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REVIEW ARTICLE

Coping and depressive symptoms in family carers of dependent adults aged 18 and over: A systematic review and meta-analysis

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Abstract

Being a family carer is associated with increased risk of experiencing depressive symptoms. Despite many decades of research investigating the association between coping strategies and depressive symptoms in carers results across studies remain contradictory. The objective of this study was to systematically review evidence on the association between depressive symptoms and coping strategies in carers of dependent people aged 18 and over and investigate potential sources of heterogeneity of findings. The study design was a systematic review and meta-analysis. We searched Pubmed, CINAHL, PsycINFO and LILACS up to April 2021. We performed meta-analyses following the Preferred Reporting Items for Systematic reviews and Meta-Analyses statement and several subgroup analyses to investigate whether cause of caring dependency, study design, and controlling for several biases influenced results. Fifty-nine studies met our inclusion criteria. We found a robust and statistically significant association between greater use of dysfunctional coping and higher depressive symptoms. Greater use of emotion-focussed coping was associated with fewer depressive symptoms only in studies controlling for confounding bias. Use of problem-focussed coping was related to fewer depressive symptoms in carers of frail older people. The combined use of both problem-focussed and emotion-focussed coping was associated with lower symptoms of depression. Our review concludes that the broad domain of dysfunctional coping is consistently associated with higher levels of depressive symptoms in carers. After controlling for confounders, emotion-focussed coping and several of its individual strategies were consistently associated with fewer depressive symptoms. Whilst problem-focussed coping and some of its individual strategies are also associated with lower depressive symptoms, these strategies may not be as helpful in all caregiving groups.

KEYWORDS
caregivers, coping, depression, meta-analysis, nursing, systematic review

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1 | INTRODUCTION

Rising life expectancy and increasing prevalence of chronic illness associated with greater dependency globally means that the number of people providing informal care will continue to rise (OECD, 2019). Informal carers usually undertake various tasks, from providing domestic assistance and support, to provision of daily intensive personal care (Aneshensel et al., 1995). Compared to non-caregivers, informal carers are at increased risk of experiencing negative outcomes such as a decline in their physical health and are more likely to report high levels of psychiatric distress (Lacey et al., 2019). Several decades of research has shown that family carers experience high rates of clinical depression, with prevalence rates as high as 42.3% (Geng et al., 2018; Loh et al., 2017; Sallim et al., 2015).

Influential theoretical models in the area such as the transactional theory of stress and coping (Lazarus & Folkman, 1984), and the stress process model (Haley et al., 1987; Pearlin et al., 1990), make specific hypotheses about how caregiving stress affects carers' well-being. In line with these models, stress associated with caregiving exerts its effects via several factors (Knight et al., 2000), conceptualised as *contextual characteristics* (i.e., age, kinship, sex), *objective burden* (i.e., degree of dependency, behaviour problems of the care-recipient), and *subjective perceptions of demands of care* (i.e., irrelevant, benign, negative). These models further argue that the association between caregiving stress and psychological health is mediated by family carers' ability to respond to such stressors via the use of specific coping strategies (Goode et al., 1998).

The use of different forms of coping strategies employed by family carers, have been defined as the constant cognitive and behavioural changes that allow carers to handle the external and/or internal demands of caregiving (Lazarus & Folkman, 1984). Although coping strategies can be studied as individual coping constructs, such as planning, problem-solving, acceptance, and behavioural disengagement, etc. (Carver, 1997; Lazarus & Folkman, 1984; Moos et al., 1990), research has traditionally classified coping strategies into specific broad dimensions. Such classifications include those between 'problem-focussed' versus 'emotion-focussed' coping, depending on whether the stressful situation is addressed quickly and directly, versus coping by seeking to regulate the emotional responses of the stressful situation (Lazarus & Folkman, 1984). Other distinctions include those between 'approach' versus 'avoidance coping' (Moos et al., 1990) or 'functional' versus 'dysfunctional' coping, which aim to distinguish between coping styles that actively focus on the problem, versus more passive forms of coping characterised by the use of avoidance strategies (Carver, 1997).

Although prior theory (Lazarus & Folkman, 1984) has classified coping into generally broad dimensions (i.e., problem-focussed and emotion-focussed), recent research has highlighted the need to evaluate specific individual coping mechanisms as internally heterogeneous categories as opposed to single broad classifications (Morris et al., 2018). Additional studies (Carver, 1997; Skinner et al., 2003) have also pointed towards the importance of distinguishing between 'socially supported' and 'self-sufficient' coping styles. These classifications may be important as various coping strategies may differentially impact adjustment processes in caregivers; for example, using specific individual coping strategies may not always be effective, and their efficiency or usefulness may depend on the context (Morris et al., 2018).

The first systematic review and meta-analysis reporting on the association between coping and caregiver depression, which focussed primarily in dementia caregivers Li et al. (2012), found that greater use of emotion-focussed coping and less use of dysfunctional coping are generally associated with lower levels of depressive symptoms in dementia caregivers. However, a conclusion of the review was that the association between other coping dimensions such as problem-focussed coping with depressive symptoms remained inconsistent due to the low number of studies in the area. Since the publication of this review many new studies are now available, and although several reviews have been published (Monteiro et al., 2018), these have not included meta-analyses or examined the effect of specific individual strategies, or factors that may explain inconsistency in the findings.

Important limitations therefore remain such as the number of studies analysed, whether the reported associations generalise across several caregiving groups and whether the effects on depressive symptoms are found across all categories of coping. There is also very limited knowledge on the potential sources of heterogeneity of results, and whether analysing the effects of different individual coping strategies influences results. Understanding and quantifying the effect of specific individual coping strategies on carer depressive symptoms is important for future caregiving intervention research and may increase the clinical effectiveness of interventions aimed at preventing and treating these symptoms.

2 | AIMS

The aim of our review therefore was to provide a systematic and up to date synthesis of the available evidence to date of the relationship between coping strategies (both broad dimensions of coping and individual strategies) and depressive symptoms in carers of relatives aged 18 or over, across all caregiving populations, and examine potential sources of heterogeneity of findings.

3 | METHODS

3.1 | Design

Our systematic review and meta-analysis followed the reporting standards of Preferred Reporting Items for Systematic reviews and Meta-Analyses (Moher et al., 2009), and has been registered in the International Prospective Register of Systematic Reviews (PROSPERO id: CRD42021248076).

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3.2 | Search methods

We searched Pubmed, CINAHL, PsycINFO and LILACS, using an unlimited time search which included the terms depression, caregivers, and coping, without any additional filters (Appendix A). The searches ranged from the first year included in each database until April 2021. We identified additional records by searching the reference lists of relevant reviews, and by contacting authors of unpublished studies (grey literature).

3.3 | Eligibility criteria

Inclusion criteria of studies were: (1) original study, using either an observational or experimental design, (2) analysing the relationship between at least one coping strategy and depressive symptoms, (3) in family carers (family members or friends who were not professionals and did not receive payment for providing care), (4) of dependent persons aged 18 or over (defined as someone who does not have autonomy and requires assistance with one or more basic activities of daily living), (5) published in English, Spanish, French or Portuguese, and (6) those providing data to calculate an appropriate effect size. Studies that did not report a correlation coefficient or another statistical metric that allowed calculation of a correlation coefficient were also excluded. Two reviewers independently selected studies meeting inclusion criteria (interrater reliability, kappa: 0.95), and resolved any discrepancies with a third reviewer.

3.4 | Data extraction

We extracted data on type of design, sample size, sampling method, age, and cause of dependency of the care-recipient, type of coping (dimension and/or individual strategy), scale used, and effect size reported. Two reviewers extracted data independently (interrater reliability, percent agreement: 95.5%), and discrepancies were resolved by consensus with a third reviewer. For the extraction of the coping data these were classified as: (a) problem-focussed dimension: planning, active coping, seeking support, problem solving and confrontational coping); (b) emotion-focussed dimension: positive reappraisal, acceptance, humour, religion, self-control, and seeking emotional support, and (c) dysfunctional coping dimension: avoidance, behavioural disengagement, blame of others, denial, distancing, resignation, self-blame, self-distraction, substance use, venting, and wishful thinking. This classification allowed us to investigate both distinct dimensions of coping as well as individual strategies (Carver, 1997; Lazarus & Folkman, 1984; Moos et al., 1990).

We searched for redundant articles (manuscripts reporting on data of the same sample) among the included studies. When different reports from the same sample were detected, the report with the most complete data was used.

3.5 | Quality appraisal

To assess the methodological quality of individual studies, we used the criteria of Boyle (1998) and Viswanathan et al. (2013). For both cross-sectional and longitudinal studies quality ratings were based on the following criteria: (1) representative sampling (probabilistic sampling; control of selection bias), (2) reliability and validity of measures used (content validity and internal consistency of measures in the target or similar population; control for classification bias), and (3) control for confounding factors (controlling for at least one measure of objective burden). For longitudinal studies we additionally assessed the following: (1) reporting ≥80% follow-up rate of the original population taking part in the study, and (2) a follow-up timepoint of at least 6 months. Two reviewers assessed quality of studies independently (interrater reliability, percent agreement: 94.5%) and resolved disagreements with a third reviewer.

Objective burden was measured differently across the studies and included measures of care recipient characteristics such as functional capacity, behavioural problems, cognitive impairment, and/or intensity of care provided (i.e. daily hours dedicated to care) (Aneshensel et al., 1995). We chose objective burden as the key criterion of controlling for confounding because this construct is considered an important determinant of carer depressive symptoms (del-Pino-Casado et al., 2017; Geng et al., 2018). Given the high intercorrelation of objective burden measures (Pinquart & Sörensen, 2003), if the study controlled for at least one of these in the design and/or analysis (Viswanathan et al., 2013), we considered confounders to be controlled. For statistical adjustment, we considered no confounding bias to be present if variation of the point estimate was less than 10% (Rothman et al., 2008).

3.6 | Certainty assessment

Following the guidelines of the Grading of Recommendations Assessment, Development and Evaluation (Atkins et al., 2004) we used (i) inconsistency, (ii) imprecision, and (iii) risk of publication bias to assess the robustness of results obtained in the different meta-analyses. Inconsistency assessed heterogeneity of results across the different studies that were part of the meta-analysis. For imprecision (Meader et al., 2014) we considered the number of studies included in the meta-analysis (adequate: >10 studies, medium: 5–10 studies and small: <5 studies), and the mean sample size (high: >300 participants on average; intermediate: 100–300 participants and low: <100 participants). Publication bias was assessed using a funnel plot and statistical tests.

3.7 | Analyses

We performed a meta-analysis of correlation coefficients to obtain a weighted average of the association between coping and depressive symptoms based on the sample size of each of the included studies. In

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studies using repeated measures with correlations referring to the same time point, we selected the first correlation to guarantee the independence of the comparisons (Higgins & Green, 2008). Measures other than correlation coefficients that could be transformed into these correlation coefficients (e.g., odds ratio, standardized differences of means, etc.), were taken into account and transformed. We used unadjusted estimators. Although several guidelines recommend the use of adjusted estimators where possible (Dekkers et al., 2019; Higgins & Thomas, 2020), we identified only a few studies that provided adjusted estimators, which varied greatly in terms of types of adjusted variables they controlled for.

Given the variance in the populations being studied (i.e., cause of dependency, sex, and kinship status), we used a random effects model (Hedges & Vevea, 1998).

