

Supplementary Information for:

Psychosocial interventions indicate prolonged survival in cancer patients in a systematic review, meta-analysis, and multiverse meta-analysis of randomized controlled trials

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Supplementary Section A

Supplementary Table A1

Detailed List of Search Strings and Search Results for the Systematic Literature Search for RCTs

Steps	Web of Science	Scopus (Boolean operator AND before NOT necessary in combined search)	MEDLINE (PubMed)	PsycINFO (EBSCO)	Google Scholar (search terms limited to 250 characters, no truncation possible)	Embase
Search for cancer population	TS=(cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 5,076,068	TITLE-ABS-KEY (cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 6,137,026	cancer[Title/Abstract] OR neoplasm[Title/Abstract] OR carcinoma[Title/Abstract] OR lymphoma[Title/Abstract] OR melanoma[Title/Abstract] OR leukemia[Title/Abstract] OR sarcoma[Title/Abstract] Results: 3,545,573	cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma Results: 128,809	cancer OR neoplasm Results: 6,750,000	cancer:ab,ti OR neoplasm:ab,ti OR carcinoma:ab,ti OR lymphoma:ab,ti OR melanoma:ab,ti OR leukemia:ab,ti OR sarcoma:ab,ti Results: 4,985,846
Search for psychosocial intervention	TS=(psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-educatio* OR writing OR web-based OR internet-based OR nursing OR "palliative	TITLE-ABS-KEY (psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-educatio* OR writing OR web-	psychosocial[Title/Abstract] OR psychotherap*[Title/Abstract] OR cognitive-behavior*[Title/Abstract] OR "behavior therapy"[Title/Abstract] OR "cognitive therapy"[Title/Abstract] OR "cognitive reappraisal"[Title/Abstract] OR "coping skills"[Title/Abstract] OR relaxation[Title/Abstract] OR meditation[Title/Abstract] OR mindfulness[Title/Abstract] OR "stress management"[Title/Abstract] OR psychoanaly*[Title/Abstract] OR psychodynami*[Title/Abstract] OR humanistic[Title/Abstract] OR existential[Title/Abstract] OR person-centered[Title/Abstract] OR logotherapy[Title/Abstract] OR meaning-centered[Title/Abstract] OR supportive-expressive[Title/Abstract] OR "systemic family"[Title/Abstract] OR dignity[Title/Abstract] OR "life review"[Title/Abstract] OR narrative[Title/Abstract] OR "meaning of life"[Title/Abstract] OR	psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-educatio* OR writing OR web-based OR internet-based	psychosocial OR psychotherapy OR nursing OR "palliative care" OR "hospice care" Results: 4,960,000	psychosocial:ab,ti OR psychotherap*:ab,ti OR 'cognitive behavior':ab,ti OR 'behavior therapy':ab,ti OR 'cognitive therapy':ab,ti OR 'cognitive reappraisal':ab,ti OR 'coping skills':ab,ti OR relaxation:ab,ti OR meditation:ab,ti OR mindfulness:ab,ti OR 'stress management':ab,ti OR psychoanaly*:ab,ti OR psychodynami*:ab,ti OR humanistic:ab,ti OR existential:ab,ti OR 'person centered':ab,ti OR logotherapy:ab,ti OR 'meaning centered':ab,ti OR 'supportive expressive':ab,ti OR 'systemic family':ab,ti OR dignity:ab,ti OR 'life review':ab,ti OR narrative:ab,ti OR

	care" OR "hospice care" OR "eye movement desensitization reprocessing") Results: 2,777,837	based OR internet-based OR nursing OR "palliative care" OR "hospice care" OR "eye movement desensitization reprocessing") Results: 3,332,894	counseling[Title/Abstract] OR psycho-educatio*[Title/Abstract] OR writing[Title/Abstract] OR web-based[Title/Abstract] OR internet-based[Title/Abstract] OR nursing[Title/Abstract] OR "palliative care"[Title/Abstract] OR "hospice care"[Title/Abstract] OR "eye movement desensitization reprocessing"[Title/Abstract] Results: 1,109,706	OR nursing OR "palliative care" OR "hospice care" OR "eye movement desensitization reprocessing" Results: 1,288,600		'meaning of life':ab,ti OR counseling:ab,ti OR 'psycho educatio*':ab,ti OR writing:ab,ti OR 'web based':ab,ti OR 'internet based':ab,ti OR nursing:ab,ti OR 'palliative care':ab,ti OR 'hospice care':ab,ti OR 'eye movement desensitization reprocessing':ab,ti Results: 1,375,458
Search for survival outcome	TS=(survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate") Results: 3,195,538	TITLE-ABS-KEY (survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate") Results: 3,958,366	survival[Title/Abstract] OR mortality[Title/Abstract] OR "survival analysis"[Title/Abstract] OR "survival rate"[Title/Abstract] OR "kaplan-meier estimate"[Title/Abstract] Results: 2,324,339	survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate" Results: 107,509	survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate" Results: 6,320,000	survival:ab,ti OR mortality:ab,ti OR 'survival analysis':ab,ti OR 'survival rate':ab,ti OR 'kaplan-meier estimate':ab,ti Results: 3,492,799
Search for randomized controlled study design	TS=("randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly) Results: 1,775,737	TITLE-ABS-KEY ("randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly) Results: 2,299,545	"randomized controlled trial"[Title/Abstract] OR "controlled clinical trial"[Title/Abstract] OR randomized[Title/Abstract] OR randomly[Title/Abstract] Results: 1,163,431	"randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly Results: 206,114	"randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly Results: 3,220,000	'randomized controlled trial':ab,ti OR 'controlled clinical trial':ab,ti OR randomized:ab,ti OR randomly:ab,ti Results: 1,837,809
Combined search	#1 AND #2 AND #3 AND #4 Results: 3,717	#1 AND #2 AND #3 AND #4 Results: 5,225	#1 AND #2 AND #3 AND #4 Results: 1,392	S1 AND S2 AND S3 AND S4 Results: 336	#1 AND #2 AND #3 AND #4 Results: 1,950,000	#1 AND #2 AND #3 AND #4 Results: 3,322
Filters	Article; English Results: 2,451	Article; Human; English Results: 2,943	Randomized Controlled Trial; Humans; English Results: 432	Clinical Trial; English Results: 65	English; First 500 Results: 500	Randomized Controlled Trial; Article Results: 430

Supplementary Table A2*Detailed List of Search Strings and Search Results for the Systematic Literature Search for Meta-Analyses*

Steps	Web of Science	Scopus (Boolean operator AND before NOT necessary in combined search)	MEDLINE (PubMed)	PsycINFO (EBSCO)	Google Scholar (search terms limited to 250 characters, no truncation possible)	Embase
Search for cancer population	TS=(cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 5,076,068	TITLE-ABS-KEY (cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 6,137,026	cancer[Title/Abstract] OR neoplasm[Title/Abstract] OR carcinoma[Title/Abstract] OR lymphoma[Title/Abstract] OR melanoma[Title/Abstract] OR leukemia[Title/Abstract] OR sarcoma[Title/Abstract] Results: 3,545,573	cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma Results: 128,809	cancer OR neoplasm Results: 6,750,000	cancer:ab,ti OR neoplasm:ab,ti OR carcinoma:ab,ti OR lymphoma:ab,ti OR melanoma:ab,ti OR leukemia:ab,ti OR sarcoma:ab,ti Results: 4,985,846
Search for psychosocial intervention	TS=(psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning- centered OR supportive- expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho- educatio* OR writing OR web-based OR internet- based OR nursing OR "palliative care" OR "hospice care" OR "eye movement desensitization reprocessing")	TITLE-ABS-KEY (psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning- centered OR supportive- expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho- educatio* OR writing OR web-based OR internet- based OR nursing OR "palliative care" OR "hospice care" OR "eye movement desensitization	psychosocial[Title/Abstract] OR psychotherap*[Title/Abstract] OR cognitive-behavior*[Title/Abstract] OR "behavior therapy"[Title/Abstract] OR "cognitive therapy"[Title/Abstract] OR "cognitive reappraisal"[Title/Abstract] OR "coping skills"[Title/Abstract] OR relaxation[Title/Abstract] OR mindfulness[Title/Abstract] OR "stress management"[Title/Abstract] OR psychoanaly*[Title/Abstract] OR psychodynami*[Title/Abstract] OR humanistic[Title/Abstract] OR existential[Title/Abstract] OR person-centered[Title/Abstract] OR logotherapy[Title/Abstract] OR meaning-centered[Title/Abstract] OR supportive-expressive[Title/Abstract] OR "systemic family"[Title/Abstract] OR dignity[Title/Abstract] OR "life review"[Title/Abstract] OR narrative[Title/Abstract] OR "meaning of life"[Title/Abstract] OR counseling[Title/Abstract] OR psychoeducatio*[Title/Abstract] OR writing[Title/Abstract] OR web-based[Title/Abstract] OR internet-based[Title/Abstract] OR nursing[Title/Abstract] OR "palliative care"[Title/Abstract] OR "hospice care"[Title/Abstract] OR "eye movement desensitization reprocessing"[Title/Abstract]	psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning- centered OR supportive- expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho- educatio* OR writing OR web-based OR internet- based OR nursing OR "palliative care" OR "hospice care" OR "eye movement desensitization reprocessing"	psychosocial OR psychotherapy OR nursing OR "palliative care" OR "hospice care" Results: 4,960,000	psychosocial:ab,ti OR psychotherap*:ab,ti OR 'cognitive behavior*':ab,ti OR 'behavior therapy':ab,ti OR 'cognitive therapy':ab,ti OR 'cognitive reappraisal':ab,ti OR 'coping skills':ab,ti OR relaxation:ab,ti OR meditation:ab,ti OR mindfulness:ab,ti OR 'stress management':ab,ti OR psychoanaly*:ab,ti OR psychodynami*:ab,ti OR humanistic:ab,ti OR existential:ab,ti OR 'person centered':ab,ti OR logotherapy:ab,ti OR 'meaning centered':ab,ti OR 'supportive expressive':ab,ti OR 'systemic family':ab,ti OR dignity:ab,ti OR 'life review':ab,ti OR narrative:ab,ti OR 'meaning of life':ab,ti OR counseling:ab,ti OR 'psycho educatio*':ab,ti

