipment and appropriate training (e.g. manual handling) to enable them to care for a person with stroke;</li> <li>– have their need for information and support reassessed whenever there is a significant change in circumstances (e.g. if the health of the carer or the person with stroke changes).</li> </ul>
<p><b>Bakas T, Clark PC, Kelly-Hayes M, et al.</b></p> <p><b>Evidence for stroke family caregiver and dyad interventions: A statement for healthcare professionals from the American Heart Association and American Stroke Association. <i>Stroke</i> 2014;45:2836-52</b></p>	<p>Recommendations for caregiver vs dyad interventions:</p> <p>Interventions that combine skill building (eg, problem solving, stress management, goal setting) with psycho-educational strategies should be chosen over interventions that only use psycho-educational strategies. Class I; Level of Evidence A</p> <p>Interventions that involve only psycho-education are not recommended and have the potential to jeopardize social functioning in some survivors and caregivers. Class III; Level of Evidence B</p> <p>Interventions that consist of support only or a combination of support and psycho-education are not well established and do not have sufficiently strong evidence. Class IIb; Level of Evidence B</p>

## Evidence Tables

### Predicting High Caregiver Burden

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p><b>Jhang et al. 2021</b></p> <p><b>Taiwan</b></p> <p><b>Cross-sectional study</b></p>	NA	158 patients with VCI and their caregivers. 75% of persons with dementia were aged $\geq 75$ years, 53% were women. 80% had mild or moderate dementia. 57% of caregivers were aged 50-69 years. 85% of caregiver was a spouse or child, 51% were employed. 87% of caregivers were providing care $\geq 6$ days per week.	The a priori algorithm was used to identify the attributes that resulted in different caregiving burdens from a comprehensive viewpoint of both VCI patients and their caregivers. The algorithm was based on correlations	<p><b>Primary outcomes:</b> Predictors (rules) of caregiver burden</p>	<p>7 general rules were created based on a summary of 59 rules, produced by the algorithm.</p> <p>Rule 1. The rule predicted a caregiver as having a moderate to severe burden if they were an employed spouse who took care of the VCI patients alone, and who had a mood of anger.</p> <p>Rule 2. The rule predicted a caregiver as having a moderate to severe burden if they were an employed spouse who took care of the VCI patients alone, and who had a mood of anger.</p> <p>Predictors of moderate to severe caregiver burden were employed female caregiver who was taking care of her husband alone for <math>\geq 6</math> days per week, and who was helping with all key activities.</p> <p>Moreover, if the caregiver had a relatively low education level and expressed an abnormal mood during the assessment, this increased the likelihood of the caregiver having a moderate to severe burden.</p>