We measured statistical heterogeneity using the Q test (Cochran, 1954), and calculated the degree of inconsistency (I^2) to assess how much variability between studies could not be attributed to chance (Higgins et al., 2002). To test for publication bias, we performed the Egger test, inspected funnel plots visually, and applied the Trim and Fill method (Duval & Tweedie, 2000) that estimates an effect size in the absence of publication bias. We examined the robustness of the results by performing several sensitivity analyses removing one study at each time (Cooper et al., 2009). We additionally performed a series of subgroup analyses controlling for the effects of (a) study design (cross-sectional vs. longitudinal), (b) sampling (probabilistic or not), (c) control for confounding (present or not present), (d) control for classification bias (present or nor present), and (e) cause of dependency of the care recipient (frailty, dementia, stroke, cancer, mental health disorder). Estimated effect sizes of <0.09 were considered negligible, 0.10 to 0.29 small, 0.30 to 0.49 moderate, and >0.50 large (Cohen, 1988). Comprehensive Metaanalysis Software 3.3.070 (Biostat, Inc.) was used for all analyses.

4 | RESULTS

Our search identified a total of 624 records, with 19 additional articles obtained by hand references or contacting authors of unpublished studies. After removing duplicates, 546 studies remained for further screening. After reading titles and abstracts we excluded a total of 339 articles as not relevant. After screening a total of 207 records via full text, 59 studies met our inclusion criteria, of which three were redundant (reporting on the same sample) (see Figure 1).

Table 1 presents the characteristics of the 59 studies contributing a total of 62 independent samples. Forty nine studies were cross-sectional, six were longitudinal using repeated cross-sectional measures and four employed repeated longitudinal measures. The main causes of dependency were dementia (29 studies with 30 samples), frailty (nine studies), stroke (five studies) and cancer (four studies). The references of the studies included in the review are shown in Appendix B.

Quality ratings of included studies are presented in Table 2. Only five studies used probabilistic samples, and 49 studies used a reliable and valid measure of depression and coping strategies. In nine studies coping strategies were not measured with sufficient internal consistency and in one study depressive symptoms were measured using a non-validated questionnaire. Only seven studies reported controlling for confounding variables for all coping strategies tested, which were (a) functional capacity, (b) behaviour problems, (c) cognitive impairment in the care recipient, and (d) intensity of care provided, whilst 17 studies controlled for these variables for at least one coping strategy.

We extracted data for all dimensions and individual strategies defined previously. In addition, we extracted data for second-order active coping (a combination of both problem-focussed and emotion-focussed dimensions) and seeking social support (seeking instrumental and emotional support). We performed meta-analyses for both the different dimensions and for the individual strategies. The results of the different meta-analyses are shown in Table 3. Results of subgroup analyses are shown in Appendix C. Given the extensive analyses conducted, only a subset of the results is reported below.

4.1 | Problem-focussed coping

Figure 2 presents the forest plot for the association between carer depressive symptoms and the dimension of problem-focussed coping. Figure 3 presents the forest plot for the association between the different individual strategies of problem-focussed coping and depressive symptoms.

4.1.1 | Problem-focussed coping as a dimension

We found no statistically significant association between depressive symptoms and problem-focussed coping ($\bar{r}$ [combined correlation coefficient] = −0.019; 95% CI [95% confidence interval] = −0.089, 0.052; 26 samples; 24 studies; N = 3.121), with low heterogeneity across studies (Q = 30.7; df [degrees of freedom] = 25; p = 0.2; I^2 = 18.6%). The funnel plot indicated some asymmetry (see supplementary Figure 1 in Appendix D; Egger p-value of 0.97), with corrections using the Trim and Fill method showing high variation across studies (estimated $\bar{r}$ = −0.056; variation of 194.7%). Sensitivity analyses showed high variation when eliminating one study at a time (84.2%), limiting the robustness of the results. In subgroup analyses, we found no significant differences by type of study design, type of sampling method, and whether studies controlled for confounding and classification biases. However, differences were observed when analysing studies by cause of dependency.

Problem-focussed coping was significantly associated with fewer depressive symptoms in carers of frail older people ($\bar{r}$ = −0.174; 95% CI = −0.273 to −0.071; k = 5), an effect which was not statistically significant in carers of people with dementia ($\bar{r}$ = 0.021; 95% CI = −0,09 to 0.131; k = 14).

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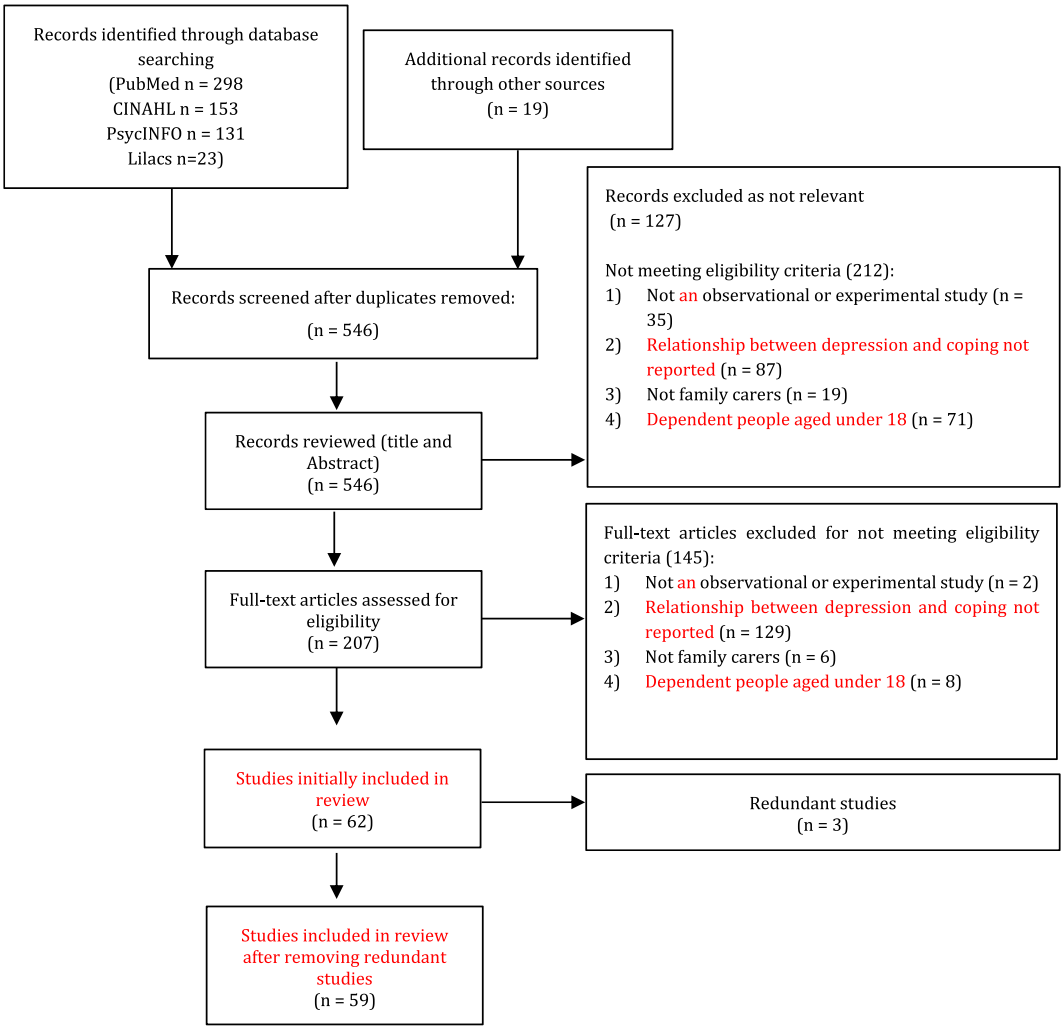

FIGURE 1 Flow diagram (Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA))

4.1.2 | Problem-focussed coping as individual strategies

When analysing the association between depressive symptoms and individual problem-focussed strategies, we found that problem solving was associated with fewer symptoms of depression ($\bar{r}$ = −0.256; 95% CI = −0.366, −0.139; 5 studies; N = 274; Q = 0.55; gf = 4; p = 0.97; I^2 = 0%). Given the low number of studies and participants per study this result is imprecise, however risk of publication bias was low (see supplementary Figure 2; Egger test p = 0.7; Trim and Fill method; estimated $\bar{r}$ = −0.256; variation of 0%). When removing one study at a time, the variation estimate was 6.25%, confirming the robustness of the findings.

Active coping was also associated with fewer depressive symptoms ($\bar{r}$ = −0.126; 95% CI = −0.230, −0.019; 11 samples; 10 studies; N = 1296; Q = 9.48; gf = 10; p = 0.49; I^2 = 0%). Risk of publication bias was low (see supplementary Figure 3; Egger test p = 0.7; Trim and Fill method estimated $\bar{r}$ = −0.126; variation of 0%), and removing one study at a time showed a variation of 21.4%. There were no differences in subgroup analyses.

Instrumental support seeking was associated with higher levels of depressive symptoms; representing a small effect ($\bar{r}$ = 0.08; 95% CI = 0.013, 0.145; 11 studies; N = 1608). There was no heterogeneity across studies (Q = 8.41; gf = 10; p = 0.59; I^2 = 0%), but there was evidence of publication bias (see supplementary Figure 4; Egger test p = 0.026; Trim and Fill method estimated $\bar{r}$ = −0.01; variation of 87.5%). Removing one study at a time, showed a variation of 33.8%. There were no differences in subgroup analyses.

For the individual strategies of confrontation ($\bar{r}$ = 0.122; 95% CI = −0.115, 0.345; N = 469), and planning ($\bar{r}$ = −0.047; 95% CI = −0.156, 0.065; N = 1676) we found no association with depressive symptoms.

4.2 | Emotion-focussed coping

Forests plots of emotion-focussed coping as a dimension and its different individual strategies and their association with carer depressive symptoms are shown in Figures 2 and 4 respectively.

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TABLE 1 Descriptive information for the studies included in the systematic review

Study	Design	*N*	Cause of dependency	Dependent person's age	Scales		
					Depressive symptoms	Coping	Coping
Ali and Kausar (2016)	Cross-sectional	90	Stroke	Mean [M]: 61.6 ± 17.4	Depression Anxiety stress scale—42 items [DASS—42]	Coping strategies questionnaire	Problem-focussed; religion; avoidance; self-distraction
Anderson (1997)	Cross-sectional	30	Stroke	Range [R]: 46–82 M: 69.	The Centre for Epidemiologic studies depression scale [CES—D]	Coping responses Inventory	Problem-solving; social support seeking; positive reappraisal; avoidance; resignation; venting
Ashley and Kleinpeter (2002)	Cross-sectional	63	Dementia	Older people	Geriatric depression scale [GDS]	Coping strategy Indicator	Problem-solving; social support seeking; avoidance
Batt-Leiba et al. (1998)	Cross-sectional	32	Dementia	>60	CES—D	Revised ways of coping checklist [RWCCL]	Problem-focussed; avoidance; self-control; wishful thinking
Bianchi et al. (2016)	Cross-sectional	121	Frail older people	Older people	GDS—15	Inventory of coping strategies	Dysfunctional
Bias (1998)	Cross-sectional	112	Dementia	Older people	CES—D	Ways of coping strategies [WCS]	Planning; social support seeking; positive reappraisal; avoidance
Brashares and Catanzaro (1994)	Cross-sectional	73	Dementia	Older people	Research Diagnostic criteria	Adaptation of health and daily living form [AHDLF]	Active second-order; avoidance
Calvete and de Arroyabe (2012)	Cross-sectional	223	Traumatic brain injury	M: 44.11 ± 16.47	CES—D	Responses to stress questionnaire	Dysfunctional
Chow and Ho (2012)	Cross-sectional	132	Frail older people	R: 55–93 M: 77,7 ± 6,44	Chinese—GDS	Proactive coping Inventory	Active first-order
Claar et al. (2005)	Cross-sectional	82	Lung transplant	>18	Beck depression Inventory II [BDI—II]	Medical coping Modes questionnaire Revised [MCMQ—R]	Instrumental support seeking; emotional support seeking; resignation; avoidance
Cooper et al. (2008)	Cross-sectional	83	Dementia	M: 82.2 ± 7.5	The Hospital Anxiety and depression scale [HADS]	Brief COPE	Problem-focussed; emotion-focussed; dysfunctional
Cooper et al. (2010)	Cross-sectional	220	Dementia	R: 58–99 M 81,6 ± 7,8	HADS	Brief COPE	Dysfunctional
Del-Pino-Casado et al. (2019)	Repeated measures [RM] longitudinal	177	Frail older people	M: 82 ± 9.7	Goldberg test	Brief COPE	Problem-focussed; active first-order; planning; instrumental support seeking; emotion-focussed; positive reappraisal; acceptance; Humour;