	Results: 2,777,837	reprocessing") Results: 3,332,894	centered[Title/Abstract] OR supportive- expressive[Title/Abstract] OR "systemic family"[Title/Abstract] OR dignity[Title/Abstract] OR "life review"[Title/Abstract] OR narrative[Title/Abstract] OR "meaning of life"[Title/Abstract] OR counseling[Title/Abstract] OR psycho- educatio*[Title/Abstract] OR writing[Title/Abstract] OR web-based[Title/Abstract] OR internet-based[Title/Abstract] OR nursing[Title/Abstract] OR "palliative care"[Title/Abstract] OR "hospice care"[Title/Abstract] OR "eye movement desensitization reprocessing"[Title/Abstract] Results: 1,109,706	Results: 1,288,600		OR writing:ab,ti OR 'web based':ab,ti OR 'internet based':ab,ti OR nursing:ab,ti OR 'palliative care':ab,ti OR 'hospice care':ab,ti OR 'eye movement desensitization reprocessing':ab,ti Results: 1,375,458
Search for survival outcome	TS=(survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate") Results: 3,195,538	TITLE-ABS-KEY (survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate") Results: 3,958,366	survival[Title/Abstract] OR mortality[Title/Abstract] OR "survival analysis"[Title/Abstract] OR "survival rate"[Title/Abstract] OR "kaplan-meier estimate"[Title/Abstract] Results: 2,324,339	survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate" Results: 107,509	survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate" Results: 6,320,000	survival:ab,ti OR mortality:ab,ti OR 'survival analysis':ab,ti OR 'survival rate':ab,ti OR 'kaplan-meier estimate':ab,ti Results: 3,492,799
Search for meta-analyses	TS=(meta-analysis) Results: 427,909	TITLE-ABS-KEY (meta- analysis) Results: 536,051	meta-analysis[Title/Abstract] Results: 288,547	meta-analysis Results: 60,350	meta-analysis Results: 4,380,000	'meta analysis':ab,ti Results: 354,916
Combined search	#1 AND #2 AND #3 AND #4 Results: 1,015	#1 AND #2 AND #3 AND #4 Results: 1,792	#1 AND #2 AND #3 AND #4 Results: 414	S1 AND S2 AND S3 AND S4 Results: 89	#1 AND #2 AND #3 AND #4 Results: 1,580,000	#1 AND #2 AND #3 AND #4 Results: 450
Filters	English	Human; English	Meta-Analysis; Humans; English	Meta-Analysis; English	English; First 100 Results	Meta-Analysis

Results: 992	Results: 1,659	Results: 207	Results: 54	Results: 100	Results: 450
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Supplementary Table A3*Detailed List of Search Strings and Search Results for the Systematic Literature Search for Gray Literature*

Steps	ClinicalTrials.gov	ProQuest Dissertations & Theses Global: Title Search	ProQuest Dissertations & Theses Global: Abstract Search
	(Boolean operator NOT unavailable, no truncation possible)	(* limited to 5 characters)	Search (* limited to 5 characters)
Search for cancer population	cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma Results: 117,185	title(cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 61,652	abstract(cancer OR neoplasm OR carcinoma OR lymphoma OR melanoma OR leukemia OR sarcoma) Results: 132,332
Search for psychosocial intervention	psychosocial OR psychotherapy OR cognitive-behavior OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanalysis OR psychodynamic OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-education OR writing OR web-based OR internet-based OR nursing OR "palliative care" OR "hospice care" OR "eye	title(psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-educatio* OR writing OR web-based OR internet-based OR nursing OR "palliative care" OR "hospice care" OR "eye	abstract(psychosocial OR psychotherap* OR cognitive-behavior* OR "behavior therapy" OR "cognitive therapy" OR "cognitive reappraisal" OR "coping skills" OR relaxation OR meditation OR mindfulness OR "stress management" OR psychoanaly* OR psychodynami* OR humanistic OR existential OR person-centered OR logotherapy OR meaning-centered OR supportive-expressive OR "systemic family" OR dignity OR "life review" OR narrative OR "meaning of life" OR counseling OR psycho-educatio* OR writing OR web-based OR internet-based OR nursing OR "palliative care" OR "hospice care" OR "eye

	movement desensitization reprocessing")	movement desensitization reprocessing")	movement desensitization reprocessing")
	Results: 43.190	Results: 114,261	Results: 432,749
Search for survival outcome	survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate"	title(survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate")	abstract(survival OR mortality OR "survival analysis" OR "survival rate" OR "kaplan-meier estimate")
	Results: 93.459	Results: 16,231	Results: 159,116
Search for randomized controlled study design	No more search field	title("randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly)	abstract("randomized controlled trial" OR "controlled clinical trial" OR randomized OR randomly)
		Results: 5,011	Results: 103,480
Combined search	#1 AND #2 AND #3	#1 AND #2 AND #3 AND #4	#1 AND #2 AND #3 AND #4
	Results: 1.444	Results: 0	Results: 69
Filters	Study Status: Completed; Study Type: Interventional; Study Results: With results	Language: English Results: 0	Language: English Results: 67
	Results: 118		

Supplementary Table A4

List of Items for the Assessment of Study Quality of Included RCTs (Refers to Survival Outcome)

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1. Was the study described as randomized, a randomized trial, a randomized clinical trial, or a randomized controlled trial?
 2. Was the method of randomization adequate (i.e., use of randomly generated assignment)?
 3. Was the treatment allocation concealed (so that assignments could not be predicted)?
 4. Were study participants and providers blinded to treatment group assignment?
 5. Were the people assessing the outcomes blinded to the participants' group assignments?
 6. Were the groups similar at baseline on important characteristics that could affect outcomes (e.g., demographics, risk factors, co-morbid conditions)?
 7. Was the overall drop-out rate from the study at endpoint 20% or lower of the number allocated to treatment?
 8. Was the differential drop-out rate (between treatment groups) at endpoint 15 % or lower?
 9. Was there a high adherence to the intervention protocols for each treatment group (i.e. treatment non-adherence at or lower than 20%)?
 10. Were other interventions avoided or similar in the groups (e.g., similar background treatments)?
 11. Were outcomes assessed using valid and reliable measures, implemented consistently across all study participants?
 12. Was the meta-analytic post-hoc power at or above 80%?
 13. Were outcomes reported or subgroups analyzed prespecified (i.e., identified before analyses were conducted)?
 14. Were all randomized participants analyzed in the group to which they were originally assigned (i.e., did they use an intention-to-treat analysis)?
 15. Were point estimates and measures of variability presented for the primary outcome measures?
 16. Were any interim analysis justified and stopping rules for data collection prespecified?
 17. Were the statistical methods used appropriate, requirements met and “plain” results presented (i.e., without controlling for any covariates)?

18. Was there only one statistical test applied to test the same hypothesis or, in case of multiple statistical testing (as in testing with different sample sizes or at different time points), was there any control for alpha error accumulation?

Note. Items 1-14 were taken from the Quality Assessment of Controlled Intervention

Studies (NHLBI), Item 15 from the DELPHI List, and Items 16-18 from the CONSORT

Checklist.

Supplementary Table A5*List of the Additional Literature Used Mentioned in the Articles of Included RCTs*

Retrieved for RCT	Additional information taken from
Andersen et al. 2008 ¹	Andersen 2007 ²
Bakitas et al. 2009 ³	Bakitas 2009 ⁴
Boesen et al. 2007 ⁵	Boesen et al. 2005 ⁶
Choi et al. 2012 ⁷	Given 2004 ⁸
Cunningham et al. 1999 ⁹	Edmonds et al. 1999 ¹⁰
Edelman et al. 1999 ¹¹	Edelman et al. 1999 ¹²
Fawzy et al. 1993 ¹³	Fawzy et al. 1990 ^{14,15}
Kirkegaard et al. 2023 ¹⁶	Boesen et al. 2011 ¹⁷
Kissane et al. 2004 ¹⁸	Kissane 2003 ¹⁹
Julião et al. 2015 ²⁰	Julião 2014 ²¹
Stagl et al. 2015 ²²	Antoni 2006 ²³ ; Stagl 2015 ^{24,25}

Supplementary Table A6*Moderator Disclosure Table with Bibliographical References*

Moderator	Source
Age	MA = Mirosevic et al., 2019 ²⁶ ; RCT = Choi et al., 2012 ⁷ ; Stagl et al., 2015 ²² ; Ross et al., 2009 ²⁷ ; Ye et al., 2017 ²⁸ ; AL = Gospodarowicz & O'Sullivan, 2003 ²⁹
Sex	RCT = Fawzy et al., 1993 ¹³ /2003 ³⁰ ; AL = Gospodarowicz & O'Sullivan, 2003 ²⁹
Marital status	MA = Mirosevic et al., 2019 ²⁶
Cancer type	MA = Mirosevic et al., 2019 ²⁶ ; Oh et al., 2016 ³¹ ; RCT = Kuchler et al., 1999 ³² /2007 ³³
Tumor stage	MA = Mirosevic et al., 2019 ²⁶ ; Oh et al., 2016 ³¹ ; RCT = Choi et al., 2012 ⁷ ; Kuchler et al., 1999 ³² /2007 ³³ ; McCorkle et al., 2000 ³⁴ ; Ross et al., 2009 ²⁷ ; Zhou & Sun, 2021 ³⁵ ; AL = Gospodarowicz & O'Sullivan, 2003 ²⁹
Tumor phase	AL = Zimmermann et al., 2007 ³⁶
Metastasis	AL = Butow et al., 2000 ³⁷
Estrogen receptor status	RCT = Andersen et al., 2008 ¹ ; Cunningham et al., 1998 ⁹ ; Spiegel et al., 2007 ³⁸ ; Ye et al., 2017 ²⁸ ; AL = Gospodarowicz & O'Sullivan, 2003 ²⁹
Progesterone receptor status	RCT = Andersen et al., 2008 ¹ ; Goodwin et al., 2001 ³⁹ ; AL = Gospodarowicz & O'Sullivan, 2003 ²⁹
Lymph node status	RCT = Andersen et al., 2008 ¹ ; Boesen et al., 2007 ⁵ ; Kissane et al., 2004 ¹⁸
Surgery before study entry	RCT = Choi et al., 2012 ⁷
Chemotherapy before study entry	RCT = Andersen et al., 2008 ¹ ; Choi et al., 2012 ⁷ ; Cunningham et al., 1998 ⁹ ; Edelman et al., 1999 ¹¹ ; Kissane et al., 2007 ⁴⁰
Radiotherapy before study entry	RCT = Andersen et al., 2008 ¹
Hormone therapy before study entry	RCT = Kissane et al., 2007 ⁴⁰ ; Stagl et al., 2015 ²²
Intervention type	MA = Edwards et al., 2008 ⁴¹ ; Mirosevic et al., 2019 ²⁶ ; Mustafa et al., 2013 ⁴² ; Oh et al., 2016 ³¹ ; AL = Zimmermann et al., 2007 ³⁶
Intervention format	MA = Fu et al., 2016 ⁴³ ; Mirosevic et al., 2019 ²⁶ ; Oh et al., 2016 ³¹ ; Smedslund et al., 2004 ⁴⁴ ; AL = Zimmermann et al., 2007 ³⁶
Intervention dose	MA = Mirosevic et al., 2019 ²⁶ ; Oh et al., 2016 ³¹ ; Xia et al., 2014 ⁴⁵
Intervention period	MA = Mirosevic et al., 2019 ²⁶ ; AL = Faller et al., 2013 ⁴⁶
Intervention onset	AL = Zimmermann et al., 2007 ³⁶
Intervention provider	MA = Oh et al., 2016 ³¹ ; AL = Zimmermann et al., 2007 ³⁶
Differences between groups in attendance of psychosocial interventions outside of study	RCT = Cunningham et al., 1998 ⁹
Control group type	AL = Zimmermann et al., 2007 ³⁶
Length of follow-up	MA = Chow et al., 2004 ⁴⁷ ; Edwards et al., 2008 ⁴¹ ; Fu et

	al., 2016 ⁴³ ; Mustafa et al., 2013 ⁴² ; Oh et al., 2016 ³¹ ; Xia et al., 2014 ⁴⁵
Analysis type	AL = Gupta, 2011 ⁴⁸
Patients lost to intervention	AL = Gupta, 2011 ⁴⁸
Continent (country) of origin	AL = Verlegh & Steenkamp, 1999 ⁴⁹
<i>Note.</i> MA = Meta-Analysis, RCT = Randomized Controlled Trial, AL = Additional	

Literature.