## Education & Support for Family & Informal Caregivers

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p><b>Wiegelmann et al. 2021</b></p> <p><b>Germany</b></p> <p><b>Systematic review</b></p>	<p>The mean quality score was 8.9 using the scoring system developed by Brodaty. possible scores range from 0-11.</p>	<p>48 RCTs including informal caregivers for persons with dementia.</p>	<p>Interventions were focused on the mental health of carers and included psychoeducation (n=20), leisure and physical activity (n=9), counselling (n=8), cognitive behavioural approaches (n=7) and befriending &amp; peer-support (n=2). The mean number of sessions provided was 8, mean duration of the intervention was 12 weeks.</p> <p>Most interventions were provided face-to-face, 9 were combined with telephone sessions, and a few trials used telephone only, videoconferencing+face-to-face, DVD, or internet support.</p>	<p><b>Primary outcomes:</b> Burden, depression and quality of life (QoL)</p>	<p>26 interventions assessed subjective burden. In 12 trials (46.2%), significant improvements were observed in the intervention group.</p> <p>24 interventions assessed depression. Among them, 9 trials (37.5%) found statistically significant decreases in depression in the intervention group.</p> <p>23 interventions assessed QoL. Among them, 5 trials (21.7%) found statistically significant decreases in depression in the intervention group.</p> <p>Other outcomes that were not associated with significantly greater effects in the intervention group, compared with control included well-being, anxiety, stress, grief and mood.</p>
<p><b>Livingston et al. 2020</b></p> <p><b>UK</b></p> <p><b>RCT (STrAtegies for RelaTives)</b></p>	<p>CA: <input checked="" type="checkbox"/></p> <p>Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/></p> <p>ITT: <input checked="" type="checkbox"/></p>	<p>260 family carers, who provided at least weekly support to people with dementia. Mean age was 59 years, 69% were women.</p>	<p>Carers were randomized (2:1) to the START intervention, an 8-session manual-based coping intervention delivered by supervised psychology graduates, or to treatment as usual (TAU) for 72 months</p>	<p><b>Primary outcome:</b> Hospital Anxiety and Depression Scale (HADS)</p>	<p>Carers were spouses/partners (42%) or children (44%).</p> <p>Mean baseline total HADS scores were 13.5 (intervention) and 14.8 (TAU).</p> <p>Over the 6-year study, the mean between group change (improvement) in total HADS scores was 2.00, favouring the intervention group.</p> <p>The odds of depression cases (HADS-D ≥9) were significantly lower in the intervention group (OR=0.20, 95% CI 0.08–0.52), while the odds of anxiety cases (HADS-A ≥9) were not (OR=0.50, 95% CI 0.24–1.07).</p>
<p><b>Viscogliosi et al. 2019</b></p>	<p>NA</p>	<p>12 family caregivers of persons who experienced a stroke, 7 of whom lived</p>	<p>Caregivers completed a burden questionnaire and semi-structured interviews at one</p>	<p><b>Primary outcome:</b> 3 quantitative assessments of caregiver</p>	<p>Four caregivers provided ≤10 hours of help per week, 6 between 13 and 16 hours, and 2 provided &gt; 20 hours.</p>

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<p><b>Canada</b></p> <p><b>Mixed methods</b></p>		<p>with the care recipient (patient). Caregivers were aged 45 to 88 years.</p>	<p>month, 3 months, and 6 months following the patient's discharge home from acute care, rehabilitation, or day hospital.</p>	<p>burden (daily living support [18 items], concern for care recipient's well-being [6 items] and impact on caregiver's social life [17 items])</p>	<p>On the daily living support subscale of the caregiver burden questionnaire, 2 caregivers reported giving a lot of daily living support all 3 interviews, 2 thought they gave a lot of daily living support only at the first interview, and one caregiver reported giving a lot at the second and third interview. 7 caregivers reported that they never gave a lot of daily living support.</p> <p>On the concern for care recipient's well-being subscale of the quantitative burden questionnaire, 6 caregivers expressed great concern for the care recipient's well-being at all 3 measurement times, 2 reported great concern for the care recipient's well-being only at the time of one interview and 2 caregivers at the time of 2 interviews, while 2 caregivers expressed a low level of concern for the care recipient's well-being at all 3 interviews.</p> <p>On the impact on social life subscale of the quantitative burden questionnaire, 3 caregivers experienced great impact on their social life at all 3 interviews, 4 caregivers reported little impact on their social life in all three interviews. One caregiver experienced a low impact at the time of only one of the three interviews, and four caregivers at the time of two.</p> <p>Caregivers who used many verbal cues as cognitive support reported a low impact on their social life, and their concern for their care recipient's well-being was not high.</p> <p>When caregivers asked care recipients which type of help to give, approved care recipients' behavior, explained the type of help given,</p>