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TABLE 1 (Continued)

Study	Design	N	Cause of dependency	Dependent person's age	Scales		
					Depressive symptoms	Coping	Coping
							religion; emotional support seeking; dysfunctional; self-distraction; denial; behavioural disengagement; self-blame.
Dempster et al. (2011)	Cross-sectional	382	Oesophagus cancer	Carers (94% spouses or partner) with mean of 62 ± 10.91	HADS	Cancer coping questionnaire	Planning
Essex et al. (1999)	RM cross-sectional	133 dads 133 mums	Intellectual disability	R: 19–53	CES-D	COPE	Active second-order; dysfunctional
Fasse et al. (2015)	Cross-sectional	60	Terminal cancer	>18	Beck depression Index—Short form [BDI—SF]	COPE	Instrumental support seeking; active first-order; planning; positive reappraisal; religion; Humour; acceptance; emotional support seeking; self-control; venting; denial; substance use; behavioural disengagement.
Fingerman et al. (1996)	Cross-sectional	81	Frail older people	M: 74.69 ± 11.78	Beck depression Inventory [BDI]	Health and daily living questionnaire [HDLQ]	Problem-focussed; emotion-focussed; avoidance
Gallagher et al. (2011)	Cross-sectional	84	Dementia	R: 56–89	CESD—10 items	Brief COPE	Problem-focussed; emotion-focussed; dysfunctional
Goetzinger et al. (2012)	Cross-sectional	621	Transplant candidates	>18	BDI—II	MCMQ—R	Instrumental support seeking; social support seeking; avoidance
Guedes and Pereira (2013)	Cross-sectional	50	Dependent people	>18	DASS—21 items	Carer's assessment of Managing Index	Problem-focussed
Haley et al. (1987)	Cross-sectional	54	Dementia	R: 62–100 M: 78,35 ± 7,24	BDI	HDLQ	Instrumental support seeking; problem-solving; venting
Han et al. (2014)	Cross-sectional	301	Oesophagus cancer	M: 59.71 ± 11	CESD—10 items	Brief COPE	Problem-focussed; emotion-focussed; dysfunctional
Heo and Koeske (2013)	Cross-sectional	642	Dementia	Older people	CES—D	Brief COPE	Religion

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TABLE 1 (Continued)

Study	Design	N	Cause of dependency	Dependent person's age	Scales		
					Depressive symptoms	Coping	Coping
Hobson et al. (2001)	Cross-sectional	79	Dementia	R: 46–89 M: 70,9 ± 9.5	GDS—15 items	Billings and Moos coping checklist	Active second-order; emotion-focussed; avoidance
Hu et al. (2017)	Cross-sectional	134	Heart failure	M: 66.3 ± 15.2	CES—D	Coping style questionnaire	Active second-order; dysfunctional
Huang et al. (2015)	Cross-sectional	57	Dementia	M: 76.4 ± 9.1	Revised Memory and behaviour problems checklist	RWCCL	Problem-focussed; social support seeking; wishful thinking; avoidance; self-control
Jones et al. (2015)	Cross-sectional	76	Cancer	>69	DASS—21 items	Brief COPE	Problem-focussed; emotion-focussed; dysfunctional
Khalaila and Cohen (2016)	Cross-sectional	110	Dependent people	R: 50–87 M: 63.7 ± 7.9	CES—D	COPE	Active second-order; dysfunctional
Kim et al. (2007)	Cross-sectional	160	Dementia	Older people	CES—D	Brief COPE	Active second-order; avoidance
Kinney et al. (2003)	RM longitudinal	64	Dementia	R: 56–91 M: 71.39 ± 7.79	CES—D	RWCCL	Problem-focussed; dysfunctional
Kiral et al. (2017)	Cross-sectional	141	Dementia	Older people	BDI	Cognition emotion Regulation questionnaire	Planning; acceptance; positive reappraisal; social support seeking; self-blame; blame others.
Kramer (1993)	Cross-sectional	72	Dementia	Carers spouses: R: 57–82 M: 70	CES—D	RWCCL	Problem-focussed; dysfunctional
Lau and Cheng (2015)	Cross-sectional	101	Dementia	R: 59–100 M: 81.7 ± 9.36	CESD—7 items	Brief COPE	Problem-focussed; emotion-focussed; dysfunctional
Lee et al. (2003)	Cross-sectional	71	Dementia	R: 60–101 M: 77.49 ± 8.2	CES—D	Coping strategies Inventory	Problem-focussed; dysfunctional.
León-Campos et al. (2018)	Cross-sectional	163	Dementia	M: 80.27 ± 7.9	HADS	Brief COPE	Active first-order; planning; problem-focussed; emotion-focussed; emotional support seeking; positive reappraisal; acceptance; dysfunctional; denial; self-distraction; behavioural disengagement; venting
Li et al. (1999)	RM cross-sectional	115	Frail older people	R: 63–99 M: 82	CES—D	COPE	Active second-order; dysfunctional.
López-Martínez (2019)	RM longitudinal	81	Frail older people	M: 85.2	Goldberg test	Brief COPE	Problem-focussed; active first-order; planning; instrumental support seeking; emotion-focussed; positive reappraisal; acceptance; Humour;

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TABLE 1 (Continued)

Study	Design	N	Cause of dependency	Dependent person's age	Scales		
					Depressive symptoms	Coping	Coping
							religion; emotional support seeking; dysfunctional; self-distraction; denial; venting; substance use; behavioural disengagement; self-blame.
Mausbach et al. (2012)	Cross-sectional	126	Dementia	Carers spouses: >55 M: 74.2 ± 8	CESD—10 items	RWCCL	Avoidance
McClendon et al. (2004)	Cross-sectional	193	Dementia	M: 72.46 ± 7.91	CES - D	34 items—Kiyak	Problem-focussed; acceptance; wishful thinking
McGurk et al. (2011)	Cross-sectional	150	Stroke	>18	CES—D	Brief COPE	Active first-order; positive reappraisal; self-distraction; denial; substance use; self-blame; behavioural disengagement
Murfield et al. (2020)	Cross-sectional	141	Frail older people	>65 M: 81 ± 9.	DASS—21 items	Brief COPE	Problem-focussed; emotion-focussed
Muscat and Scerri (2018)	Cross-sectional	60	Dementia	R: 46–92 M: 77,5	HADS	Brief COPE	Emotion-focussed; acceptance; positive reappraisal; dysfunctional; self-blame; self-distraction; denial; behavioural disengagement
Neundorfer (1991)	Cross-sectional	60	Dementia	R: 61–90 M: 74 ± 6.4	Brief symptom Inventory [BSI]	Ways of coping checklist	Confrontation; social support seeking; planning; self-control; positive reappraisal; avoidance; distancing
Pakenham and Bursnall (2006)	Cross-sectional	48	Multiple sclerosis	Carers children: R: 10–25 M: 15.6 ± 3.97	BSI	COPE	Social support seeking; problem-solving; acceptance; denial; wishful thinking
Papastavrou et al. (2011)	Cross-sectional	172	Dementia	R: 52–97 M: 75 ± 7.93	CES—D	WCS	Social support seeking; confrontation; positive reappraisal; wishful thinking
Parveen et al. (2013)	Cross-sectional	73 British South Asians 162 White British	Dependent people	>18	HADS	Brief COPE	Active first-order; planning; instrumental support seeking; emotional support seeking; positive reappraisal; Humour; acceptance; religion; denial; self-distraction; behavioural disengagement; venting; substance use; self-blame
Parveen et al. (2014)	RM longitudinal	123	Dependent people	>18	HADS	Brief COPE	Active first-order; planning; instrumental support seeking; emotional support seeking; positive reappraisal;

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TABLE 1 (Continued)

Study	Design	*N*	Cause of dependency	Dependent person's age	Scales		Coping
					Depressive symptoms	Coping	
							Humour; acceptance; religion; denial; self-distraction; behavioural disengagement; venting; substance use; self-blame
Patrick and Hayden (1999)	Cross-sectional	596	Schizophrenia or intellectual/ developmental disability	R: 18–59 M: 35.8	CES—D	34 items—Kiyak	Problem-focussed; wishful thinking
Powers et al. (2002)	RM cross-sectional	51	Dementia	M: 68.51 ± 7.21	BDI	HDLQ	Problem-focussed; emotion-focussed; avoidance
Powers (2014)	Cross-sectional	83	Frail older people	>50 M: 77.2 ± 11.9	CES—D	Brief COPE	Active first-order; instrumental support seeking: Emotional support seeking; avoidance
Pruchno and Resch (1989)	Cross-sectional	315	Dementia	Carers spouses: R: 45–94 M: 70.2	CES—D	34 items—Kiyak	Problem-focussed; acceptance; wishful thinking
Qiu and Li (2008)	Cross-sectional	92	Stroke	R: 32–95 M: 62.1 ± 12.3	CES—D	Brief COPE	Active first-order; planning; instrumental support seeking; emotional support seeking; positive reappraisal; Humour; acceptance; religion; denial; self-distraction; behavioural disengagement; venting; substance use; self-blame
Ramsey (1991)	RM cross-sectional	28	Dementia	M: 71 ± 6.3	CES—D	34 items—Kiyak	Problem-focussed; religion; acceptance; dysfunctional
Sanders (1999)	Cross-sectional	43	Dementia	R: 49–88 M: 72.8 ± 7.2	Symptom checklist 90 items revised	Revised ways of coping checklist	Problem-focussed
Schwarz and Roberts (2000)	RM cross-sectional	100	Frail older people	>65	CES—D	WCS	Problem-focussed; dysfunctional
Serres et al. (2017)	Cross-sectional	79	Major depressive disorder	R: 18–64 M: 41.6 ± 14.8	BDI—SF	Brief COPE	Problem-solving; social support seeking; positive reappraisal; avoidance.

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TABLE 1 (Continued)

Study	Design	N	Cause of dependency	Dependent person's age	Scales		Coping
					Depressive symptoms	Coping	
Vedhara et al. (2000)	RM cross-sectional	50	Dementia	Family carers:M: 72 ± 8	Savage Personality screening scale	WCS	Planning; confrontation; social support seeking; positive reappraisal; self-control; avoidance
Visser-Meily et al. (2005)	Cross-sectional	187	Stroke	>18 M: 56	Goldberg test	Utrecht coping list	Confrontation; behavioural disengagement; avoidance; venting
Wilcox et al. (2001)	Cross-sectional	39 spouses 32 daughter	Dementia	M: 77 ± 9 M: 86 ± 5	BDI	RWCCL	Problem-focussed; social support seeking; religion; avoidance; self-blame; blame others; wishful thinking

4.2.1 | Emotion-focussed coping as a dimension

We found no statistically significant association between emotion-focussed coping and carer depressive symptoms ($\bar{r}$ = −0.113; 95% CI = −0.240, 0.017; 13 samples; 12 studies; N = 1.478), with no heterogeneity between studies (Q = 11.1; df = 12; p = 0.52; I^2 = 0%). Risk of publication bias was low (confirmed by inspection of the funnel plot; see supplementary Figure 5; Egger test p = 0.88; estimated $\bar{r}$ by Trim and Fill = −0.113; variation of 0%). Sensitivity analysis confirmed the robustness of the results, with a 24.8% variation when removing one study at a time. In subgroup analyses, there was no effect of study design or type of sampling method used. However, when controlling for confounders, a statistically significant association was observed between greater use of emotion-focussed coping and fewer depressive symptoms ($\bar{r}$ = −0.237; 95% CI = −0.348, −0.119; 12 studies; N = 562), which was not present when pooling studies that did not control for confounders ($\bar{r}$ = −0.037; 95% CI = −0.212, 0.141; 8 studies; N = 916).