Supplementary Table A7*WHICH and HOW Factor Disclosure Table*

First Author and Year of Publication	Sex of Samples	WHICH Factors		HOW Factors	
		Cancer Types Investigated	Presence of Metastasis	Statistical Model Used in Analysis	Follow-Up Intervals Analyzed
Chow et al. 2004 ⁴⁷	Both sexes	All cancer types	All states	Random effects	At 1, 4
Smedslund et al. 2004 ⁴⁴	Both sexes	All cancer types	All states	Random effects (DL)	Pooled
Zabalegui et al. 2005 ⁵⁰	Both sexes	All cancer types	All states	Fixed or random effects (DL)?	Pooled
Edwards et al. 2008 ⁴¹	Female only	Breast cancer only	Only metastasis	Fixed and random effects (DL)	At 1, 5, 10
Mustafa et al. 2013 ⁴²	Female only	Breast cancer only	Only metastasis	Fixed and random effects (DL)	At 1, 5
Xia et al. 2014 ⁴⁵	Both sexes	All cancer types	All states	Random effects (DL)	At 1, 2, 4, 6
Jassim et al. 2015 ⁵¹	Female only	Breast cancer only	Only non- metastasis	Random effects (DL)	Pooled
Fu et al. 2016 ⁴³	Both sexes	All cancer types	All states	Random effects (DL)	At 1, 2, 4
Oh et al. 2016 ³¹	Both sexes	All cancer types	All states	Random effects (DL)	Pooled
Mirosevic et al. 2019 ²⁶	Both sexes	All cancer types	All states	Random effects (DL)	Pooled

30 Notes: DL = DerSimonian and Laird method.

Supplementary Table A8*List of Excluded Articles*

Reason for exclusion	Trial name
Trial not randomized	Bagenal et al., 1990 ⁵² ; Britton et al., 2017 ⁵³ ; Gellert et al., 1993 ⁵⁴ ; Grossarth-Maticek & Eysenck, 1989 ⁵⁵ (retracted); Grossarth-Maticek & Eysenck, 1990 ⁵⁶ (retracted); King et al., 2016 ⁵⁷ ; Lafitte et al., 2018 ⁵⁸ ; Malik et al., 2020 ⁵⁹ ; Pallotti et al., 2021 ⁶⁰ ; Ratcliffe et al., 1995 ⁶¹ ; Richardson et al., 1990 ⁶² ; Shrock et al., 1999 ⁶³ ; Xiaomei et al., 2008 ⁶⁴ ; Ye et al., 2020 ⁶⁵
Prior follow-up of included study	Fawzy et al., 1993 ¹³ ; Kuchler et al., 1999 ³²
Just a meeting abstract	Adenis et al., 2023 ⁶⁶ ; Matsumoto et al., 2021 ⁶⁷ ; Reid et al. 2022 ⁶⁸
Just a poster	Davidson et al., 2021 ⁶⁹ ; Mileschkin et al., 2022 ⁷⁰
Subsample analysis of included study	Andersen et al., 2010 ⁷¹
Sample with a disorder	Lloyd-Williams et al., 2018 ⁷² ; Mulick et al., 2018 ⁷³
Not a psychosocial intervention	Adenis et al., 2024 ⁷⁴ ; Allende et al., 2020 ⁷⁵ ; Aslakson et al., 2023 ⁷⁶ ; Bjerring et al. 2020 ⁷⁷ ; Bojesson et al., 2024 ⁷⁸ ; Brims et al., 2019 ⁷⁹ ; DuMontier et al., 2022 ⁸⁰ ; Eychemüller et al., 2021 ⁸¹ ; Ferrel et al., 2021 ⁸² ; Geerse et al., 2017 ⁸³ ; Groenvold et al., 2017 ⁸⁴ ; Grudzen et al., 2016 ⁸⁵ ; Hentschel et al., 2020 ⁸⁶ ; Kang et al., 2024 ⁸⁷ ; Paillaud et al., 2022 ⁸⁸ ; Pirl et al., 2012 ⁸⁹ ; Shinall et al., 2023 ⁹⁰ ; Sun et al., 2021 ⁹¹ ; Tattersall et al., 2014 ⁹² ; X. Wang & Yang, 2021 ⁹³ ; M. Wang et al., 2022 ⁹⁴
Uncertain application of intervention ^a	Guan et al., 2019 ⁹⁵
Only disease-free survival	Antoni et al., 2016 ⁹⁶
Major flaw in study design ^b	Bakitas et al., 2015 ⁹⁷ ; D. Chen et al., 2023 ⁹⁸ ; M. Chen et al., 2023 ⁹⁹ ; D. Liu et al. 2021 ¹⁰⁰ ; E. Liu et al., 2025 ¹⁰¹ ; Lu et al. 2021 ¹⁰² ; Mao et al., 2019 ¹⁰³ ; Nordly et al., 2018 ¹⁰⁴ ; Patil et al., 2021 ¹⁰⁵ ; Sinha et al., 2023 ¹⁰⁶ ; Slama et al., 2020 ¹⁰⁷ ; Vanbutsele et al., 2018 ¹⁰⁸ ; Y. Wang. et al., 2019 ¹⁰⁹
Not enough data for <i>HR</i> calculation	Boesen et al., 2011 ¹⁷ ; Dieng et al., 2019 ¹¹⁰ ; Ell et al., 2008 ¹¹¹ ; Gao et al., 2020 ¹¹² ; Holtmaat et al., 2019 ¹¹³ ; Jordhøy et al., 2001 ¹¹⁴ ; Krebber et al., 2012 ¹¹⁵ ; Y. Liu et al., 2022 ¹¹⁶ ; Lloyd-Williams et al., 2013 ¹¹⁷ ; Moore et al., 2002 ¹¹⁸ ; Rodin et al., 2018 ¹¹⁹ ; Scarpi et al., 2018 ¹²⁰ ; Schenker et al.,

	2018 ¹²¹ ; Shi et al., 2021 ¹²² ; Steel et al., 2007 ¹²³ ; Vanbutsele et al., 2020 ¹²⁴ Ramesh et al., 2024 ¹²⁵
Suspected fake publishing	

Note. ^aUncertain application of intervention = Intervention only consisted of

recommendations for medical staff (Guan et al., 2019⁹⁵); ^bMajor flaw in design = Control group received psychosocial intervention too (Bakitas et al., 2015⁹⁷), nutritional intervention involved (D. Chen et al., 2023⁹⁸; M. Chen et al., 2023⁹⁹; D. Liu et al., 2021¹⁰⁰; Lu et al., 2021¹⁰²; Mao et al., 2019¹⁰³; Sinha et al., 2023¹⁰⁶), dyadic intervention (Nordly et al., 2018¹⁰⁴), and psychosocial intervention only given when necessary or demanded (Patil et al., 2021¹⁰⁵; Slama et al., 2020¹⁰⁷; Vanbutsele et al., 2018¹⁰⁸; Y. Wang et al., 2019¹⁰⁹)

32 Supplementary Note 1**33 Explanation for Exclusion of Ramesh et al.¹²⁵:**

34 Note that the article Ramesh et al.¹²⁵ was excluded due to strong indications of journal
35 hijacking and questionable publication integrity. The article was hosted on a suspicious
36 domain (jcdronline.org) mimicking the official Journal of Cardiovascular Disease Research
37 site (jcdronline.com), which ceased publishing in 2012. The listed DOI was non-functional
38 via official registries (e.g., doi.org), and only the first author could be identified; co-authors
39 and the principal investigator lacked verifiable affiliations. The corresponding author used a
40 Yahoo email address and did not respond to inquiries. Additionally, the article lacked key
41 reporting elements, including intervention details and dosage. These factors raised serious
42 concerns about the article's authenticity and justified its exclusion.

43

Supplementary Table A9*Effect Size and p Value Disclosure Table*

Original paper	(1) Quote about prediction of interest	(2) Study design	(3) Key statistical result	(4) Quote about statistical results	(5) Results	(6) Robustness results
Linn et al., 1982 ¹²⁶	“Three hypotheses were tested: 1) That counseling would improve the quality of survival by decreasing depression and alienation and by increasing life satisfaction, self-esteem, and internal control; 2) that, if quality of life was enhanced, functional status would be higher in these experimental patients than in controls, since it is a common belief that the course of an illness is influenced by the emotional state of the patient; and 3) that if patients felt better about themselves and functioned at a higher level physically, length of survival might also be extended.” ¹²⁶	Two-cell (intervention vs. control)	Difference in ratios	“The average number of days of survival from time of entry into the study through the 12 months was 110.81 days for the E’s who died and 131.17 for Cs who died ($F = 1.70$, not statistically significant).” ¹²⁶	The <i>HR</i> 1.417, 95% <i>CI</i> [0.938, 2.139] and a precise $p = .0972$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026). Note that there was no Kaplan-Meier survival curve available. The numbers of death were first extracted from a life table and calculated accordingly before an <i>HR</i> could be computed.	
Spiegel et al., 1989 ¹²⁹	“We started with the belief that positive psychological and symptomatic effects could occur without affecting the course of the	Two-cell (intervention vs. control)	Difference in ratios	“Survival time for the treatment group (36.6 months; $SD = 37.6$) was significantly longer compared with	The <i>HR</i> 0.512, 95% <i>CI</i> [0.310, 0.835] was taken from Mirosevic et al. 2019 ²⁶ . The <i>HR</i> was calculated by the	

	disease; we expected to improve the quality of life without affecting its quantity. Here we describe a 10 year follow-up of the effect of psychosocial intervention on disease progression and mortality.” ¹²⁹			controls (table III and figure). Study entry to death*, Control 18.9 (10.8) months, Intervention 36.6 (37.6) months, * $p < 0.0001$, Cox, $p < 0.005$, log-rank.” ¹²⁹	authors of Spiegel et al. 1989 ¹²⁹ after the original publication (confirmation through email with the 1 st author). A precise $p = .0081$ was calculated according to and Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Ilnyckyj et al., 1994 ¹³⁰	“We report a retrospective analysis and 11-year follow-up of a prospective trial of 127 cancer patients who were randomized to receive psychosocial treatment in a support group. The original intention of the randomized trial was to evaluate the possible psychological benefit of participating in support groups.” ¹³⁰	Two-cell (intervention vs. control)	Difference in ratios	“A survival benefit could not be shown for either the led or the unled support groups as compared with controls. The mean survival for the led and the unled groups was 70.7 and 62.0 months respectively, while the controls’ mean survival was 82.4 months. These differences were not statistically significant ($p = 0.53$, log rank) (Figure 1).” ¹³⁰	The HR 1.213, 95% CI [0.722, 2.039] and a precise $p = .4753$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
Cunningham et al., 1998 ⁹	“We have carried out a randomized trial similar to that reported by	Two-cell (intervention vs. control)	Difference in ratios	“In the primary log rank test no significant difference	The HR 0.764, 95% CI [0.432, 1.353] was taken from