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					used problem solving as a cognitive support or gave numerous warnings, they reported little impact on their own social life. These types of help were never related to greater concern for the care recipient's well-being. For caregivers who gave a lot of daily living support fostering the care recipient's social participation, the impact on their own social life remained low even though they expressed great concern for their care recipient's well-being.
<b>Tao &amp; Zhang 2019</b>  <b>China</b>  <b>Scoping review</b>	NA	41 publications (including 26 RCTs) examining problem-solving based interventions, which were focused on caregivers of elderly people. Conditions included cancer, mental illness, traumatic brain injury, depression and dementia, among others.	Narrative synthesis of results.  Most of the interventions used a combination of face to face and telephone, while others used face to face, telephone, web alone. The numbers of sessions ranged from 3 to 12.	<b>Primary outcomes:</b> None stated a priori	27 unique problem-based interventions examined.  Most problem-solving based intervention reduced depression and anxiety levels, as well as caregiver burden.  2/3 studies reported improved quality of life while 3/3 reported improvement in symptoms of fatigue.
<b>Williams et al. 2019</b>  <b>UK</b>  <b>Systematic review</b>	12 trials were considered moderate in quality and 22 were high quality, using the Critical Appraisal Skills Programme	34 RCTs including informal carers of persons with dementia, living in the community.	Trials compared carer-directed interventions designed to reduce burden/stress among informal caregivers of people with dementia with usual or standard care. 12 trials included multicomponent interventions, 16 provided skills training or education, 3 provided support and counseling and 3 were of physical activity.	<b>Primary outcome:</b> Standardized mean difference (SMD) of burden measures at the end of treatment  (the most commonly used instruments were the Zarit Burden Scale, the Family Caregiving Burden Inventory, Caregiver Strain Instrument, Relative Stress Scale, Revised Memory and Behaviour Problems checklist and the Perceived Stress Scale	Results from 30 trials could be pooled.  Among the 12 multicomponent trials, the mean difference between treatment groups at the end of the intervention was significant in 3 trials.  Among the 16 skills/education trials, the mean difference between treatment groups at the end of the intervention was significant in 3 trials.  There were no significant differences between groups for any of the support and counseling groups or physical activity trials.  Overall, the effect size (SMD) was small, but significant (-0.18, 95% CI -0.30 to -0.05).
<b>Zhang et al.</b>	CA: <input checked="" type="checkbox"/>	196 first-ever acute	Participants were randomized	<b>Primary outcomes:</b>	There were 9 withdrawals from the ICEP

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<b>2019</b> <b>China</b> <b>RCT</b>	Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/> ITT: <input checked="" type="checkbox"/>	ischemic stroke patients and their caregivers. The mean age of patients was 67 years, 58% were men. Baseline MMSE score was 27, 27% were considered cognitively impaired. The mean age of the caregivers was 47 years, 31% were men.	1:1 to receive a 12-month intensive caregiver education program (ICEP) or a control group. Following discharge from hospital, caregivers in the ICEP group were invited to the hospital every 2 weeks to receive a 90-minute individualized educational sessions given by the trained nurse, and also received an additional 30-minute psychological nursing session. Caregivers in the control group were given educational materials (same as those in the ICEP group received) and two face-to-face instruction sessions given by a trained nurse on the day of enrollment and the day of the discharge from hospital.	MMSE, MoCA, Hospital Anxiety and Depression Scale (HADS), Zung Self-rating Anxiety Scale (SAS), and Zung Self-rating Depression Scale (SDS).  Assessments were conducted at baseline, and 3, 6 and 12 months	group and 13 from the control group.  The change in mean MMSE scores from baseline to the end of treatment was significantly greater in the ICEP group (0.5 vs. -0.3, $p < 0.001$ ). At 12 months, significantly fewer persons in the ICEP group were cognitively impaired (22.4% vs. 36.7%, $p = 0.028$ ).  The change in mean MoCA scores from baseline to the end of treatment was significantly greater in the ICEP group (1.5 vs. 0.2, $p = 0.001$ ). At 12 months, significantly fewer persons in the ICEP group were cognitively impaired (32.7% vs. 53.1%, $p = 0.004$ ).  The changes in mean HADS score (anxiety and depression) and Zung SAS scores from baseline to the end of treatment were significantly greater (i.e. improved) in persons in the ICEP group although there was no significant difference in the percentage of persons who were considered depressed or anxious at the end of treatment between groups. Using the Zung SDS, significantly fewer persons in the ICEP group were considered depressed at 12 months (23.5% vs. 38.8%, $p = 0.021$ ).
<b>Liu et al. 2018</b> <b>China</b> <b>Cochrane review</b>	All trials were at high risk of bias for blinding of participants and assessors. Most trials provided no information about	5 RCTs involving 201 unpaid carers of persons with any type of dementia. Mean ages of carers ranged from 57 to 70 years. Greater than 80% of the carers were women in 4/5 trials.	Trials compared mindfulness-based stress reduction (MBSR) interventions vs. active/inactive control interventions.  Persons in the MBSR group received 6-8 weekly sessions covering body scan, mindful hatha yoga, sitting meditation, and other mindfulness practices. Persons in the active	<b>Primary outcome:</b> Depressive symptoms  <b>Secondary outcomes:</b> Carers: anxiety, burden	At the end of treatment, carer depressive symptoms were significantly lower in the MBSR group compared with the active control group (SMD=-0.63, 95% CI -0.98 to -0.28, Results of 3 trials included). GRADE Quality of the evidence was low  At the end of treatment, carer anxiety was significantly lower in the MBSR group compared with the active control group, assessed using the STAI-state anxiety