4.2.2 | Emotion-focussed coping as individual strategies

Higher use of positive reappraisal ($\bar{r}$ = −0.217; 95% CI = −0.296, −0.136; 17 samples of 16 studies; N = 1785), and acceptance ($\bar{r}$ = −0.136; 95% CI = −0.225, −0.049; 14 samples of 13 studies; N = 1716), showed both a statistically significant association with fewer depressive symptoms, with both analyses showing 0% heterogeneity (Q = 17.7; gf = 16; p = 0.47, and Q = 11.5; gf = 13; p = 0.57). Risk of publication bias was low for positive reappraisal (see supplementary Figure 6; Egger test p = 0.33; Trim and Fill method estimated $\bar{r}$ = −0.217; variation of 0%), but higher for acceptance (see supplementary Figure 7; Egger test p-value = 0.22 and a variation of 59.6% with estimated $\bar{r}$ = −0.217). The results for positive reappraisal were relatively robust with a variation of 9.2% in analysis removing one study at a time, while for acceptance variation was higher (19.9%). There were no differences in subgroup analyses.

Use of humour ($\bar{r}$ = −0.070; 95% CI = −0.165, 0.027; N = 931), religion ($\bar{r}$ = 0.008; 95% CI = −0.097, 0.113; N = 1599), emotional support seeking ($\bar{r}$ = 0.041; 95% CI = −0.069, 0.150; N = 1096), and self-control ($\bar{r}$ = 0.033; 95% CI = −0.121, 0.186; N = 170), were not associated with depressive symptoms.

4.3 | Active coping as a dimension

Second-order active coping (which involves using a combination of both problem-focussed and emotion-focussed coping), showed that this form of coping was associated with fewer depressive symptoms ($\bar{r}$ = −0.224; 95% CI = −0.280, −0.167; 9 samples of 8 studies; N = 1.114; see Figure 2). There was no heterogeneity across studies (Q = 6.7; gf = 8; p = 0.57; I^2 = 0%), and low risk of publication bias (see supplementary Figure 8; Egger test p = 0.85; estimated $\bar{r}$ by Tri

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TABLE 2 Quality assessment of the studies included in the review

	C1	C2	C3	C4.1	C4.2
Ali and Kausar (2016)	-	+Religion/-	+	N/A	N/A
Anderson (1997)	-	+	?	N/A	N/A
Ashley and Kleinpeter (2002)	-	+	-	N/A	N/A
Batt-Leiba et al. (1998)	-	+	-	N/A	N/A
Bianchi et al. (2016)	-	+	+	N/A	N/A
Bias (1998)	-	+	-	N/A	N/A
Brashares and Catanzaro (1994)	-	+	-	N/A	N/A
Calvete and de Arroyabe (2012)	-	+	-	N/A	N/A
Chow and Ho (2012)	-	+	+	N/A	N/A
Claar et al. (2005)	-	+/−Resignation; emotional	+/−Instrumental	N/A	N/A
Cooper et al. (2008)	-	+	+/−Emotion	N/A	N/A
Cooper et al. (2010)	-	+	-	N/A	N/A
Del-Pino-Casado et al. (2019)	+	+	+/−Religion	+	+
Dempster et al. (2011)	-	+	-	N/A	N/A
Essex et al. (1999)	-	+	+/−Active 2 Mums	+	+
Fasse et al. (2015)	-	+	-	N/A	N/A
Fingerman et al. (1996)	-	+/−Avoidance	+/−Emotion	N/A	N/A
Gallagher et al. (2011)	-	+	+Emotion/-	N/A	N/A
Goetzinger et al. (2012)	-	+	-	N/A	N/A
Guedes and Pereira (2013)	-	+	-	N/A	N/A
Haley et al. (1987)	-	+	-	N/A	N/A
Han et al. (2014)	-	+	-	N/A	N/A
Heo and Koeske (2013)	+	+	-	N/A	N/A
Hobson et al. (2001)	-	+	+/−Avoidance	N/A	N/A
Hu et al. (2017)	-	+	-	N/A	N/A
Huang et al. (2015)	-	+	-	N/A	N/A
Jones et al. (2015)	-	+	-	N/A	N/A
Khalaila and Cohen (2016)	-	+	-	N/A	N/A
Kim et al. (2007)	+	+	+/−Active 2	N/A	N/A
Kinney et al. (2003)	-	+	-	N/A	N/A
Kiral et al. (2017)	-	+	-	N/A	N/A
Kramer (1993)	-	+	+	N/A	N/A
Lau and Cheng (2015)	-	+	-	N/A	N/A
Lee et al. (2003)	-	+	+	N/A	N/A
León-Campos et al. (2018)	-	+	-	N/A	N/A
Li et al. (1999)	+	+	+	+	+
López-Martínez (2019)	+	+	+/−Behavioural dis	+	+
Mausbach et al. (2012)	-	+	+	N/A	N/A
McClendon et al. (2004)	-	+	+/−Problem	N/A	N/A
McGurk et al. (2011)	-	+	-	N/A	N/A
Murfield et al. (2020)	-	+	+/− problem		

(Continues)

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TABLE 2 (Continued)

	C1	C2	C3	C4.1	C4.2
Muscat and Scerri (2018)	-	+	-	N/A	N/A
Neundorfer (1991)	-	+/−Distancing	+/−Self-control, positive reap, social support	N/A	N/A
Pakenham and Bursnall (2006)	-	+	-	N/A	N/A
Papastavrou et al. (2011)	-	+	+Positive Reap/-	N/A	N/A
Parveen et al. (2013)	-	+/−self-distraction	-	N/A	N/A
Parveen et al. (2014)	-	+Religion/-Denial/?	-	+	-
Patrick and Hayden (1999)	-	+	-	N/A	N/A
Powers et al. (2002)	-	+/−Avoidance	-	+	-
Powers (2014)	-	+	+/−Active 1	N/A	N/A
Pruchno and Resch (1989)	-	+	+/−Problem	N/A	N/A
Qiu and Li (2008)	-	+	+Planning/-	N/A	N/A
Ramsey (1991)	-	+/−Acceptance, Emotion	+Dysfunctional/-	N/A	N/A
Sanders (1999)	-	+	-	N/A	N/A
Schwarz and Roberts (2000)	-	+/−Problem	-	-	-
Serres et al. (2017)	-	+	-	N/A	N/A
Vedhara et al. (2000)	-	-	-	+	+
Visser-Meily et al. (2005)	-	+	-	N/A	N/A
Wilcox et al. (2001)	-	+	-	N/A	N/A

Note: Ratings apply to 'all outcomes' unless specified otherwise by the Table; for example, in some columns the sign is followed by the specific outcome/coping variable (i.e. + dysfunctional).

Abbreviations: C1, Control of selection bias; C2, Control for classifications bias; C3, Control for confounding bias; C4.1, Follow-up of more than 6 months; C4.2, More than 80% of the sample is full; N/A (Not applicable); (−) Risk of bias; (+) Low risk of bias; (?) Not enough information to evaluate.

and Fill = −0.224; variation of 0%). Findings were overall robust with a 7.6% variation observed and no differences in subgroup analyses.

4.4 | Social support seeking as a dimension

Analyses showed no statistically significant association between use of social support seeking (a combination of emotional and instrumental support seeking) and depressive symptoms ($\bar{r}$ = −0.008; 95% CI = −0.136, 0.121; 13 samples; 12 studies; N = 1504; See Figure 2). There was limited heterogeneity overall (Q = 12.7; gf = 12; p = 0.39; I^2 = 5.5%), and low risk of publication bias (see supplementary Figure 9; Egger test p = 0.77; estimated $\bar{r}$ by Trim and Fill = −0.008; no variation). There was evidence of very high variation (437.5%) indicating that the results are not robust.

4.5 | Dysfunctional coping

Results of analyses on the association between dysfunctional coping, individual strategies of this dimension, and carer depressive symptoms are presented in Figures 2 and 5.

4.5.1 | Dysfunctional coping as a dimension

Greater use of dysfunctional coping was associated with higher levels of depressive symptoms ($\bar{r}$ = 0.417; 95% CI = 0.350, 0.479; 22 samples from 21 studies; N = 2.650), with no heterogeneity across studies (Q = 21; gf = 21; p = 0.46; I^2 = 0%). There was a small effect of publication bias (see supplementary Figure 10); Egger test p = 0.42; estimated $\bar{r}$ by Trim and Fill = 0.365, variation of 12.5%; estimated $\bar{r}$ = 0.365). Removing one study at a time showed a variation of 4.3%, demonstrating the robustness of the results. No differences were found in subgroup analyses.

4.5.2 | Dysfunctional coping as individual strategies

We found that greater use of avoidance coping was associated with higher depressive symptoms ($\bar{r}$ = 0.371; 95% CI = 0.298, 0.439; 20 samples of 19 studies; N = 2075). Overall heterogeneity was low (Q = 19.8; gf = 19; p = 0.41; I^2 = 4.2%), with evidence of publication bias which did not influence however the results (see supplementary Figure 11; Egger test p = 0.19; estimated $\bar{r}$ by Trim and Fill = 0.35; variation of 5.7%). Sensitivity analysis demonstrated the robustness of the results (variation of 4.3%). Subgroup analyses showed

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TABLE 3 Results of the meta-analysis