	Spiegel <i>et al.</i> (1989), although with a slightly different intervention. In this study, we have assessed, and published elsewhere (Edmonds <i>et al.</i>, in press) the effects of the intervention on an extensive battery of self-report questionnaires. In the present communication, we present survival results at 5 years after the commencement of the study.”⁹			was found between the Kaplan-Meier survival curves of the two groups ($p = 0.35$; see Figure 1 and Table 4). The median survival for the intervention group was 28.2 months and for the control group, 23.6 months.”⁹	Smedslund <i>et al.</i> 2004⁴⁴. A precise $p = .3613$ was calculated according to Altman & Bland 2011¹²⁸ by our meta-analysis (Asakawa-Haas <i>et al.</i>, 2026).
Edelman <i>et al.</i> , 1999 ¹¹	“This report describes a survival analysis of 121 patients who entered the study, at 5 years after its commencement . [...]The issue of whether psychological intervention can influence the disease process amongst cancer patients is an important question within psychooncology research. If such a relationship was to be confirmed, it would have major implications for our understanding of cancer as well as for its treatment. Given the	Two-cell (intervention vs. control)	Difference in ratios	“The association of group membership with survival was not significant ($p > .1$), nor were any other medical variables ($p > .5$).”¹¹	The HR 1.323, 95% CI [0.841, 2.080] was taken from Smedslund <i>et al.</i> 2004⁴⁴. A precise $p = .2277$ was calculated according to Altman & Bland 2011¹²⁸ by our meta-analysis (Asakawa-Haas <i>et al.</i>, 2026).

	inconsistency of the findings to date, further examination of this area is required.” ¹¹				
McCorkle et al., 2000 ³⁴	“The overall purpose of this study was to compare the length of survival of post-surgical older cancer patients who received a specialized home care intervention by advanced practice nurses (ABNs) after their surgery to the length of survival of those who received the usual follow-up care in ambulatory settings.” ³⁴	Two-cell (intervention vs. control)	Difference in ratios	“Patients receiving the home care intervention had a longer length of survival than the usual care group after adjusting for stage of disease at diagnosis and total length of hospitalization during surgery. The risk of death was approximately doubled among usual care patients (adjusted hazard ratio 2.04; CI, 1.33-3.12; $p = .001$) compared with those in the intervention group.” ³⁴	The <i>HR</i> 2.04, 95% <i>CI</i> [1.33, 3.12] (<i>HR</i> for the control group) was stated in the article. The inverse value was <i>HR</i> 0.490, 95% <i>CI</i> [0.321, 0.752] (<i>HR</i> for the intervention group). A precise $p = .0011$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Goodwin et al., 2001 ³⁹	“Our primary objective was to determine whether the addition of supportive-expressive group therapy to routine care influenced the survival of women with metastatic breast cancer.” ³⁹	Two-cell (intervention vs. control)	Difference in ratios	“According to the univariate Cox model, the hazard ratio for death in the intervention group as compared with the control group was 1.06 (95 percent confidence interval, 0.78 to 1.45; $p = 0.72$).” ³⁹	The <i>HR</i> 1.06, 95% <i>CI</i> [0.78, 1.45] was stated in the article. A precise $p = .7257$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).

Fawzy et al., 2003 ³⁰	“Although the psychological benefits from such interventions are well-documented, there is evidence both for and against the hypothesis that these interventions can alter the course of disease. Of primary interest is the answer to the question: “Can participation in such a group extend patient survival time?”.” ³⁰	Two-cell (intervention vs. control)	Difference in ratios	“All of the covariates (i.e., age, sex, Breslow depth, and site of tumor) were entered into the Cox model, as was the treatment condition (i.e., intervention vs control). Using stepwise entry of variables, Breslow depth was found to be significant for recurrence ($p = .001$) and survival ($p = .001$). Sex was also predictive of outcome (recurrence, $p = .014$; survival, $p = .002$). Finally, while participation in the intervention appeared to have no effect on recurrence, it was significant for survival ($p = .05$) (Table).” ³⁰	The <i>HR</i> 0.348, 95% <i>CI</i> [0.122, 0.992] was taken from Smedslund et al. 2004 ⁴⁴ . A precise $p = .0480$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Kissane et al., 2004 ¹⁸	“We devised cognitive-existential group therapy (CEGT) for women receiving adjuvant chemotherapy with the goals	Two-cell (intervention vs. control)	Difference in ratios	“The Kaplan-Meier analysis revealed a median survival of 81.9 months (95% <i>CI</i> , 64.8 to 99.0	The <i>HR</i> 1.35, 95% <i>CI</i> [0.76, 2.39] was stated in the article. A precise $p = .3089$ was calculated according to

	of promoting active coping and mutual support. CEGT has a beneficial effect on mood and family relationships. In this brief report, we focus on the impact of CEGT on survival in women with early stage disease.” ¹⁸			months) in the CEGT group compared with 85.5 months (95% <i>CI</i> , 67.5 to 103.6 months) in the control arm (Fig 2). According to the univariate Cox model, the hazard ratio for death in the CEGT arm compared with the control arm was 1.35 (95% <i>CI</i> , 0.76 to 2.39; $p = .31$).” ¹⁸	Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Boesen et al., 2007 ⁵	“We previously reported positive effects of a psychoeducational intervention on psychological distress and coping ability in a randomized study of Danish patients with malignant melanoma, ¹³ which was a replication of the study by Fawzy et al. In our study, analysis 6 months later showed that the intervention enhanced effective coping and reduced psychological distress in comparison with standard surgical treatment, but	Two-cell (intervention vs. control)	Difference in ratios	“No difference in time to recurrence was observed among three patient groups. Breslow depth and lymph node status were significant prognostic factors for time to recurrence and length of survival (Table 2). Crude <i>HR</i> 0.99 95% <i>CI</i> [0.4 to 2.6].” ⁵	The <i>HR</i> 0.99, 95% <i>CI</i> [0.4, 2.6] was stated in the article. A precise $p = .9848$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).

	the effect was small and short-term. ¹³ We now report the effect of the intervention on disease recurrence and mortality up to 5 years after primary surgery.” ⁵				
Kissane et al., 2007 ⁴⁰	“In a multi-site RCT of SEGT based in Melbourne, Australia, we examined survival as the primary outcome. We included structured psychiatric interviews to generate DSM-IV diagnoses of psychiatric disorders and delivered relaxation therapy to both arms of the study to prevent demoralization from being randomized to a no-treatment control condition. We report here on the impact of SEGT on survival, psychosocial outcomes and treatment adherence.” ⁴⁰	Two-cell (intervention vs. control)	Difference in ratios	“According to the univariate Cox model, the hazard ratio for death in the SEGT arm as compared with controls was 0.92 (95% CI, 0.69–1.24; $p = 0.60$), which entailed a width of confidence interval similar to that observed in Goodwin et al. with a sample of 235 women (hazard ratio of 1.06 with 95% CI: 0.78–1.45).” ⁴⁰	The <i>HR</i> 0.92, 95% <i>CI</i> [0.69, 1.24] was stated in the article. A precise $p = .5891$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Kuchler et al., 2007 ³³	“In the original study, the experimental group receiving psychotherapeutic support demonstrated significantly better survival at 2 years than the group not receiving such	Two-cell (intervention vs. control)	Difference in ratios	“Despite the fact that there were no differences in the composition of the experimental and control groups with respect to	The <i>HR</i> 0.653, 95% <i>CI</i> [0.495, 0.861] was stated in the article. A precise $p = .0026$ was calculated according to Altman & Bland

	support. The primary objective of this study was, thus, to examine survival at 10 years to determine if the survival advantage was maintained. [...] The original results of this study in terms of survival benefits for the experimental patients were somewhat surprising and had not been hypothesized.” ³³			site of tumor, TNM staging, or RTC, adjusted analyses using Cox proportional hazards models were undertaken. The results are presented in Table 4. (<i>HR</i> 0.653 95% <i>CI</i> 0.495 to 0.861, <i>p</i> = .003).” ³³	2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026). We took the effect size controlled for TMN staging, which is more common than an effect size controlled for RMN staging (cf. Mirosevic et al., 2019 ²⁶).
Spiegel et al., 2007 ³⁸	“The primary hypothesis of the current study was that randomization to group psychotherapy would result in longer subsequent survival.” ³⁸	Two-cell (intervention vs. control)	Difference in ratios	“Overall median survival time was 32.8 months from study entry, 33.3 months for the educational control sample and 30.7 months for the treatment group. Cox proportional hazards analysis of survival with condition (treatment, control), site (San Francisco, San Jose, or Stanford), and site by-condition interactions (all centered) indicated that there was no	The <i>HR</i> 0.93, 95% <i>CI</i> [0.62, 1.40] was stated in the article. A precise <i>p</i> = .7400 was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).