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	selective reporting, incomplete outcome data, or allocation concealment		control group received group education, social support, progressive muscle relaxation. Persons in the inactive control group received respite care and self-help.		<p>subscale (MD=-7.5, 95% CI -13.11 to -1.89. Results from 1 trial included). GRADE Quality of the evidence was low</p> <p>At the end of treatment, carer burden was not significantly lower in the MBSR group compared with the active control group, (SMD=0.24, 95% CI -0.11 to 0.58. Results from 3 trials included). GRADE Quality of the evidence was low</p> <p>At the end of treatment, carer depressive symptoms were not significantly lower in the MBSR group compared with the inactive control group, assessed using the Center for Epidemiological Studies Depression Scale (MD=-1.97, 95% CI -6.89 to 2.95, Results of 2 trials included). GRADE Quality of the evidence was low</p> <p>At the end of treatment, carer anxiety was not significantly lower in the MBSR group compared with the inactive control group, assessed using the STAI-state anxiety subscale (MD=-7.27 95% CI -14.92 to 0.389. Results from 1 trial included). GRADE Quality of the evidence was low</p> <p>At the end of treatment, carer burden was not significantly lower in the MBSR group compared with the inactive control group, assessed using the Revised Memory and Behavior Problems Checklist (MD=-1.6, 95% CI -19.48 to 16.28. Results from 1 trial included). GRADE Quality of the evidence was very low</p>
<p><b>Dickinson et al. 2017</b> <b>UK</b></p>	Studies were of high or moderate quality, using the	13 reviews examining psychosocial interventions for informal carers of people with dementia living in the community. Carers	Interventions included psychosocial, therapeutic, multicomponent, information and support, educational/psychoeducational,	<p><b>Primary outcomes:</b> Psychological outcomes (e.g., depression or anxiety), healthcare usage, and quality of life</p>	<p>Key findings <i>Psychosocial interventions</i> 2 reviews included. One reported significant benefit in caregiver psychological distress (22 trials; effect size= 0.31; 95% CI: 0.13–0.50).</p>