					95% CI		Heterogeneity			Inconsistency	Sensitivity	Publication bias			
														Trim and fill	
Coping	k	N	N/k	r	Lower limit	Upper limit	Q (df)	*p*	I^2	One study removed (% var)	Funnel plot	*p* For Egger test	Estimate	% Var
PROBLEM-FOCUSSED COPING	26	3121	120.04	−0.019	−0.089	0.052	30.7 (25)	0.2	18.6	84.2%	Asymmetric	0.97	−0.056	194.7%
Problem-solving	5	274	54.8	−0.256	−0.366	−0.139	0.55 (4)	0.97	0	6.3%	Symmetric	0.7	−0.256	0%
Active coping	11	1296	117.8	−0.126	−0.23	−0.019	9.5 (10)	0.49	0	21.40%	Symmetric	0.7	−0.126	0%
Instrumental support seeking	11	1608	146.2	0.08	0.013	0.145	8.4 (10)	0.59	0	33.8%	Asymmetric	0.026	−0.01	87.5%
Confrontation	4	469	117.3	0.122	−0.115	0.345	3.63 (3)	0.3	17.3	89.3%	Asymmetric	0.036	0.122	0%
Planning	13	1676	128.9	−0.047	−0.156	0.064	11.9 (12)	0.45	0	78.7%	Symmetric	0.47	−0.047	0%
EMOTION-FOCUSSED COPING	13	1478	113.7	−0.113	−0.24	0.017	11.1 (12)	0.52	0	24.8%	Symmetric	0.88	−0.113	0%
Positive reappraisal	17	1785	105	−0.217	−0.296	−0.136	15.7 (16)	0.47	0	9.2%	Symmetric	0.33	−0.217	0%
Acceptance	14	1716	122.6	−0.136	−0.225	−0.046	11.5 (13)	0.57	0	19.9	Asymmetric	0.22	−0.217	59.6%
Humour	8	931	116.4	−0.07	−0.165	0.027	7.3 (7)	0.4	3.9	41.4%	Asymmetric	0.02	−0.07	0%
Religion	12	1599	133.3	0.008	−0.097	0.113	6.2 (11)	0.86	0	400%	Asymmetric	0.01	−0.076	1050%
Emotional support seeking	10	1096	109.6	0.041	−0.069	0.15	8.41 (9)	0.49	0	75.6%	Asymmetric	0.016	0.02	51.2%
Self-control	3	170	56.7	0.033	−0.121	0.186	0.7 (2)	0.7	0	145.5%	Asymmetric	0.82	0.033	0%
ACTIVE COPING (DIMENSION)	9	1114	123.8	−0.224	−0.28	−0.167	6.7 (8)	0.57	0	7.60%	Symmetric	0.85	−0.224	0%
SOCIAL SUPPORT SEEKING	13	1504	115.7	−0.008	−0.136	0.121	12.7 (12)	0.39	5.5	612.5%	Symmetric	0.77	−0.008	0%
DYSFUNCTIONAL COPING	22	2650	120.5	0.417	0.35	0.479	21 (21)	0.46	0	4.3	Asymmetric	0.42	0.365	12.5%
Avoidance	20	2075	103.8	0.371	0.298	0.439	19.8 (19)	0.41	4.2	4.31	Asymmetric	0.19	0.35	5.7%
Denial	10	1129	112.9	0.303	0.248	0.356	4.6 (9)	0.87	0	3.9%	Symmetric	0.92	0.303	0%
Wishful thinking	9	1484	164.9	0.36	0.279	0.435	10.3 (8)	0.25	22.4	7.5%	Symmetric	0.93	0.36	0%
Self-blame	12	1127	93.9	0.301	0.229	0.37	10.7 (11)	0.47	0	6%	Asymmetric	0.38	0.264	12.3%
Venting	10	1025	102.5	0.166	0.022	0.303	8.37 (9)	0.5	0	30.1%	Asymmetric	0.14	0.082	50.6%
Substance use	7	741	105.9	0.308	0.181	0.425	7.75 (6)	0.26	22.6	14.6%	Asymmetric	0.85	0.336	9.1%
Behavioural disengagement	11	1328	120.7	0.194	0.088	0.296	10.97 (10)	0.36	8.8	17%	Asymmetric	0.64	0.194	0%
Blame of others	3	212	70.7	0.423	0.246	0.572	2.3 (2)	0.32	13.2	12.5%	Asymmetric	0.95	0.48	14.3%
Resignation	3	733	244.3	0.25	0.18	0.317	0.94 (2)	0.63	0	22.4%	Asymmetric	0.26	0.24	4%
Distancing	3	222	74	−0.057	−0.219	0.108	1.87 (2)	0.39	0	180.7%	Asymmetric	0.18	−0.057	0%
Self-distraction	10	1171	117.1	−0.044	−0.17	0.083	9.1 (9)	0.43	1.32	79.6%	Asymmetric	0.4	−0.044	0%

Abbreviations: K, number of included studies; N, overall sample size; r, combined correlation coefficient.

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Study name	Coping	Correlation	Lower limit	Upper limit	p-Value
Del Pino, 2019	Active Coping Dimension	-0,273	-0,404	-0,131	0,000
Hobson, 2001	Active Coping Dimension	-0,160	-0,368	0,063	0,159
Hu, 2017	Active Coping Dimension	-0,346	-0,487	-0,187	0,000
Khalaila, 2015	Active Coping Dimension	-0,280	-0,444	-0,098	0,003
Li, 1999	Active Coping Dimension	-0,130	-0,306	0,054	0,166
Essex, 1999 1	Active Coping Dimension	-0,180	-0,340	-0,010	0,038
Essex, 1999 2	Active Coping Dimension	-0,250	-0,403	-0,083	0,004
Brashares, 1994	Active Coping Dimension	-0,250	-0,454	-0,021	0,033
Kim, 2007	Active Coping Dimension	-0,123	-0,273	0,033	0,121
		-0,224	-0,280	-0,167	0,000
León-Campos, 2018	Dysfunctional Coping	0,024	-0,130	0,177	0,761
López-Martínez, 2019	Dysfunctional Coping	0,188	-0,032	0,390	0,093
Del Pino, 2019	Dysfunctional Coping	0,225	0,080	0,361	0,003
Muscat, 2018	Dysfunctional Coping	0,394	0,156	0,589	0,002
Ramsey, 1991	Dysfunctional Coping	0,440	0,080	0,698	0,018
Gallagher, 2011	Dysfunctional Coping	0,510	0,332	0,653	0,000
Han, 2014	Dysfunctional Coping	0,401	0,302	0,492	0,000
Kinney, 2003	Dysfunctional Coping	0,560	0,364	0,708	0,000
Kramer, 1993	Dysfunctional Coping	0,640	0,479	0,759	0,000
Lau, 2015	Dysfunctional Coping	0,420	0,245	0,569	0,000
Schwarz, 2000	Dysfunctional Coping	0,090	-0,108	0,281	0,374
Cooper, 2008	Dysfunctional Coping	0,400	0,202	0,567	0,000
Lee, 2003	Dysfunctional Coping	0,460	0,254	0,626	0,000
Jones, 2015	Dysfunctional Coping	0,430	0,227	0,598	0,000
Hu, 2017	Dysfunctional Coping	0,403	0,251	0,536	0,000
Khalaila, 2015	Dysfunctional Coping	0,650	0,527	0,746	0,000
Li, 1999	Dysfunctional Coping	0,410	0,245	0,552	0,000
Essex, 1999 1	Dysfunctional Coping	0,530	0,395	0,642	0,000
Essex, 1999 2	Dysfunctional Coping	0,500	0,360	0,618	0,000
Bianchi, 2016	Dysfunctional Coping	0,486	0,336	0,611	0,000
Cooper, 2010	Dysfunctional Coping	0,440	0,327	0,541	0,000
Calvete, 2012	Dysfunctional Coping	0,440	0,328	0,540	0,000
		0,417	0,350	0,479	0,000
León-Campos, 2018	Emotion-Focused	-0,356	-0,483	-0,214	0,000
López-Martínez, 2019	Emotion-Focused	0,019	-0,200	0,236	0,867
Del Pino, 2019	Emotion-Focused	-0,288	-0,418	-0,147	0,000
Muscat, 2018	Emotion-Focused	-0,369	-0,570	-0,127	0,003
Murfield, 2020	Emotion-Focused	-0,350	-0,487	-0,196	0,000
Fingerman, 1996	Emotion-Focused	-0,060	-0,275	0,160	0,596
Gallagher, 2011	Emotion-Focused	-0,210	-0,406	0,005	0,055
Han, 2014	Emotion-Focused	0,147	0,035	0,256	0,011
Lau, 2015	Emotion-Focused	-0,160	-0,345	0,037	0,110
Cooper, 2008	Emotion-Focused	0,200	-0,016	0,398	0,070
Powers, 2002	Emotion-Focused	0,260	-0,017	0,500	0,065
Jones, 2015	Emotion-Focused	0,090	-0,138	0,309	0,441
Hobson, 2001	Emotion-Focused	-0,280	-0,472	-0,063	0,012
		-0,113	-0,240	0,017	0,089
McClendon, 2004	Problem-Focused	-0,200	-0,332	-0,060	0,005
Patrick, 1999	Problem-Focused	0,049	-0,031	0,129	0,232
Pruchno, 1989	Problem-Focused	-0,010	-0,120	0,101	0,860
Wilcox, 2001 1	Problem-Focused	0,200	-0,123	0,485	0,224
Wilcox, 2001 2	Problem-Focused	-0,180	-0,497	0,180	0,327
Batt-Leiba, 1998	Problem-Focused	-0,573	-0,768	-0,280	0,000
Huang, 2015	Problem-Focused	-0,020	-0,279	0,242	0,883
León-Campos, 2018	Problem-Focused	-0,211	-0,353	-0,059	0,007
López-Martínez, 2019	Problem-Focused	-0,086	-0,299	0,135	0,446
Ali, 2016	Problem-Focused	-0,110	-0,310	0,099	0,303
Del Pino, 2019	Problem-Focused	-0,160	-0,300	-0,013	0,033
Ramsey, 1991	Problem-Focused	0,200	-0,187	0,533	0,311
Murfield, 2020	Problem-Focused	-0,340	-0,478	-0,185	0,000
Fingerman, 1996	Problem-Focused	-0,150	-0,357	0,071	0,182
Gallagher, 2011	Problem-Focused	0,090	-0,127	0,299	0,417
Han, 2014	Problem-Focused	0,100	-0,013	0,211	0,083
Kinney, 2003	Problem-Focused	0,090	-0,159	0,329	0,481
Kramer, 1993	Problem-Focused	0,040	-0,193	0,269	0,740
Lau, 2015	Problem-Focused	0,150	-0,047	0,336	0,135
Schwarz, 2000	Problem-Focused	-0,070	-0,263	0,128	0,490
Cooper, 2008	Problem-Focused	0,270	0,058	0,459	0,013
Cartarina-Guedes, 2013	Problem-Focused	-0,160	-0,420	0,124	0,269
Lee, 2003	Problem-Focused	-0,050	-0,280	0,185	0,680
Powers, 2002	Problem-Focused	0,200	-0,080	0,451	0,160
Jones, 2015	Problem-Focused	0,210	-0,016	0,416	0,069
Sanders, 1999	Problem-Focused	0,410	0,125	0,632	0,006
		-0,019	-0,089	0,052	0,604
Wilcox, 2001 1	Social Support	0,210	-0,113	0,493	0,201
Wilcox, 2001 2	Social Support	-0,100	-0,434	0,258	0,589
Huang, 2015	Social Support	-0,050	-0,307	0,213	0,713
Pakenham, 2006	Social Support	-0,140	-0,408	0,150	0,344
Papastavrou, 2011	Social Support	-0,030	-0,179	0,120	0,696
Anderson, 1997	Social Support	-0,127	-0,466	0,244	0,507
Ashley, 2002	Social Support	-0,260	-0,477	-0,013	0,039
Serres, 2017	Social Support	0,058	-0,165	0,276	0,613
Goetzinger, 2012	Social Support	-0,010	-0,089	0,069	0,804
Neundorfer, 1991	Social Support	0,400	0,163	0,594	0,001
Kiral, 2017	Social Support	-0,450	-0,573	-0,308	0,000
Vedhara, 2000	Social Support	0,230	-0,052	0,478	0,108
Bias, 1998	Social Support	0,230	0,046	0,399	0,014
		-0,008	-0,136	0,121	0,907