				overall significant effect of treatment on survival, hazard ratio 0.93 (95% confidence interval [CI], 0.62 to 1.40; $p = .73$; see Table 3).” ³⁸	
Andersen et al., 2008 ¹	“A randomized clinical trial tested the hypothesis that cancer patients coping with their recent diagnosis but receiving a psychologic intervention would have improved survival compared with patients who were only assessed.” ¹	Two-cell (intervention vs. control)	Difference in ratios	“Multivariate analyses confirm that women randomized to the Intervention arm had significantly lower risk of all-cause mortality (HR of 0.51; $p = .028$) (Table 2) (Fig. 3c). 95% CI (0.28-0.93).” ¹	The HR 0.51, 95% CI [0.28, 0.93] was stated in the article. A precise $p = .0277$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026). Note that there was an HR 0.44 95% CI [0.22-0.86] given for breast cancer specific death, which was used by two prior meta-analysis (Mirosevic et al., 2019 ²⁶ and Oh et al., 2016 ³¹).
Bakitas et al., 2009 ³	“We hypothesized that patients exposed to this intervention soon after a new diagnosis of an advanced cancer would become informed, active participants in	Two-cell (intervention vs. control)	Difference in ratios	“Post hoc, exploratory analyses demonstrated no statistically significant differences in survival between the 2 groups (Figure 4).	The HR 0.889, 95% CI [0.691, 1.144] and a precise $p = .3664$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland

	their care and would experience improved quality of life and mood, symptom relief, and lower resource use over the course of the illness, including at the very end of life compared with patients who received usual care. [...] We did an exploratory, post hoc analysis of survival.” ³			Median survival was 14 months (95% <i>CI</i> , 10.6-18.4 months) for the intervention group and 8.5 months (95% <i>CI</i> , 7.0-11.1 months) for the usual care group (log-rank test, $p = .14$).” ³	2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026). A prior meta-analysis Mirosevic et al., 2019 ²⁶ has calculated a different <i>HR</i> 0.67, 95% <i>CI</i> [0.50, 0.91], but it is not clear how they have calculated it.
Ross et al., 2009 ²⁷	“Psychosocial intervention provided as home visits has been shown to improve survival among elderly people [18–20]. As most colorectal cancer patients are over the age of 60 at the time of diagnosis, we hypothesized that home visits might improve their survival.” ²⁷	Two-cell (intervention vs. control)	Difference in ratios	“In the Cox regression analysis with adjustment for Dukes’ stage, radicality of surgery, age, sex, family social class and marital status, we found that group (i.e., intervention or control) was not significantly associated with survival ($p = .68$) (Table 4, <i>RR</i> 1.07, 95% <i>CI</i> [0.77-1.51]).” ²⁷	The <i>RR</i> 1.07, 95% <i>CI</i> [0.77, 1.51] was stated in the article. A precise $p = .7069$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026). Note that the <i>HR</i> given in the article is from a subsample (of those who provided blood samples), so the rate ratio <i>RR</i> 1.07, 95% <i>CI</i> [0.77, 1.51] for the whole sample was taken (cf. Mirosevic et al., 2019 ²⁶

					and Oh et al., 2016 ³¹). It is basically the same as the <i>HR</i> (see Knol et al., 2011 ¹³¹). This was also confirmed through email with the 1 st author).
Temel et al., 2010 ¹³²	“Previous data have shown that a lower quality of life and depressed mood are associated with shorter survival among patients with metastatic non-small-cell lung cancer. We hypothesize that improvements in both of these outcomes among patients assigned to early palliative care may account for the observed survival benefit.” ¹³²	Two-cell (intervention vs. control)	Difference in ratios	“After adjustment for age, sex, and baseline Eastern Cooperative Oncology Group performance status, the group assignment remained a significant predictor of survival (hazard ratio for death in the standard care group, 1.70; 95% <i>CI</i> , 1.14 to 2.54; <i>p</i> = .01).” ¹³²	The <i>HR</i> 1.70, 95% <i>CI</i> [1.14, 2.54] (<i>HR</i> for the control group) was stated in the article. The inverse value was <i>HR</i> 0.588, 95% <i>CI</i> [0.394, 0.877] (<i>HR</i> for the intervention group). A precise <i>p</i> = .0093 was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Choi et al., 2012 ⁷	“Considering potential contributions of a specific type of psychological interventions on survival, it is worth exploring whether the original intervention also improved survival outcomes.	Two-cell (intervention vs. control)	Difference in ratios	“The same result of no significant group effect was obtained from Cox proportional hazards regression model after controlling for covariates (table 2, <i>HR</i>	The <i>HR</i> 1.07, 95% <i>CI</i> [0.75, 1.53] was stated in the article. A precise <i>p</i> = .7230 was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis

	Therefore, this secondary post hoc analysis explored the effect of the cognitive behavioral symptom management intervention (CCI) over usual care on survivals among patients with solid tumor undergoing chemotherapy.” ⁷			1.07 95% <i>CI</i> [0.75-1.53], $p = .71$).” ⁷	(Asakawa-Haas et al., 2026).
Z. Guo et al., 2013 ¹³³	“The goal of this study was to adapt a randomized parallel control design to investigate whether a psychosocial intervention before and during RT could reduce emotional distress and improve treatment outcomes, including measures of QOL in patients newly diagnosed with cancer.” ¹³³	Two-cell (intervention vs. control)	Difference in ratios	“The 2-year overall survival rates were 83.1% for the intervention arm and 84.3% for the control arm (two-sided log rank, $p = .925$; Figure 2B). At 2 years follow-up, there was no improvement in DFS and OS rate in the intervention arm compared with the control arm.” ¹³³	The <i>HR</i> 1.044, 95% <i>CI</i> [0.504, 2.162] and a precise $p = .9151$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026). A mistake in the article was discovered. The actual Kaplan-Meier survival curve for the overall survival is shown in Figure 2 A. This was confirmed by the authors.
X.D. Zhang et al., 2013 ¹³⁴	“Considering the unique clinical features, large population,	Two-cell (intervention vs. control)	Difference in ratios	“There was no significant difference in survival	The <i>HR</i> 1.369, 95% <i>CI</i> [0.592, 3.164] and a precise $p =$

various unmet needs of patients with esophageal carcinoma and the special cultural context and health service status of China, we designed this randomized controlled trial, to observe the psychological change of Chinese perioperative patients with esophageal carcinoma and to evaluate the short term and long-term effects of perioperative comprehensive supportive care interventions on their physiological and psychological rehabilitation.”¹³⁴	between two groups (Table 4, Figure 3). Log-rank test $p = .446$.”¹³⁴	.4718 were calculated according to LaMorte 2016¹²⁷ and Altman & Bland 2011¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026). Comparing the extracted values from the survival curve in Figure 3 and the number of deaths in Figure 1 vs. the cumulative survival data presented in Table 4 (Zhang et al., 2013¹³⁴) while applying these to a reduced sample size of 27 patients (instead of 31) in the intervention group and 28 patients (instead of 29) in the control group confirmed that the survival data on cumulative survival in Table 4 were switched and a reduced sample size (lost to follow-up excluded)
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					was used, as this is the only way to generate whole numbers (patients die in whole numbers and not in decimals). Therefore, data on cumulative survival was extracted according to Figure 1 and 3 (i.e., reversed of Table 4). Authors were contacted but did not reply.
Julião et al., 2015 ²⁰	“The aim of this study as to determine whether those patients randomized to DT along with SPC had a survival advantage over those randomized to SPC alone.” ²⁰	Two-cell (intervention vs. control)	Difference in ratios	“After adjustment by Cox regression for sex, age, educational level, occupation, tumor type, metastasis, performance status, previous treatment and follow-up in palliative care, group allocation remained a significant predictor of survival [hazard ratio of death for the DT group was 0.35 (95% CI 0.13–0.92)] (fig. 1).” ²⁰	The <i>HR</i> 0.35, 95% <i>CI</i> [0.13, 0.92] was stated in the article. A precise <i>p</i> = .0352 was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Stagl et al., 2015 ²²	“This secondary analysis asked whether women	Two-cell (intervention vs. control)	Difference in ratios	Over and above the effects of	The <i>HR</i> 0.21, 95% <i>CI</i> [0.05,

	from that RCT who received CBSM also had reduced mortality or breast cancer recurrence at the 11-year follow-up (range 8–15 years).” ²²			covariates, assignment to CBSM was associated with longer survival (CBSM $HR = 0.21$ (95 % CI [0.05, 0.93]; $p = .040$).” ²²	0.93] was stated in the article. A precise $p = .0361$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Ye et al., 2017 ²⁸	“We hypothesised that BRBC would (a) prolong 3- and 5-year survival, (b) decrease emotional distress (anxiety, depression, pain and so on) and physical distress (allostatic load), and (c) increase the resilience and QoL.” ²⁸	Two-cell (intervention vs. control)	Difference in ratios	“The Log Rank (Mantel-Cox) for 3-year survival ($\chi^2 = 1.733$, $p = .183$) and 5-year survival ($\chi^2 = 3.171$, $p = .075$) were not significant, and the hazard ratio (HR) for death in IG was 0.736 (95% CI , 0.525–1.133, $p = .076$) compared with CG, based on univariate Cox model.” ²⁸	The HR 0.736, 95% CI [0.525, 1.133] was stated in the article. A precise $p = .1182$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Bao et al., 2019 ¹³⁵	“Based on aforementioned evidence, we hypothesized that care intervention may have positive effect on survival of AML patients probably through ameliorating anxiety and depression, while few studies have	Two-cell (intervention vs. control)	Difference in ratios	“As to OS, IPCP group (28.2 months, 95% CI : 26.3–30.2 months) illustrated a better OS compared to control group (24.4 months, 95% CI : 22.2–26.6 months) ($p = .045$, Figure	The HR 0.653, 95% CI [0.427, 0.998] was stated in the article. A precise $p = .0487$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al.,

	been conducted to investigate the correlation of anxiety and depression with survival interval during the period of care intervention in AML patients receiving chemotherapy.” ¹³⁵			4B). <i>HR</i> 0.653, 95% <i>CI</i> 0.427, 0.998.” ¹³⁵	2026).
J. Wang et al., 2019 ¹³⁶	“Therefore, we designed a comprehensive education and care (CEC) program that included health education, psychological nursing, caring activity, and telephone condolence, and explored its effect on anxiety, depression, quality of life, and survival in patients with HCC after surgery.” ¹³⁶	Two-cell (intervention vs. control)	Difference in ratios	“The median OS was 37.0 (27.6–46.4 months) in CEC group, which was longer compared with 32.0 (27.0–37.0 months) in control group log-rank, ($p = .026$) (Fig. 5).” ¹³⁶	The <i>HR</i> 0.646, 95% <i>CI</i> [0.441, 0.947] and a precise $p = .0248$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
L. Zhang et al., 2021 ¹³⁷	“Inspired by these mentioned studies, we hypothesized that reminiscence therapy may improve mental health status and QoL in postoperative gastric cancer patients as well. However, no relevant study has been conducted yet. Therefore, this study aimed to explore the effect of reminiscence therapy on anxiety,	Two-cell (intervention vs. control)	Difference in ratios	“Although there was no statistical difference of disease-free survival ($p = .216$) (Fig. 4A) or overall survival ($p = .255$) (Fig. 4B) between Reminiscence therapy group and Control group, Reminiscence therapy group appeared a trend of prolonged survival	The <i>HR</i> 0.512, 95% <i>CI</i> [0.172–1.522] was stated in the article. A precise $p = .2309$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).