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<p><b>Systematic review of systematic reviews</b></p>	<p>Assessment of Multiple Systematic Reviews” (AMSTAR) measurement tool</p>	<p>were usually female and aged over 55 years.</p>	<p>and technology-based, and aimed to increase knowledge (education), improve skills, and/or coping strategies and/or to provide support.</p>		<p>In the other review, the evidence base was weak.</p> <p><i>Therapeutic interventions</i> 4 reviews included. There is evidence of a beneficial effect of cognitive reframing on carers’ psychological well-being and for CBT in terms of improving depression and burden.</p> <p><i>Information and support</i> 4 reviews included. Evidence is mixed, with some positive evidence for improvements in carers’ psychological well-being, depression, burden, and social outcomes.</p> <p><i>Educational and psychoeducational interventions</i> Seven reviews included. Evidence is mixed. There appear to be certain key components which increase the effectiveness of such interventions: an underpinning theoretical foundation, group delivery as opposed to individual sessions and carers having a participatory role during the intervention.</p> <p><i>Multi-component interventions</i> Four reviews included. There is evidence to suggest that well-designed and clearly structured multi-component interventions can delay entry into residential or nursing care for people with dementia and improve carer mood.</p> <p><i>Technology-based interventions</i> Seven reviews were included. Interventions were diverse, with components including counseling and information and support; methods of delivery included the telephone and computers, with sessions targeted at individuals or groups. There is evidence to suggest that telephone counseling can be</p>

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					effective at reducing depressive symptoms in carers and internet-based supportive interventions may improve some outcomes for carers.
<b>Laver et al. 2017</b> <b>Australia</b> <b>Systematic review &amp; meta-analysis</b>	Quality of studies was considered moderate	40 RCTs that included carers of persons with dementia. Typically, participants were aged 60-70 years, 2/3 were women. The severity of most of the persons with dementia was mild to moderate.	Trials compared the efficacy of two approaches: multicomponent interventions that focused on working with the carer (n=17) and dyadic interventions that worked with both the carer and the person with dementia (n=23).	<b>Primary outcomes:</b> Depression, Quality of life, carer burden	Multicomponent interventions significantly reduced depressive symptoms, although the effect was small (carer only: SMD=-0.18, 95% CI -0.37 to 0, dyad: SMD=-0.33, 95% CI -0.62 to 0.04). There was no significant effect on quality of life, carer burden (carer or dyad), or ability of person with dementia to perform ADLs.  Overall, multicomponent interventions significantly reduced the caregiver upset with behavioral and psychological symptoms (SMD=-0.26, 95% CI -0.42 to -0.10).
<b>Jackson &amp; Browne 2017</b> <b>UK</b> <b>Narrative review</b>	On a scale with possible scores ranging from 0-5, only studies that scored ≥3 were included.	56 studies examining interventions aimed at supporting carers of persons with dementia.	Interventions were categorized into 8 groups: counselling and support; education; psychology; occupational therapy; formal approaches to care; telecare; multicomponent; and other	<b>Primary outcome:</b> Non stated a priori	Counselling and support were shown to reduce carer burden, symptoms of depression, and improve quality of life.  Educational interventions increased confidence in caring, reduced burden, increased competence and improved mental health.  Psychology interventions were shown to modify carers' dysfunctional thoughts and possibly reduce depression.  Remote interventions delivered by telephone, DVDs, web-based interventions may help to decrease symptoms of depression, increase carer competence, and reduce carer burden.  Multicomponent interventions may help to reduce anxiety and depression, stress and hostility and may help to improve sleep, physical and emotional health, and well-being.