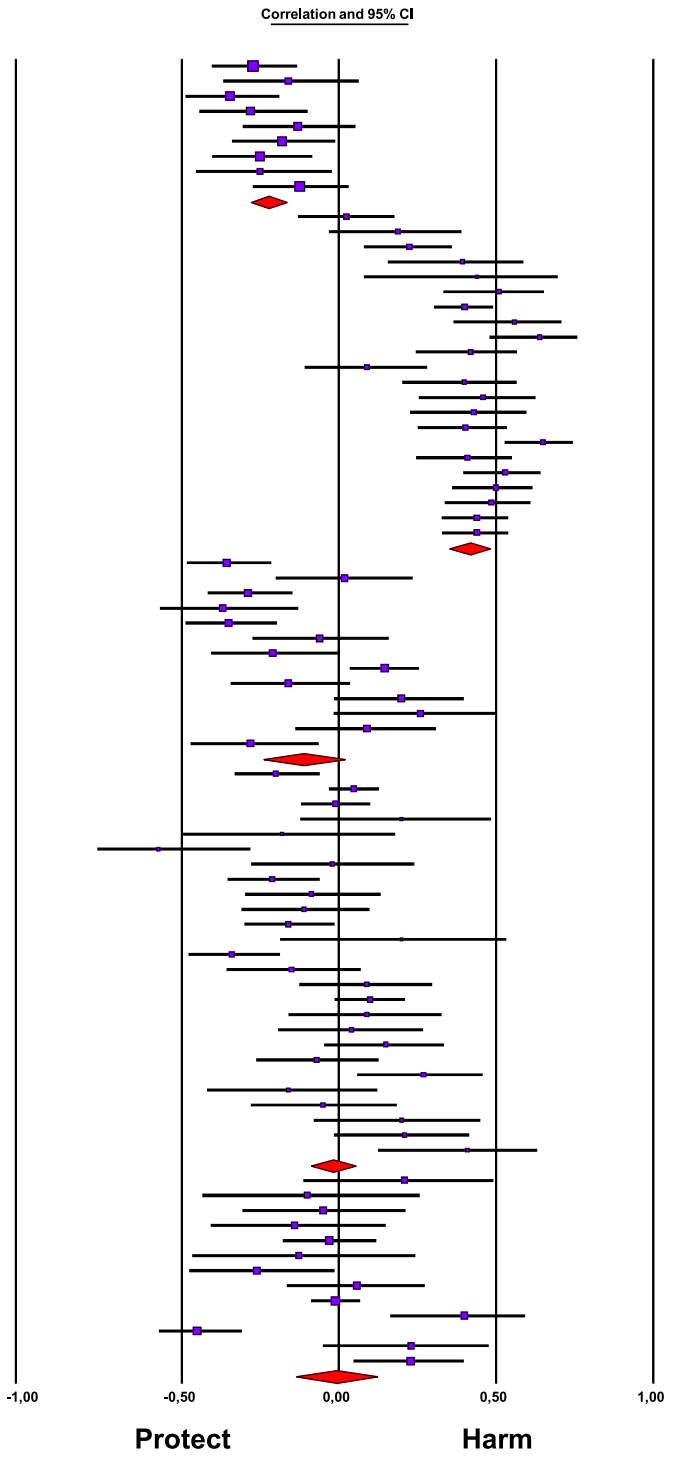

FIGURE 2 Forest Plot of dimensions of coping

differences by cause of dependency; effect size was greater for carers of people with dementia ($\bar{r}$ = 0.472; 95% CI = 0.414, 0.527; k = 10) compared to carers of stroke survivors ($\bar{r}$ = 0.224; 95% CI = 0.088, 0.352; k = 5).

There was also a statistically significant association between denial and carer depressive symptoms ($\bar{r}$ = 0.303; 95% CI = 0.248, 0.356; 10 samples of 9 studies; N = 1129), with no heterogeneity observed (Q = 4.58; gf = 9; p = 0.87; I^2 = 0%). Risk of publication bias was low (see supplementary Figure 12; Egger test p = 0.92; and 0% of variation in the Trim and Fill method), with robust results (variation of 3.9% in sensitivity analysis). We found no differences in subgroup analyses.

Greater use of wishful thinking ($\bar{r}$ = 0.360; 95% CI = 0.279, 0.435; N = 1484), self-blame ($\bar{r}$ = 0.301; 95% CI = 0.229, 0.370; N = 1127), venting ($\bar{r}$ = 0.166; 95% CI = 0.022, 0.303; N = 1025), substance use ($\bar{r}$ = 0.308; 95% CI = 0.181, 0.425; N = 741),

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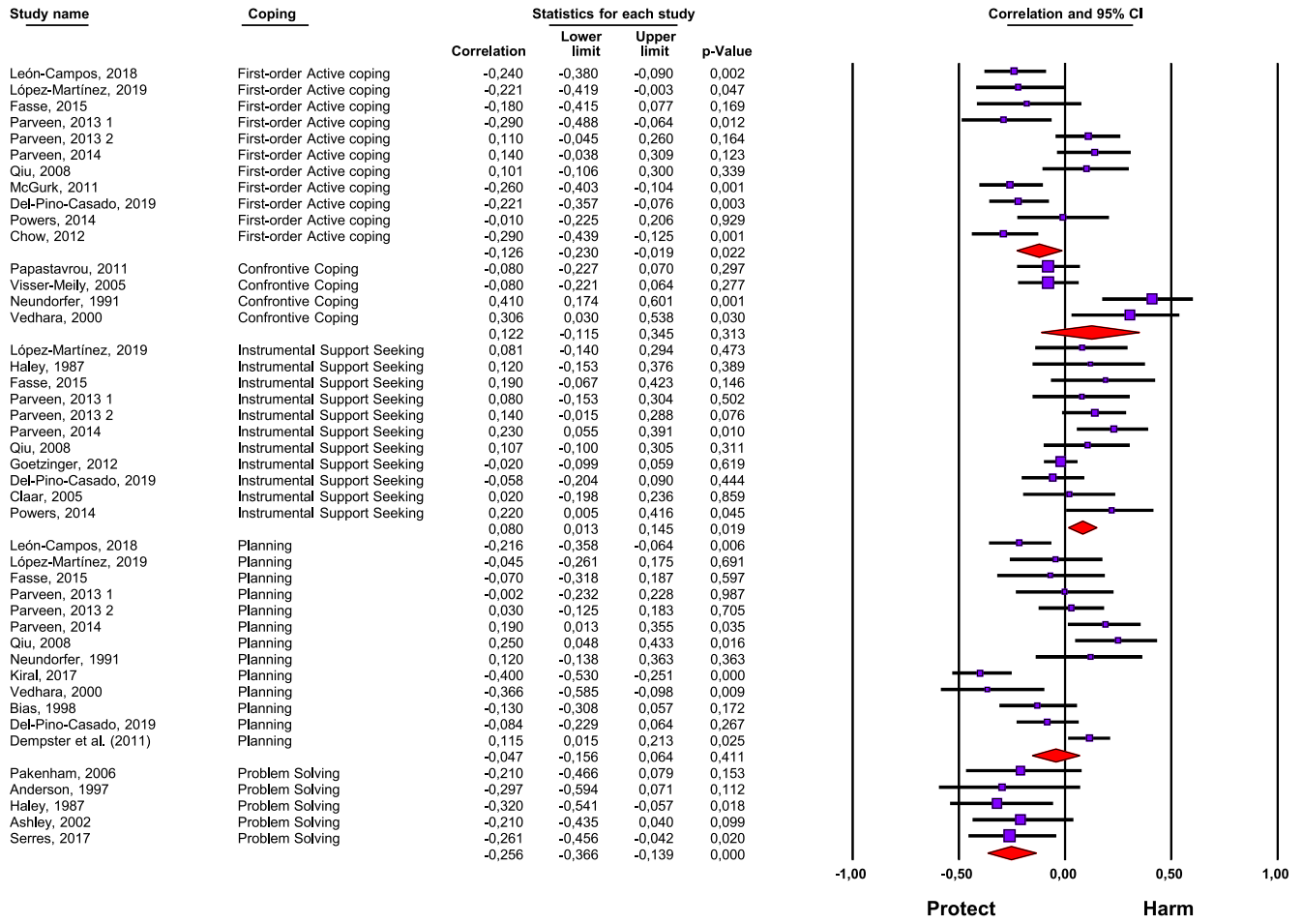

FIGURE 3 Forest Plot of Problem-focussed coping strategies

behavioural disengagement ($\bar{r}$ = 0.194; 95% CI = 0.088, 0.296; N = 1328), blame of others ($\bar{r}$ = 0.423; 95% CI = 0.246, 0.572; N = 212), and resignation ($\bar{r}$ = 0.250; 95% CI = 0.180, 0.317; N = 733), were all associated with higher depressive symptoms. However, distancing ($\bar{r}$ = −0.057; 95% CI = −0.219, 0.108; N = 222), and self-distraction ($\bar{r}$ = −0.044 95% CI = −0.170, 0.083; N = 1171), were not significantly associated with carer depressive symptoms. We found no differences in subgroup analyses, except for behavioural disengagement for type of sampling method (see Appendix C).

5 | DISCUSSION

This review is the first to systematically synthesise studies reporting on the association between different coping strategies and depressive symptoms in family carers of dependent people aged 18 years and over by analysing both broad dimensions of coping and individual coping strategies. Our findings are novel as they provide the first comprehensive quantitative review of coping mechanisms and depressive symptoms in family caregivers. We found that use of coping is an important correlate of depressive symptoms, and that this association is observed across all caregiving groups that have been studied to date. An important and innovative finding of our review is that type of strategy used, and care-recipient dependency influence the effect of coping on carer depressive symptoms.

5.1 | Problem-focussed coping

We found overall no statistically significant association between problem-focussed coping and depressive symptoms in carers, combining results of 26 studies. However, analysing our results by type of cause of dependency showed that greater use of this form of coping was associated with fewer depressive symptoms in family carers of frail older people but not in carers of people with dementia. Similarly to the results of Li et al. (2012), we found no association of this form of coping and depressive symptoms in carers of people with dementia. It is possible that problem-focussed coping is less effective as a strategy in the context of dementia caregiving, perhaps due to the progressive nature of the disease, potentially giving rise to more uncontrollable and persistent demands and stressors. Our findings therefore have important implications as they suggest that in the context of frailty and caring for people with a physical dependency but not dementia, efforts oriented towards problem-focussed coping

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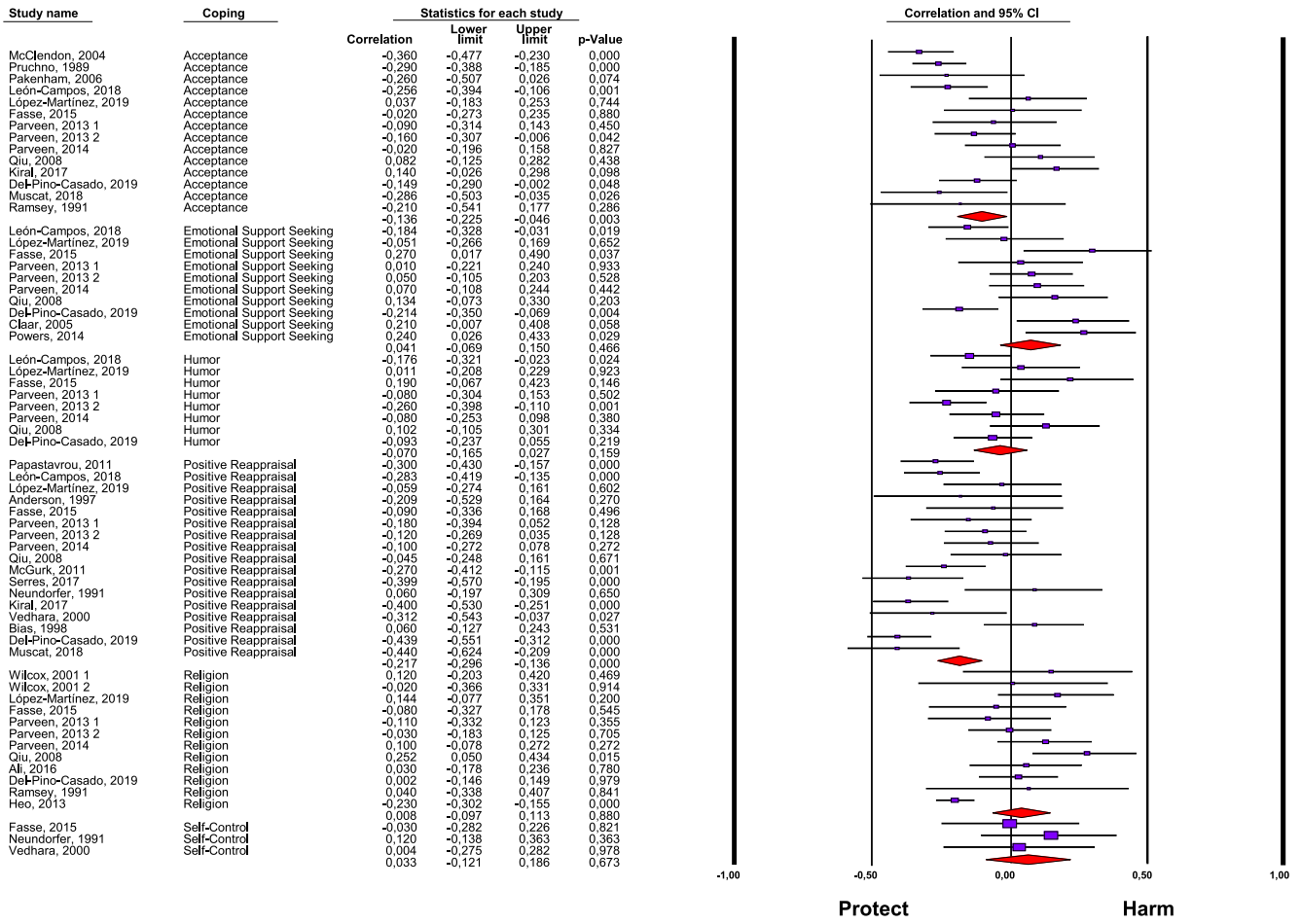

FIGURE 4 Forest Plot of Emotion-focussed coping strategies

may be protective coping mechanisms for family carers. These findings are also in line with the hypothesis that problem-focussed coping is more effective in situations that are controllable (Wartella et al., 2009).