	depression, QoL, and survival profile in postoperative gastric cancer patients.” ¹³⁷			profile in postoperative gastric cancer patients. (Figure 4 B <i>HR</i> 0.512, 95% <i>CI</i> 0.172-1.522).” ¹³⁷	
X. Zhao et al., 2021 ¹³⁸	“Based on the above-mentioned information, we hypothesized that reminiscence therapy could reduce anxiety and depression in glioma patients. However, little information is known about the effect of reminiscence therapy on anxiety and depression in glioma patients. Herein, we designed a reminiscence therapy-based care (RTBC) program, aiming to evaluate its effect on anxiety, depression, patients satisfaction, and survival benefit in glioma patients after tumor resection.” ¹³⁸	Two-cell (intervention vs. control)	Difference in ratios	“The mean OS was 30.9months (95% <i>CI</i> : 28.8–32.9 months) in the RTBC group and was 28.8 months (95% <i>CI</i> : 26.4–31.2 months) in the CC group. Meanwhile, the accumulating OS showed a minor increasing tendency in the RTBC group compared to the CC group, but no statistical significance was found ($p = .186$) (Fig. 5).” ¹³⁸	The <i>HR</i> 0.664, 95% <i>CI</i> [0.381, 1.156] and a precise $p = .1485$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
Zhou & Sun, 2021 ³⁵	“Thus, we conducted this randomized, controlled study to investigate the effect of reminiscence therapy-involved care (RTC) program on alleviating	Two-cell (intervention vs. control)	Difference in ratios	“OS was of no difference between RTC group and CC group, while it showed a higher trend in RTC group than	The <i>HR</i> 0.640, 95% <i>CI</i> [0.382, 1.070] and a precise $p = .0891$ were calculated according to LaMorte 2016 ¹²⁷ and Altman &

	anxiety and depression and depression as well as its impact on improving quality of life in CRC patients.” ³⁵			in CC group ($p = .075$) (Fig. 5).” ³⁵	Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
L. Chen et al., 2022 ¹³⁹	“Accordingly, this randomized, controlled study designed an RT-care program (RT-CP), intending to investigate the effect of RT-CP on psychological health and quality of life in older PTC patients.” ¹³⁹	Two-cell (intervention vs. control)	Difference in ratios	“However, it was discovered that DFS was not different between the RT-CP group and U-CP group ($p = .415$; Figure 4A); meanwhile, OS also did not differ between the RT-CP group and U-CP group ($p = .289$; Figure 4B). <i>HR</i> 0.318, 95% <i>CI</i> (0.045-2.259).” ¹³⁹	The <i>HR</i> 0.318, 95% <i>CI</i> [0.045, 2.259] was stated in the article. A precise $p = .2542$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).
Q. Guo et al., 2022 ¹⁴⁰	“Hence, this study aimed to investigate the impact of a reminiscence therapy-involved care program (RTICP) on cognitive functions, anxiety, depression, patient satisfaction, and survival profiles in elderly lung cancer patients.” ¹⁴⁰	Two-cell (intervention vs. control)	Difference in ratios	“Meanwhile, the cumulative OS rate was found to be no different between the RTICP group and the UCP group ($p = .230$).” ¹⁴⁰	The <i>HR</i> 0.668, 95% <i>CI</i> [0.348, 1.285] and a precise $p = .2281$ were calculated according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
Huang et al., 2022 ¹⁴¹	“As illustrated by previous studies, the occurrence of anxiety and depression may lead to poor	Two-cell (intervention vs. control)	Difference in ratios	“Unfortunately, the finding indicated that RTCP + UC had no effect on the	The <i>HR</i> 0.697, 95% <i>CI</i> [0.244, 1.990] and a precise $p = .5104$ were calculated

	survival in surgical prostate cancer patients, and we hypothesized that the RTCP + UC might elevate the survival profile of surgical prostate cancer patients through alleviating the anxiety and depression status.” ¹⁴¹			accumulating DFS and OS in surgical prostate cancer patients (all $p > 0.05$, Fig. 5A, B).” ¹⁴¹	according to LaMorte 2016 ¹²⁷ and Altman & Bland 2011 ¹²⁸ respectively by our meta-analysis (Asakawa-Haas et al., 2026).
Kirkegaard et al., 2023 ¹⁶	“Here we report the effect of a combined psychoeducational and cognitive–supportive group intervention on overall long-term survival in early-stage breast cancer patients up to 18 years after primary surgery, using register-based data on vital status free from information bias.” ¹⁶	Two-cell (intervention vs. control)	Difference in ratios	“Although the groups’ survival curves do diverge in Kaplan-Meier plots (Figure 2(A,B)), no statistically significant differences in survival were found when comparing the intervention group (<i>HR</i> , 0.68; 95% <i>CI</i> , 0.41–1.14) nor the non-participants (<i>HR</i> , 1.23; 95% <i>CI</i> , 0.82–1.85) with the control group (Table 2).” ¹⁶	The <i>HR</i> 0.68, 95% <i>CI</i> [0.41, 1.14] was stated in the article. A precise $p = .1396$ was calculated according to Altman & Bland 2011 ¹²⁸ by our meta-analysis (Asakawa-Haas et al., 2026).

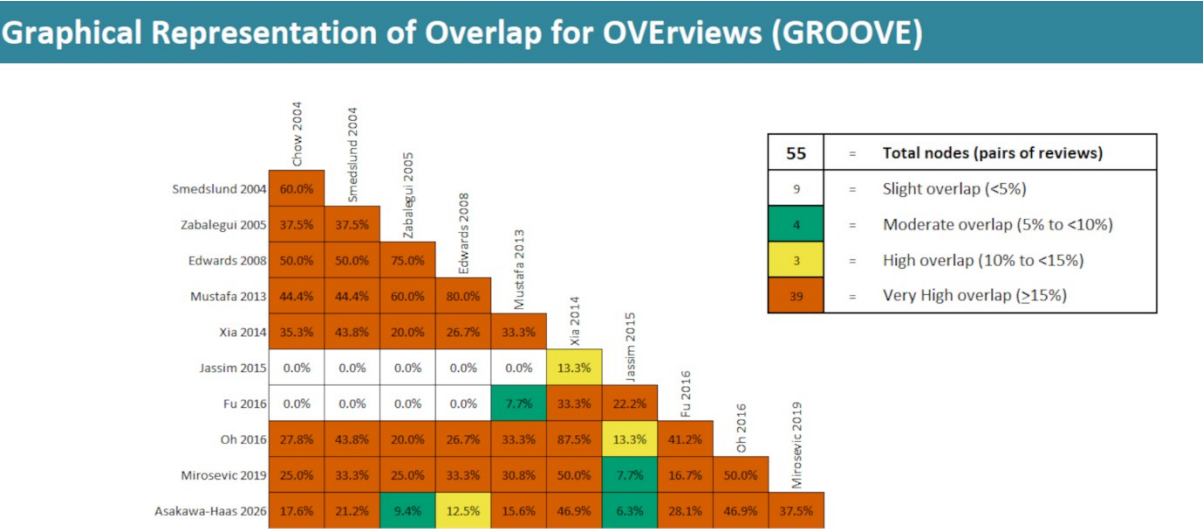
44 *Note.* Effect sizes were either taken directly from the articles, communication with the
 45 authors, prior meta-analyses, or were – if not otherwise available – calculated from Kaplan-
 46 Meier survival curves (according to La-Morte, 2016¹²⁷). For each effect size the
 47 corresponding p value was calculated from the 95% *CI* (according to Altman & Band,
 48 2011¹²⁸), as this delivered a more precise p value than what was published in the articles.
 49 Italicized characters indicate statistical parameters (APA 7th ed.).

51 **Supplementary Figure A1**52 *Overall Results of the GROOVE Tool*

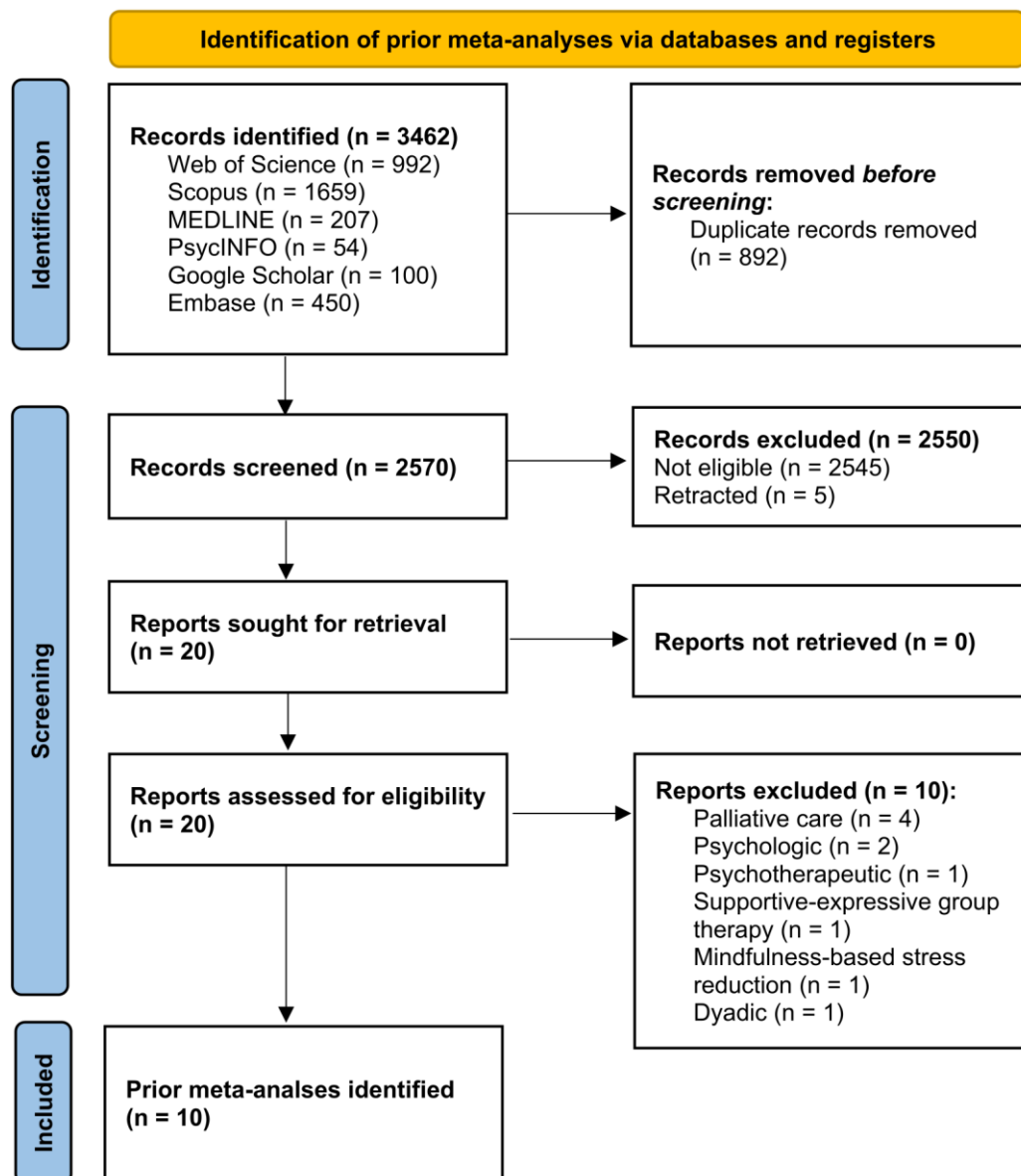
Overall results		
Number of columns (number of reviews)	c	11
Number of rows (number of index publications)	r	34
Number of included primary studies (including double counting)	N	113
Covered area	$N/(rc)$	30.21%
Corrected covered area	$(N-r)/(rc-r)$	23.24%
Interpretation of overlap	Very High overlap	
Structural Zeros	X	157
Corrected covered area (adjusting by structural zeros)	$(N-r)/(rc-r-X)$	43.17%
N° of non-overlapped primary studies	In 1 SR	12
Number of overlapped primary studies	In 2 SRs	6
	In 3 SRs	2
	In 4 SRs	3
	In 5 SRs	6
	In 6 SRs	1
	In 7 SRs	0
	In 8 SRs	1
	In 9 SRs	3
	In 10 SRs	0
	In 11 SRs	0
	In 12 SRs	0
	In 13 SRs	0
	In 14 SRs	0
	In 15 or more SRs	0