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					<p>Other support interventions that we identified included befriending, exercise and poetry writing.</p> <p>The authors concluded that support interventions were more likely to be effective if: multiple supports are offered, educational interventions provide opportunity for active learning, and interventions are simple.</p>
<p><b>Parkinson et al. 2017</b></p> <p><b>UK</b></p> <p><b>Rapid realist review</b></p>	NA	217 documents including family caregivers of persons with dementia.	<p>A scoping review was conducted, and data were compiled using an overarching “middle-range theory”. Programme theories were based upon ‘what works to support family carers of people with dementia.</p>	<p><b>Primary outcome:</b> Non stated a priori</p>	<p>5 major themes were identified.</p> <p>1) extended social assets, (2) strengthening key psychological resources, (3) maintaining physical health status, (4) safeguarding quality of life and (5) ensuring timely availability of key external resources.</p> <p>The authors suggest these 5 factors combine and interact to provide critical biopsychosocial and service support that bolsters carer ‘resilience’ and supports the maintenance and sustenance of family care of people with dementia.</p>
<p><b>Vandepitte et al. 2016</b></p> <p><b>Belgium</b></p> <p><b>Systematic review</b></p>	Using the Downs & Black scoring tool (maximum of 28 points), scores ranged from 12-20	53 studies (45 RCTs) including caregivers of persons with dementia and caregiver/care recipient dyads	<p>5 main types of support were distinguished: psychoeducational interventions (n=37), respite care (n=5), occupational therapy interventions (n=8), and cognitive behavioral interventions (n=3). Intervention could be single or multicomponent interventions and individual or group based.</p>	<p><b>Primary outcome:</b> None stated a priori</p>	<p>Of the psychoeducational articles, 32 reported positive effects, of which there was greater benefit for caregivers (83% of the interventions investigating informal caregiver outcomes) than for care-recipients (39% of the interventions investigating care-recipient outcomes).</p> <p>Only one trial examined in-home respite care programme suggested beneficial effects for caregivers.</p> <p>Of the 8 trials that examined occupational therapy interventions, 7 reported benefits, especially in caregiver self-efficacy outcomes.</p>

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					3 trials examined cognitive behavioral interventions, of which all were group based. In each case, benefits for caregivers were found especially in dysfunctional thoughts.
<b>Chiu et al. 2013</b>  <b>Canada</b>  <b>Single group intervention study</b>	NA	73 carers who were relatives of a care recipient, who was most often diagnosed with dementia. The care recipient lived in the community with/without the carer. Mean age was 68 years, 79.5% were women. 70% were spouses, 30% were children of the care recipient.	Participants completed the Reitman Centre CARERS program, which was delivered in 10 weekly small group sessions, each lasting 2.5 hours, led by 2 facilitators who were mental health professionals. Carers learned how to deal with challenging situations they encountered at home.	<b>Primary outcomes:</b> Geriatric Depression Scale (GDS), Self-mastery scale, Role captivity scale, Role overload scale, Caregiving competence scale, Zarit burden interview and Coping inventory for stressful situations (CISS)  Assessments were conducted before and within one month after the completion of the program.	The mean change (improvement) from baseline was significantly greater for the outcomes of GDS (MD=-0.67, p=0.045), overload (MD=-0.55, p=0.032), caregiver competence (MD=1.26, p< 0.0001), and the emotional subscale of the CISS (MD=-2.37, p=0.005).  Carers with worse baseline scores, as determined by a standard/arbitrary cut-off, benefited most from the intervention.

### Support Delivered by Virtual Care

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<b>González-Fraile et al. 2021</b>  <b>Spain</b>  <b>Cochrane review</b>	Overall, trials were at high risk of bias due to lack of blinding (participants and outcome assessors) and selective reporting	26 RCTs including 2,367 informal caregivers of persons with dementia, living in the community. Median age of caregivers was 63 years, 72% were women	Trials compared structured psychoeducational interventions involving training with information (n=12), support with information (n=8) and training and support with information (n=6) vs. usual treatment or wait list (n=8), attention control (n=4), or information only (n=14)	<b>Primary outcomes:</b> Carer burden, mood, health-related quality of life (HRQoL)  <b>Secondary outcomes:</b> Caregiver knowledge and skills, use of health and social resources, need for institutionalization	<i>Interventions involving training, support or both (with or without information) versus usual treatment, waiting list or attention control</i>  A median of 24 weeks after the intervention, remotely delivered interventions involving training, support or both (with or without information) did not significantly reduce caregiver burden (SMD -0.06, 95% CI -0.35 to 0.23, 9 studies). GRADE: moderate  Remotely delivered interventions involving training, support or both (with or without