Although problem-focussed coping was not associated with carer depressive symptoms in all caregiving groups, specific individual coping strategies of this domain were associated with depressive symptoms. Higher use specifically of problem-solving, investigated in five studies, was related to lower levels of depressive symptoms. These findings are in line with previous studies suggesting that individual strategies such as problem-solving are consistently associated with better mental health outcomes for carers (Gottlieb & Wolfe, 2002). The effect size of this association was overall small to moderate and although number of studies were low, the results were relatively robust and homogeneous across the different caregiving groups. Our findings showed that active coping may also be protective, with greater use of this strategy associated with fewer depressive symptoms. Similarly, although this effect was small, results remained relatively robust, and precise. Our results indicative of a differential effect of individual coping strategies on carers' depressive symptoms are important for understanding the complex association between coping styles and psychiatric distress in carers.

5.2 | Emotion-focussed coping

Although we found overall no statistically significant association between emotion-focussed coping and carer depressive symptoms (13 studies), in our subgroup analyses controlling for the effect of confounders, greater use of emotion-focussed coping was significantly associated with fewer symptoms of depression (five studies). These results demonstrate that study design influences results, and that for several coping strategies an effect is observed only after confounding biases are adequately controlled.

We were also able to analyse the association of several individual strategies of emotion-focussed coping such as positive reappraisal and acceptance. Our analyses showed that these strategies were statistically associated with lower levels of depressive symptoms in carers across caregiving groups, indicating that generally accepting a difficult situation and evaluating it positively are both useful strategies that support carers' psychological adaptation to the caregiving role. Similarly therefore to prior studies we find that specific emotion-focussed strategies such as acceptance and positive re-appraisal are those more consistently associated with lower levels of depression in carers (Chun et al., 2007; Williams et al., 2010).

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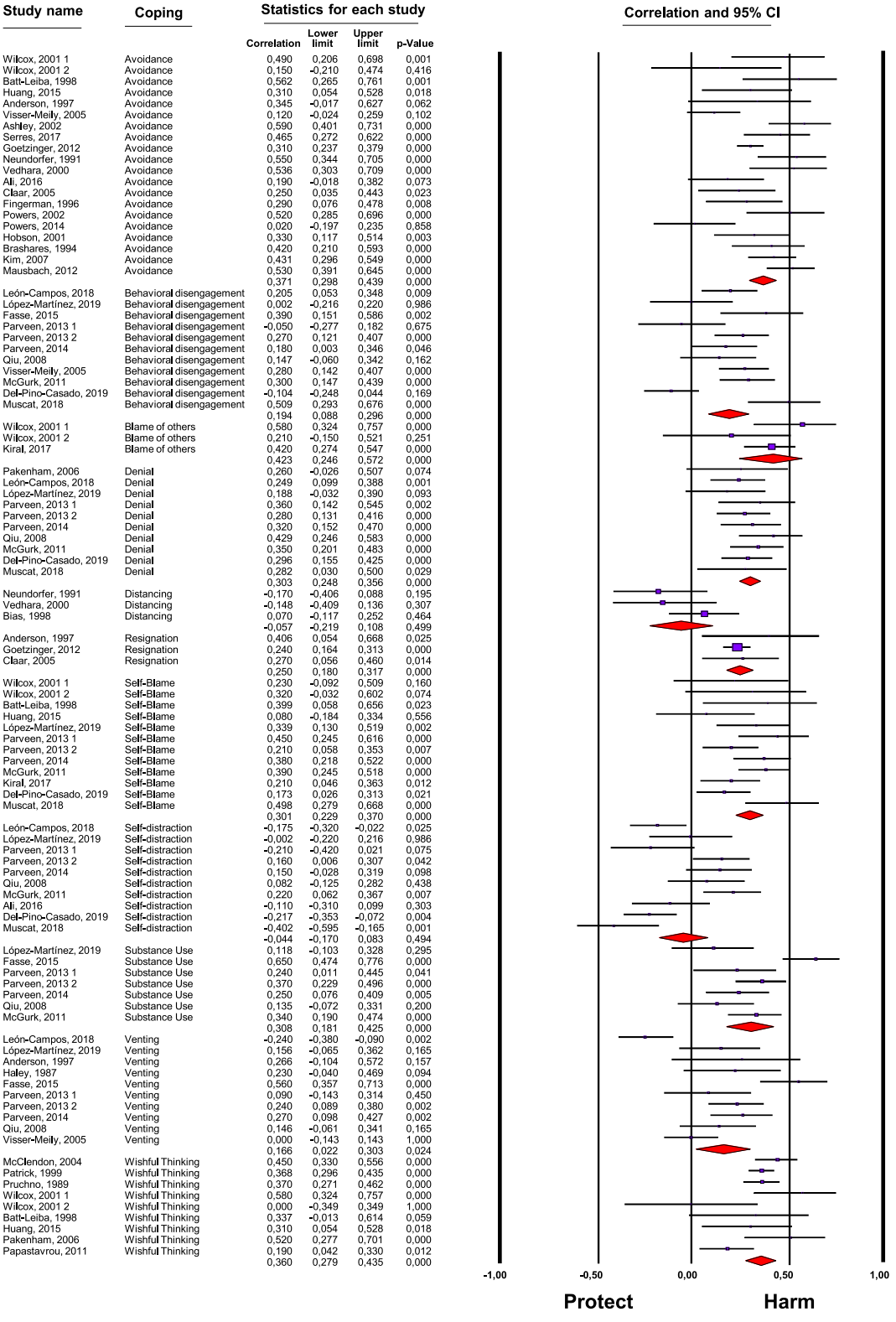

FIGURE 5 Forest Plot of Dysfunctional coping strategies

5.3 | Active coping dimension

Active coping as a dimension, comprising the use of individual strategies from both of these wider coping dimensions, was associated with fewer depressive symptoms. This effect was not influenced by cause of dependency or whether confounding factors were controlled for. These findings are novel as they suggest that it is likely that one strategy alone may not be sufficient when coping with

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caregiving stress, and that the use of several and specific individual strategies may promote a more adaptive response to stressors associated with caregiving (MacCarthy & Brown, 1989).

5.4 | Dysfunctional coping

As hypothesised, we found a consistently strong association between dysfunctional coping and higher depressive symptoms in carers compared to other coping dimensions. These findings suggest that use of dysfunctional coping is most strongly associated with mental health outcomes for carers. The effect size of the association was moderate, with results overall robust, and precise. These findings highlight the harmful effect of dysfunctional coping on carers' mental health, and that this type of coping may often signal clinically significant symptoms of depression in carers. It will be important for future studies to assess how dysfunctional coping may affect other important outcomes for carers such as quality of life (Hamidou et al., 2018), and physical health (Taylor et al., 2015).

Our analyses of specific dysfunctional coping strategies and their association with depressive symptoms show that this form of coping is consistently and robustly associated with higher psychiatric distress amongst carers (Kato, 2015). We also found that the majority of individual strategies of this domain were associated with higher symptoms of depression. Given that these strategies may be important early markers of psychiatric distress, it is important to offer carers interventions aimed at preventing the use of this form of coping. Interestingly, we found that the strength of the effect was weaker and less consistent for the strategies of venting and mental disengagement, indicating that these strategies may be less useful clinically. A further important finding of our review is that substance use was significantly associated with higher depressive symptoms, which may be a key intervention target for future caregiving interventions.

An important strength of our review is that we did not limit our findings to a specific cause of dependency in care-recipients and we were therefore able to review evidence across all caregiving groups. We were also able to provide an up-to-date estimate of the effect of the association between use of coping strategies and depressive symptoms by analysing both general and domain specific individual coping strategies. Our findings therefore on the effect of specific individual coping strategies are novel and can inform the design of future interventions aimed at preventing and treating depression in carers.

A further important strength of our review is that we undertook several subgroup analyses, allowing us to detect the effect of several factors influencing the association between coping and carer depressive symptoms. We found no evidence that results differed between cross-sectional and longitudinal studies, indicating that coping remains relatively stable over time. We also found no effect of type of sampling method used. On the contrary however, controlling for objective burden variables, influenced whether a statistically significant association was observed between greater use of emotion-focussed coping and fewer symptoms of depression. Cause of dependency also influenced results with problem-focussed coping being associated with fewer depressive symptoms for family carers of frail older people.

Regarding the methodological quality of the included studies, although many used validated measurement instruments, most used convenience samples, employed a cross-sectional design, and did not control for objective burden. Nevertheless, in our subgroup analyses we found no differences between groups, except for type of sampling method used for the strategy of behavioural disengagement.

Despite overall results being consistent (i.e., low heterogeneity) and moderately accurate (based on the number of included studies and mean sample size) the potential effect of publication bias remains unclear, due to generally asymmetric funnel plots, which may have influenced the effects of problem-focussed coping, instrumental and emotional support seeking, acceptance and religion. Given therefore evidence for some uncertainty in terms of the estimation of the effects, more attention is warranted to improve the quality of future studies and certainty of evidence.

5.5 | Limitations

Despite the significant strengths, there are several important limitations to our review. While we employed a systematic approach in identifying studies, we may have still missed relevant studies reporting on coping mechanisms and depression outcomes in family caregivers. Most studies included in our analyses were cross-sectional, which limits conclusions of causality. Future longitudinal studies will be important for informing our understanding of the relationship between coping and carer depressive symptoms. The majority of studies included used non-probabilistic sampling which means extrapolating results to the wider population of family carers remains questionable. However, our subgroup analyses showed that overall type of sampling method used, and type of study design did not influence results. In our analyses, we have not been able to use adjusted estimators, so risk of bias remains. However, our sensitivity analyses examining the effect of controlling or not for confounding bias (objective burden) across the individual studies, revealed a possible confounding effect only in the relationship between emotion-focussed coping and depression. Nevertheless, risk of bias due to confounding variables was reduced to objective burden measures, which remains an important limitation of our review. Although in seven of our analyses effect sizes observed were moderate, for the remaining coping mechanisms, associations with depressive symptoms remained small, which limits the clinical significance of our findings. Lastly, in some of our analyses, there was evidence of publication bias, which may lead to less reliable results.