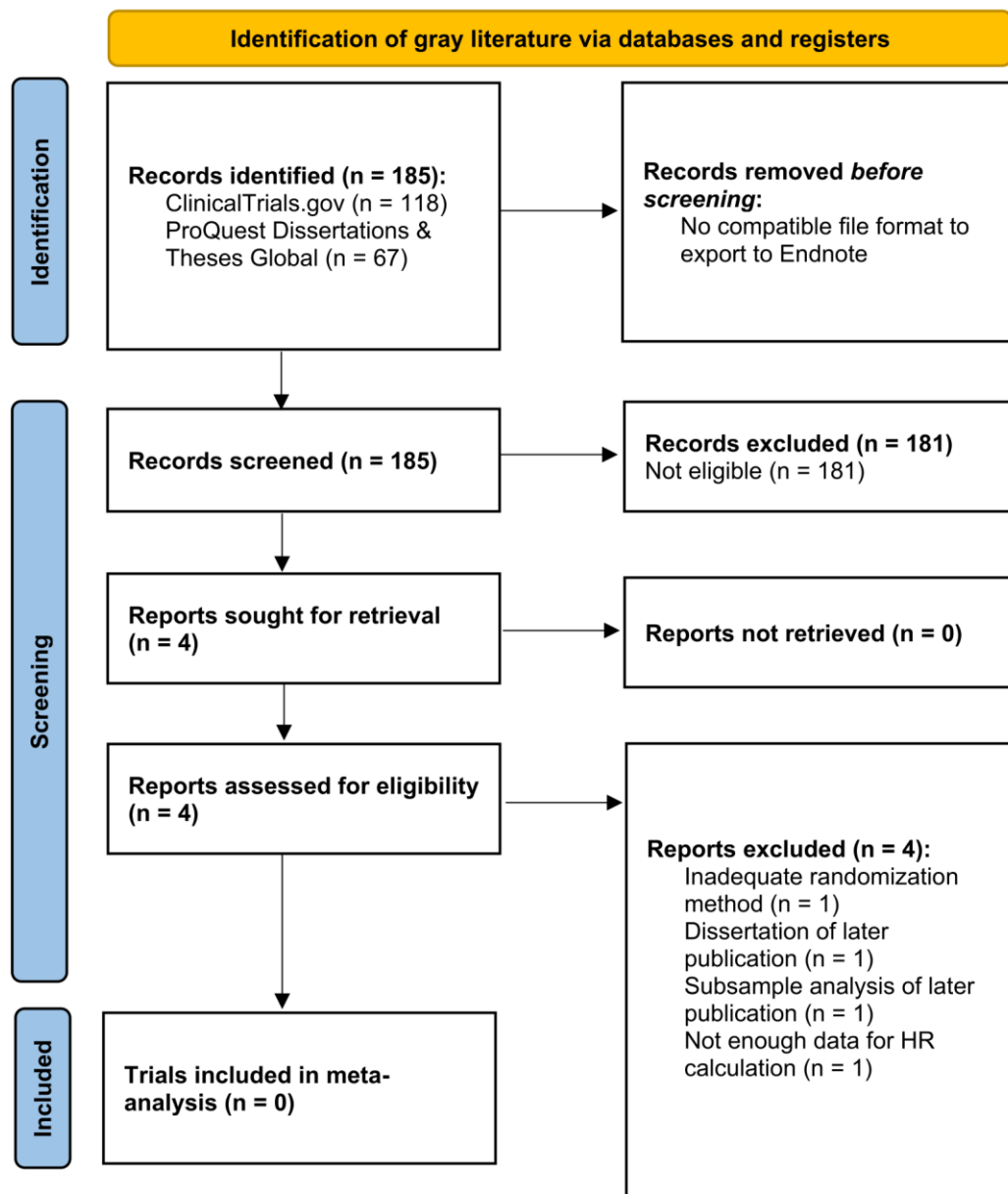
Supplementary Figure A2

Graphical Representation of the Results of the GROOVE Tool



Note. The percentage of overlap regarding primary studies between each meta-analysis (column) with the others (row).

59 **Supplementary Figure A3**60 *PRISMA Flow Chart 2020 Displaying the Selection Process of the Systematic Literature*61 *Search for Meta-Analyses*

63 **Supplementary Figure A4**64 *PRISMA Flow Chart 2020 Displaying the Selection Process of the Systematic Literature*65 *Search for Gray Literature*

Supplementary Section B

Supplementary Table B1

Study Quality of Included RCTs Regarding the Survival Outcome and According to the Quality Assessment of Controlled Intervention Studies NHLBI (Items 1-14) Supplemented by Items From the DELPHI List (Item 15) and the CONSORT Checklist (Items 16-18) Part I

First author and year of publication	Linn 1982 ²⁶	Spiegel 1989 ²⁹	Ilnyckij 1994 ³⁰	Cunningham 1998 ⁹	Edelman 1999 ¹¹	McCorckle 2000 ³⁴	Goodwin 2001 ³⁹	Fawzy 1993/13 2003 ³⁰	Kissane 2004 ¹⁸	Boesen 2007 ⁵	Kissane 2007 ⁴⁰	Kuchler 1999 ³² /2007 ³³
1. Study described as randomized	1	1	1	1	1	1	1	1	1	1	1	1
2. Adequate randomization	1	0	0	0	0	0	1	0	1	1	1	0
3. Allocation concealed	1	0	1	0	0	1	1	0	0	0	0	1
4. Providers and patients blinded	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
5. Outcome assessment blinded	1	0	0	0	0	0	-1	0	1	1	0	0
6. Groups similar at baseline	1	1	1	1	1	-1	1	-1	1	1	1	1
7. Overall dropout rate ≤20% from those allocated to treatment	1	1	1	1	1	1	1	1	0	1	1	1
8. Difference in dropout between groups ≤15%	1	1	1	1	1	1	1	1	0	1	1	1
9.	0	-1	-1	1	-1	1	-1	1	1	1	-1	1

Adherence to protocols in both groups >80%												
10. Other interventions avoided or similar between groups	0	0	0	1	1	0	1	0	0	0	0	0
11. Valid and reliable outcome measurements	1	1	1	1	1	1	1	1	1	1	1	1
12. Meta-analytic post-hoc power $\geq 80\%$	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
13. Primary outcomes and subgroup analysis prespecified	1	1	1	1	1	1	1	1	1	1	1	1
14. Intention-to-treat analysis	-1	1	1	1	-1	1	-1	-1	1	-1	1	1
15. Point estimates and measures of variability presented	-1	1	-1	-1	1	1	1	-1	1	1	1	1
16. Interim analyses justified and stopping of data collection prespecified	0	0	0	0	0	0	0	0	0	0	0	0
17. Appropriate statistical methods and “plain” results presented	1	1	1	1	-1	1	1	1	1	-1	1	1
18. Only	1	-1	1	-1	1	-1	-1	-1	-1	1	-1	-1

one
statistical
test or
control for
multiple
testing

Score	7	5	6	6	4	6	5	1	7	7	6	8
<i>Note.</i> If the criteria was present +1 point was given, if not -1 point, and if not reported 0.												

Study Quality of Included RCTs Regarding the Survival Outcome and According to the Quality Assessment of Controlled Intervention Studies NHLBI (Items 1-14) Supplemented by Items From the DELPHI List (Item 15) and the CONSORT Checklist (Items 16-18) Part II

[illegible]

groups
>80%

10. Other intervention s avoided or similar between groups	0	0	0	0	0	0	0	0	0	0	1	0
11. Valid and reliable outcome measuremen ts	1	1	1	1	1	1	1	1	1	1	1	1
12. Meta- analytic post-hoc power $\geq 80\%$	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
13. Primary outcomes and subgroup analysis prespecified	1	-1	-1	1	1	1	1	1	1	1	1	1
14. Intention-to- treat analysis	1	1	1	-1	1	1	1	-1	1	1	-1	1
15. Point estimates and measures of variability presented	1	1	1	1	1	1	-1	-1	1	1	1	1
16. Interim analyses justified and stopping of data collection prespecified	0	0	0	0	0	0	0	0	0	0	0	0
17. Appropriate statistical methods and “plain” results presented	1	-1	1	1	1	1	1	1	1	-1	1	1
18. Only one statistical test or	-1	1	1	-1	-1	-1	1	1	1	1	-1	1

control for
multiple
testing

Score	8	6	8	6	7	3	8	6	9	9	6	9
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Note. If the criteria was present +1 point was given, if not -1 point, and if not reported 0.