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					<p>information) did not significantly reduce caregiver depressive symptoms (SMD -0.05, 95% CI -0.22 to 0.12, 8 studies). GRADE: moderate</p> <p>At 6 to 24 weeks, remotely delivered interventions involving training, support or both (with or without information) did not significantly improve caregiver HRQoL (SMD 0.10, 95% CI -0.13 to 0.32, 2 studies, GRADE: low), reduce the use of health and social resources or reduce admissions to institutional care.</p> <p><i>Interventions involving training, support or both (with or without information) versus information alone</i></p> <p>At a median of 20 weeks, remotely delivered interventions involving training, support or both (with or without information) were associated with a significant reduction in caregiver burden (SMD -0.24, 95% CI -0.51 to 0.04, 9 studies). GRADE: low</p> <p>At a median of 20 weeks, remotely delivered interventions involving training, support or both (with or without information) significantly reduced caregiver depressive symptoms (SMD -0.25, 95% CI -0.43 to -0.06, 11 studies). GRADE: moderate</p> <p>At 12-24 weeks, remotely delivered interventions involving training, support or both (with or without information) did not significantly improve caregiver HRQoL (SMD -0.03, 95% CI -0.28 to 0.21, 4 studies). GRADE: moderate</p> <p>The risk of dropouts in the training/support group was significantly higher (RR= 1.51,</p>



Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
<p><b>Leng et al. 2020</b></p> <p><b>China</b></p> <p><b>Systematic review &amp; meta-analysis</b></p>	<p>Using the Cochrane risk of bias tool, all trials had <math>\geq 1</math> domain where there was risk of bias or uncertainty of the risk of bias</p>	<p>17 RCTs including family caregivers who were currently providing caregiving support to people with dementia.</p>	<p>Trials compared any personalized or non-personalized intervention, which was delivered by the internet, which could include either single-component interventions or multiple-component interventions to family caregivers with a control group (usual care or minimal support control by using paper materials, telephone, or email, etc). The intervention duration ranged from 4 weeks to 12 months.</p>	<p><b>Primary outcomes:</b> Depression, anxiety, carer burden, self-efficacy</p>	<p>95% CI 1.04 to 2.20).</p> <p>Overall, the intervention was associated with a significant reduction in depression compared with the control condition (SMD = -0.21; 95% CI -0.31 to -0.10). Results from 11 trials included.</p> <p>The intervention was not associated with a significant reduction in carer burden (SMD= -.10, 95% CI -0.21 to 0.02). Results from 10 trials included.</p> <p>The intervention was associated with a significant reduction in perceived distress/stress (SMD= -0.40, 95% CI -0.55 to -.24). Results from 7 trials included.</p> <p>The intervention was not associated with a significant improvement in coping competence or carers reactions to behavioral symptoms, based on the results from 7 and 4 trials, respectively.</p> <p>Based on the results from 3 trials, the intervention helped to reduce anxiety (SMD= -0.33, 95% CI -0.51 to 0.16).</p> <p>Based on the results from 2 trials, the intervention was associated with an improvement in self-efficacy (SMD=0.19, 95% CI 0.05-0.33).</p>
<p><b>Zhu et al. 2021</b></p> <p><b>China</b></p> <p><b>Systematic review &amp; meta-analysis</b></p>	<p>Using the Cochrane risk of bias tool, all trials had <math>\geq 1</math> domain where there was risk of bias or uncertainty of the risk of bias</p>	<p>11 RCTs (n=1,087) including carers of persons with dementia. Carers of persons with Alzheimer's disease were included in 5 trials. Mean age of carers was 64 years.</p>	<p>Trials examined psychoeducational programs and psychotherapeutic interventions. Interventions included face-to-face contact blended with online modules (n=1), telephone-based interventions (n=4), combined face-to-face contact and phone</p>	<p><b>Primary outcomes:</b> Depression, anxiety, Quality of life (QoL), burden</p>	<p>Overall, the intervention was associated with a significant reduction in depression compared with the control condition (SMD=-0.34, 95% CI -0.54 to -0.14. Results of 11 trials included).</p> <p>The intervention was not associated with significant reductions in anxiety, QoL or burden.</p>