6 | CONCLUSION

Our review provides important new evidence that dysfunctional coping strategies are robustly associated with clinically significant

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depressive symptoms across all caregiving groups. We found that emotion-focussed coping was associated with fewer depressive symptoms in studies controlling for confounders, and several of its individual strategies such as acceptance and positive reappraisal were consistently related to fewer depressive symptoms across all caregiving groups. Problem-focussed coping on the other hand, was associated with fewer depressive symptoms only in carers of frail older people, whereas some of its individual strategies (active coping and problem-solving) were related to fewer depressive symptoms across all groups of caregivers. In addition, the combined use of both problem-focussed and emotion-focussed coping strategies was associated with fewer symptoms of depression.

7 | RELEVANCE TO CLINICAL PRACTICE

The effect of specific individual coping strategies and how these may be differentially related to depressive symptoms in different groups of carers should be taken into account in the design of future interventions aimed at preventing depression and psychiatric distress in carers. Given the significant and consistent association of dysfunctional coping on carers' mental health, and the increasing number of carers worldwide, interventions that specifically target dysfunctional coping should be made more widely available. Emotion-focussed and problem-focussed coping and the use of a combination of these strategies in specific situations may also benefit carers by preventing psychiatric distress and high levels of depressive symptoms.

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CONFLICT OF INTEREST

Professors López-Martínez C., Orgeta V. and del-Pino-Casado R. are authors of two studies that met the inclusion criteria for this review. There are no other known conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author, [LMC], upon reasonable request.

CLINICAL IMPACT STATEMENT

Both broad dimensions of coping and individual coping strategies are important correlates of depressive symptoms in family carers, and should be utilised in informing and improving the effectiveness of future caregiving interventions.

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REFERENCES

Aneshensel, C. S., Pearlin, L. I., Mullan, J. T., Zarit, S. H., & Whitlatch, C. J. (1995). *Profiles in caregiving: The unexpected career*. Academic Press.

Atkins, D., Best, D., Briss, P. A., Eccles, M., Falck-Ytter, Y., Flottorp, S., & Zaza, S. (2004). Grading quality of evidence and strength of recommendations. *BMJ*, *328*(7454), 1490–1494. https://doi.org/10.1136/bmj.328.7454.1490

Boyle, M. H. (1998). Guidelines for evaluating prevalence studies. *Evidence-Based Mental Health*, *1*(2), 37–39. https://doi.org/10.1136/ebmh.1.2.37

Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine*, *4*(1), 92–100. https://doi.org/10.1207/s15327558ijbm0401_6

Chun, M., Knight, B. G., & Youn, G. (2007). Differences in stress and coping models of emotional distress among Korean, Korean-American and White-American caregivers. *Aging & Mental Health*, *11*(1), 20–29. https://doi.org/10.1080/13607860600736232

Cochran, W. G. (1954). The combination of estimates from different experiments. *Biometrics*, *10*(1), 101–129. https://doi.org/10.2307/3001666

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Lawrence Erlbaum Associates.

Cooper, H., Hedges, L. V., & Valentine, J. C. (2009). *The handbook of research synthesis and meta-analysis* (2nd ed., pp. 1–615). Russell Sage Foundation.

Dekkers, O. M., Vandenbroucke, J. P., Cevallos, M., Renehan, A. G., Altman, D. G., & Egger, M. (2019). COSMOS-E: Guidance on conducting systematic reviews and meta-analyses of observational studies of etiology. *PLoS Medicine*, *16*(2), e1002742. https://doi.org/10.1371/journal.pmed.1002742

del-Pino-Casado, R., Palomino-Moral, P. A., Pastor-Bravo, M. D. M., & Frias-Osuna, A. (2017). Determinants of depression in primary caregivers of disabled older relatives: A path analysis. *BMC Geriatrics*, *17*(1), 274. https://doi.org/10.1186/s12877-017-0667-1

Duval, S., & Tweedie, R. (2000). Trim and fill: A simple funnel-plot-based method of testing and adjusting for publication bias in meta-analysis. *Biometrics*, *56*(2), 455–463. https://doi.org/10.1111/j.0006-341x.2000.00455.x

Geng, H. M., Chuang, D. M., Yang, F., Yang, Y., Liu, W. M., Liu, L. H., & Tian, H. M. (2018). Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. *Medicine (Baltimore)*, *97*(39), e11863. https://doi.org/10.1097/md.0000000000011863

Goode, K. T., Haley, W. E., Roth, D. L., & Ford, G. R. (1998). Predicting longitudinal changes in caregiver physical and mental health: A stress process model. *Health Psychology*, *17*(2), 190–198. https://doi.org/10.1037/0278-6133.17.2.190

Gottlieb, B. H., & Wolfe, J. (2002). Coping with family caregiving to persons with dementia: A critical review. *Aging & Mental Health*, *6*(4), 325–342. https://doi.org/10.1080/1360786021000006947

Haley, W. E., Levine, E. G., Brown, S. L., & Bartolucci, A. A. (1987). Stress, appraisal, coping, and social support as predictors of adaptational outcome among dementia caregivers. *Psychology and Aging*, *2*(4), 323–330. https://doi.org/10.1037/0882-7974.2.4.323

Hamidou, Z., Auquier, P., Leroy, T., Barlesi, F., Salas, S., Chinot, O., & Baumstarck, K. (2018). Dyadic effects of coping strategies, time perspectives, and personality on the quality of life of cancer patients and their caregivers. *Psycho-Oncology*, *27*(2), 590–599. https://doi.org/10.1002/pon.4553

Hedges, L. V., & Vevea, J. L. (1998). Fixed-and random-effects models in meta-analysis. *Psychological Methods*, *3*(4), 486–504. https://doi.org/10.1037/1082-989x.3.4.486

Higgins, J., & Green, S. (2008). Cochrane handbook for systematic reviews of interventions, version 5.0.1. Vol. *5*. Retrieved from http://www.mri.gov.lk/assets/Uploads/Research/Cochrane-Hand-booktext.pdf

Higgins, J., Thompson, S., Deeks, J., & Altman, D. (2002). Statistical heterogeneity in systematic reviews of clinical trials: A critical appraisal

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of guidelines and practice. *Journal of Health Services Research and Policy*, *7*(1), 51–61. https://doi.org/10.1258/1355819021927674

Higgins, J. P., & Thomas, J. (2020). *Cochrane handbook for systematic reviews of interventions* (2nd ed.). Wiley Blackwell& Sons.

Kato, T. (2015). Frequently used coping scales: A meta-analysis. *Stress and Health*, *31*(4), 315–323. https://doi.org/10.1002/smi.2557

Knight, B. G., Silverstein, M., McCallum, T. J., & Fox, L. S. (2000). A sociocultural stress and coping model for mental health outcomes among African American caregivers in southern California. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *55B*(3), P142–P150. https://doi.org/10.1093/geronb/55.3.p142

Lacey, R. E., McMunn, A., & Webb, E. (2019). Informal caregiving patterns and trajectories of psychological distress in the UK Household Longitudinal Study. *Psychological Medicine*, *49*(10), 1652–1660. https://doi.org/10.1017/s0033291718002222

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.

Li, R., Cooper, C., Bradley, J., Shulman, A., & Livingston, G. (2012). Coping strategies and psychological morbidity in family carers of people with dementia: A systematic review and meta-analysis. *Journal of Affective Disorders*, *139*(1), 1–11. https://doi.org/10.1016/j.jad.2011.05.055

Loh, A. Z., Tan, J. S., Zhang, M. W., & Ho, R. C. (2017). The global prevalence of anxiety and depressive symptoms among caregivers of stroke survivors. *Journal of the American Medical Directors Association*, *18*(2), 111–116. https://doi.org/10.1016/j.jamda.2016.08.014

MacCarthy, B., & Brown, R. (1989). Psychosocial factors in Parkinson's disease. *British Journal of Clinical Psychology*, *28*(1), 41–52. https://doi.org/10.1111/j.2044-8260.1989.tb00810.x

Meader, N., King, K., Llewellyn, A., Norman, G., Brown, J., Rodgers, M., Moe-Byrne, T., Higgins, J. P., Sowden, A., & Stewart, G. (2014). A checklist designed to aid consistency and reproducibility of GRADE assessments: Development and pilot validation. *Systematic Reviews*, *3*(1), 82. https://doi.org/10.1186/2046-4053-3-82

Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). Preferred reporting items for systematic reviews and meta-analyses: The PRISMA statement. *PLoS Medicine*, *6*(7), e1000097. https://doi.org/10.1371/journal.pmed.1000097

Monteiro, A. M. F., Santos, R. L., Kimura, N., Baptista, M. A. T., & Dourado, M. C. N. (2018). Coping strategies among caregivers of people with alzheimer disease: A systematic review [estratégias de coping entre cuidadores de pessoas com doença de Alzheimer: uma revisão sistemática]. *Trends psychiatry psychother. (Impr.)*, *40*(3), 258–268. https://doi.org/10.1590/2237-6089-2017-0065

Moos, R. H., Brennan, P. L., Fondacaro, M. R., & Moos, B. S. (1990). Approach and avoidance coping responses among older problem and nonproblem drinkers. *Psychology and Aging*, *5*(1), 31–40. https://doi.org/10.1037//0882-7974.5.1.31

Morris, N., Moghaddam, N., Tickle, A., & Biswas, S. (2018). The relationship between coping style and psychological distress in people with head and neck cancer: A systematic review. *Psycho-Oncology*, *27*(3), 734–747. https://doi.org/10.1002/pon.4509

OECD. (2019). *Health at a glance 2019: OECD indicators*. OECD Publishing.

Pearlin, L. I., Mullan, J. T., Semple, S. J., & Skaff, M. M. (1990). Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist*, *30*(5), 583–594. https://doi.org/10.1093/geront/30.5.583

Pinquart, M., & Sörensen, S. (2003). Associations of stressors and uplifts of caregiving with caregiver burden and depressive mood: A meta-analysis. *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, *58*(2), P112–P128. https://doi.org/10.1093/geronb/58.2.p112

Rothman, K. J., Greenland, S., & Lash, T. L. (2008). *Modern epidemiology*. Lippincott Williams and Wilkins.

Sallim, A. B., Sayampanathan, A. A., Cuttilan, A., & Ho, R. (2015). Prevalence of mental health disorders among caregivers of patients with alzheimer disease. *Journal of the American Medical Directors Association*, *16*(12), 1034–1041. https://doi.org/10.1016/j.jamda.2015.09.007

Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, *129*(2), 216–269. https://doi.org/10.1037/0033-2909.129.2.216

Taylor, B. J., Irish, L. A., Martire, L. M., Siegle, G. J., Krafty, R. T., Schulz, R., & Hall, M. H. (2015). Avoidant coping and poor sleep efficiency in dementia caregivers. *Psychosomatic Medicine*, *77*(9), 1050–1057. https://doi.org/10.1097/PSY.0000000000000237

Viswanathan, M., Berkman, N. D., Dryden, D. M., & Hartling, L. (2013). *Assessing risk of bias and confounding in observational studies of interventions or exposures: Further development of the RTI item bank*. Agency for Healthcare Rsearch and Quality.

Wartella, J. E., Auerbach, S. M., & Ward, K. R. (2009). Emotional distress, coping and adjustment in family members of neuroscience intensive care unit patients. *Journal of Psychosomatic Research*, *66*(6), 503–509. https://doi.org/10.1016/j.jpsychores.2008.12.005

Williams, V. P., Bishop-Fitzpatrick, L., Lane, J. D., Gwyther, L. P., Ballard, E. L., Vendittelli, A. P., Hutchins, T. C., & Williams, R. B. (2010). Video-based coping skills to reduce health risk and improve psychological and physical well-being in Alzheimer's disease family caregivers. *Psychosomatic Medicine*, *72*(9), 897–904. https://doi.org/10.1097/PSY.0b013e3181fc2d09

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