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			calls (n=2), web-based interventions (n=2), video and telephone interventions (n=1), and a computer-telephone integration system of (n=1). The control group was face-to face interaction.		
<b>Moo et al. 2020</b> <b>USA</b> <b>Prospective study</b>	NA	222 patients (veterans) of an outpatient memory clinic, and their carers. All patients had a diagnosis of neurodegenerative disease or vascular dementia. The mean age of participants was 82 years, 97% were men. 90% of caregivers were women.	Feasibility and satisfaction with services were compared between persons who were treated in person (n=184) and those who were treated using a home-based videoconferencing system (n=38). The follow-up visits typically lasted approximately 45 minutes. Following dementia management visits, all family caregivers were mailed a post-visit satisfaction questionnaire.	<b>Primary outcome:</b> Satisfaction	The primary reasons cited for joining the virtual care group were convenience and less disruption of routines. Lack of a computer was the main reason for declining participation.  61 patient/carer dyads completed a post-visit satisfaction questionnaire (27.5% response rate). The results from the in-person and virtual care groups reported similar levels of satisfaction (staff showed respect/listened, staff answered questions understandably).
<b>Possin et al. 2019</b> <b>USA</b> <b>RCT</b>	CA: <input checked="" type="checkbox"/> Blinding: Patient <input checked="" type="checkbox"/> Assessor <input checked="" type="checkbox"/>  ITT: <input checked="" type="checkbox"/>	Persons with dementia and their caregivers living in rural and urban regions of 3 states. Mean age of patients was 78 years, 55% were women. 50% had mild dementia. Mean age of caregivers was 65 years, 71% were women.	Patient/caregiver dyads were randomized to receive care through the Care Ecosystem (n=512) or to receive usual care (n=268).  The intervention was a telephone-based collaborative dementia care, delivered as monthly telephone call over 12 months by a trained care team navigator, who provided education, support and care coordination with a team of dementia specialists.	<b>Primary outcome:</b> Quality of Life in Alzheimer's Disease based on caregiver's rating of 13 aspects of PWD's well-being, scored on a 4-point scale (poor to excellent).  <b>Secondary outcomes:</b> Frequencies of patients' use of emergency department (ED), hospitalization, and ambulance services; caregiver depression and caregiver burden	<i>Patient outcomes</i> Quality of life, declined more in the usual care group from the baseline survey to the 12-month survey ( $B= 0.53$ ; 95% CI, 1.30-0.25; $p= 0.04$ ).  The number of ED visits over a 12-month period increased less in the intervention group ( $B=-0.14$ ; 95% CI, $-0.29$ to $-0.01$ ; $p = .04$ ). The NNT to prevent a single ED visit was 5.  There were no significant differences between groups in the use of ambulance services or hospitalizations.  <i>Caregiver outcomes</i> Depression scores declined more in the intervention group between baseline and 12 months ( $B, -1.14$ ; 95% CI, $-2.15$ to $-0.13$ ; $p$

Study/Type	Quality Rating	Sample Description	Method	Outcomes	Key Findings and Recommendations
					<p>= .03) points.</p> <p>The frequency of moderate to severe depression increased slightly in the usual care group, but decreased in the intervention group, at 12 months (<math>p = .004</math>). The NNT to avoid depression for 1 caregiver was 12.</p> <p>Caregiver burden declined more in intervention group at 12 months (<math>B, -1.90</math>; 95% CI, <math>-3.89</math> to <math>-0.08</math>; <math>p = .046</math>)</p>

**Abbreviations**

AMSTAR: A Measurement Tool to Assess Reviews	CA: concealed allocation	CBT: cognitive behavioral therapy
CI: confidence interval	HR: hazard ratio	ITT: intention-to-treat
MMSE: Mini Mental State Examination	OR: odds ratio	RCT: randomized controlled trial
RR: relative risk	SMD: standardized mean difference	

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