Supplementary Table B3

Study Quality of Included RCTs Regarding the Survival Outcome and According to the Quality Assessment of Controlled Intervention Studies NHLBI (Items 1-14) Supplemented by Items From the DELPHI List (Item 15) and the CONSORT Checklist (Items 16-18) Part III

First author and year of publication	J. Wang 2019 ¹³⁶	L. Zhang 2021 ¹³⁷	X. Zhao 2021 ¹³⁸	Zhou & Sun 2021 ³⁵	L. Chen 2022 ¹³⁹	Q. Guo 2022 ¹⁴⁰	Huang 2022 ¹⁴¹	Kirkegaard 2023 ¹⁶
1. Study described as randomized	1	1	1	1	1	1	1	1
2. Adequate randomization	1	1	1	1	1	1	0	0
3. Allocation concealed	0	1	1	1	1	1	1	1
4. Providers and patients blinded	-1	-1	-1	-1	-1	-1	-1	-1
5. Outcome assessment blinded	0	0	0	0	0	0	0	0
6. Groups similar at baseline	1	1	1	1	1	1	1	-1
7. Overall dropout rate $\leq 20\%$ from those allocated to treatment	-1	1	-1	1	1	1	-1	1
8. Difference in dropout between groups $\leq 15\%$	1	1	1	1	1	1	1	1
9. Adherence to protocols in both	1	1	1	1	1	1	1	1

groups >80%								
10. Other intervention s avoided or similar between groups	0	0	0	0	0	0	0	0
11. Valid and reliable outcome measuremen ts	1	1	1	1	1	1	1	1
12. Meta- analytic post-hoc power $\geq 80\%$	-1	-1	-1	-1	-1	-1	-1	-1
13. Primary outcomes and subgroup analysis prespecified	1	1	1	1	1	1	1	1
14. Intention-to- treat analysis	1	1	1	1	1	1	1	-1
15. Point estimates and measures of variability presented	1	1	1	-1	1	1	-1	1
16. Interim analyses justified and stopping of data collection prespecified	0	0	0	0	0	0	0	0
17. Appropriate statistical methods and “plain” results presented	1	1	1	1	1	1	1	1
18. Only one statistical test or	1	1	1	1	1	1	1	-1

control for
multiple
testing

Score	8	10	9	9	11	11	6	4
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Note. If the criteria was present +1 point was given, if not -1 point, and if not reported 0.

Supplementary Table B4*Meta-Analytic Post-Hoc Power Calculation Sheet*

First author and year of publication	Sample size ($n_{int./n_{con}}$)	Proportion of sample in the int. group ($n_{int.}/n$)	Overall effect HR of the meta-analysis	Number of deaths in the whole sample	Probability of event within in each trial (deaths/ n)	Meta-analytic post-hoc power
Linn 1982 ¹²⁶	120 (62/58)	0.5167	0.80	91	0.7583	18.63
Spiegel 1989 ¹²⁹	86 (50/36)	0.5814	0.80	83	0.9651	17.08
Ilnyckyj 1994 ¹³⁰	92 (61/31)	0.6630	0.80	61	0.6630	13.06
Cunningham 1998 ⁹	66 (30/36)	0.4545	0.80	49	0.7424	12.17
Edelman 1999 ¹¹	121 (60/61)	0.4959	0.80	85	0.7025	17.72
McCorkle 2000 ³⁴	375 (190/185)	0.5067	0.80	93	0.2480	18.95
Goodwin 2001 ³⁹	235 (158/77)	0.6723	0.80	201	0.8553	31.76
Fawzy 2003 ³⁰	68 (34/34)	0.5000	0.80	20	0.2941	7.90
Kissane 2004 ¹⁸	303 (154/149)	0.5083	0.80	48	0.1584	12.07
Boesen 2007 ⁵	258 (128/130)	0.4961	0.80	16	0.0620	7.31
Kissane 2007 ⁴⁰	227 (147/80)	0.6476	0.80	192	0.8458	31.49
Kuchler 2007 ³³	271 (136/135)	0.5018	0.80	229	0.8450	39.31
Spiegel 2007 ³⁸	125 (64/61)	0.5120	0.80	108	0.8640	21.25
Andersen 2008 ¹	227 (114/113)	0.5022	0.80	54	0.2379	12.98
Bakitas 2009 ³	322 (161/161)	0.5000	0.80	231	0.7174	39.59
Ross 2009 ²⁷	249 (125/124)	0.5020	0.80	148	0.5944	27.38
Temel 2010 ¹³²	151 (77/74)	0.5099	0.80	107	0.7086	21.10
Choi 2012 ⁷	237 (118/119)	0.4979	0.80	126	0.5316	24.03
Z. Guo 2013 ¹³³	178 (89/89)	0.5000	0.80	29	0.1629	9.23
X.D. Zhang 2013 ¹³⁴	55 (27/28)	0.4909	0.80	22	0.4000	8.19
Julião	80	0.4875	0.80	25	0.3125	8.63

2015 ²⁰	(39/41)					
Stagl 2015 ²²	240	0.5000	0.80	30	0.1250	9.38
	(120/120)					
Ye 2017 ²⁸	212	0.5094	0.80	136	0.6415	25.55
	(108/104)					
Bao 2019 ¹³⁵	220	0.5000	0.80	87	0.3955	18.03
	(110/110)					
J. Wang	136	0.5000	0.80	106	0.7794	20.95
2019 ¹³⁶	(68/68)					
	)					
L. Zhang	160	0.5000	0.80	22	0.1375	8.19
2021 ¹³⁷	(80/80)					
X. Zhao	150	0.5000	0.80	50	0.3333	12.38
2021 ¹³⁸	(75/75)					
Zhou & Sun	210	0.5000	0.80	58	0.2762	13.59
2021 ³⁵	(105/105)					
L. Chen	86	0.5116	0.80	8	0.0930	6.15
2022 ¹³⁹	(44/42)					
Q. Guo	138	0.5000	0.80	36	0.2609	10.27
2022 ¹⁴⁰	(69/69)					
Huang	108	0.5093	0.80	14	0.1296	7.02
2022 ¹⁴¹	(55/53)					
Kirkegaard	198	0.4848	0.80	62	0.3131	14.19
2023 ¹⁶	(96/102)					
Average						17.04%

Note. *HR* = Hazard Ratio; Int. = Intervention group; Con. = Control group.

Supplementary Table B5*Funding Source and Risk of Sponsorship Bias Rating Sheet*

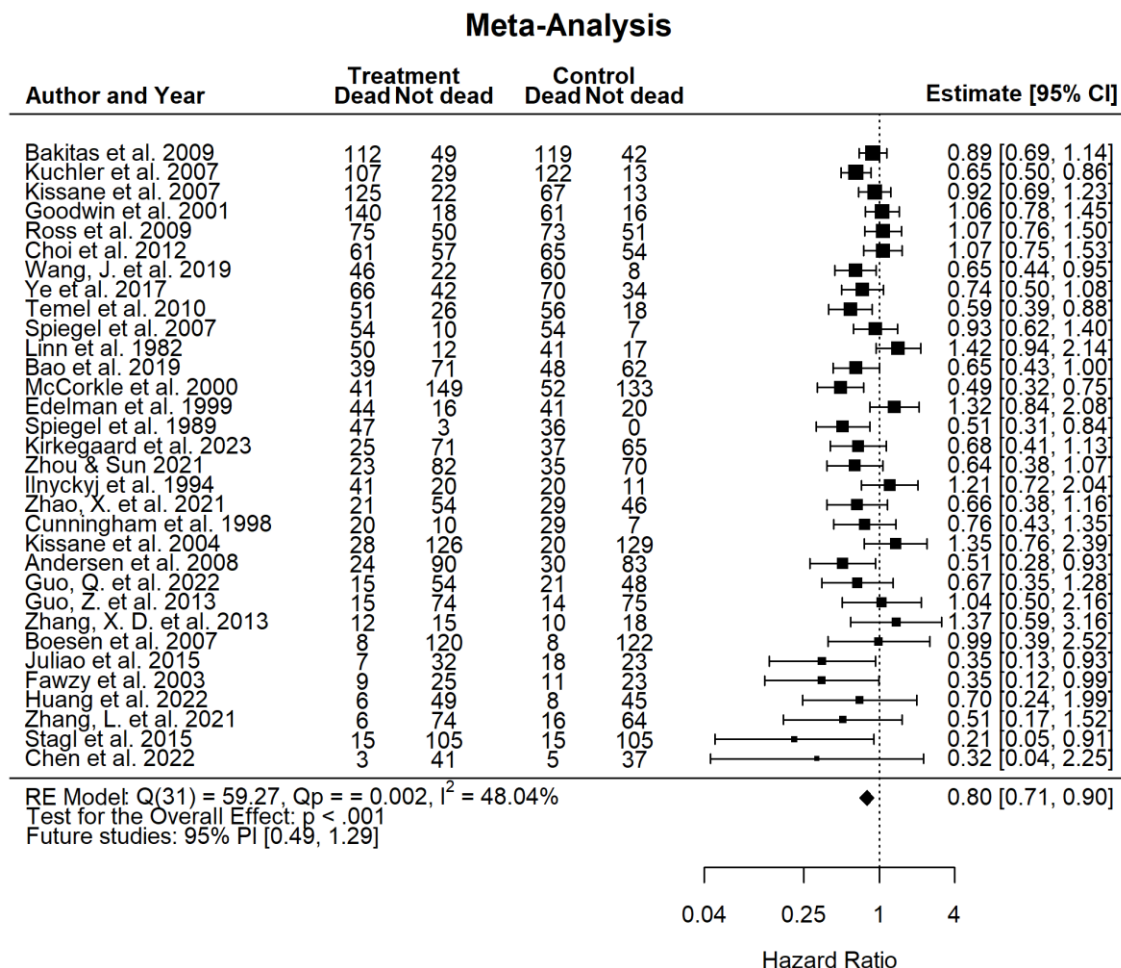
First author and year of publication	No funding	Gov. inv.	Pub. cha. inv.	Pri. fou. inv.	FPO (via con./group) inv.	FPO only	Risk of sponsorship bias
Linn 1982 ¹²⁶		X					Low
Spiegel 1989 ¹²⁹		X	X	X			Low
Ilnyckyj 1994 ¹³⁰	NA	NA	NA	NA	NA	NA	NA
Cunningham 1998 ⁹		X					Low
Edelman 1999 ¹¹	NA	NA	NA	NA	NA	NA	NA
McCorkle 2000 ³⁴		X					Low
Goodwin 2001 ³⁹		X			X		Moderate
Fawzy 2003 ³⁰		X					Low
Kissane 2004 ¹⁸		X		X			Low
Boesen 2007 ⁵			X	X			Low
Kissane 2007 ⁴⁰		X	X	X	X		Moderate
Kuchler 2007 ³³			X				Low
Spiegel 2007 ³⁸		X		X	X		Moderate
Andersen 2008 ¹		X		X	X		Moderate
Bakitas 2009 ³		X					Low
Ross 2009 ²⁷			X	X	X		Moderate
Temel 2010 ¹³²			X				Low
Choi 2012 ⁷		X					Low
Z. Guo 2013 ¹³³		X					Low
X.D. Zhang 2013 ¹³⁴		X		X			Low
Julião 2015 ²⁰	X						Low
Stagl 2015 ²²		X					Low
Ye 2017 ²⁸		X					Low
Bao 2019 ¹³⁵	X						Low
J. Wang 2019 ¹³⁶	X						Low
L. Zhang 2021 ¹³⁷	NA	NA	NA	NA	NA	NA	NA
X. Zhao 2021 ¹³⁸	NA	NA	NA	NA	NA	NA	NA
Zhou & Sun 2021 ³⁵	X						Low
L. Chen 2022 ¹³⁹	NA	NA	NA	NA	NA	NA	NA
Q. Guo 2022 ¹⁴⁰	X						Low
Huang 2022 ¹⁴¹	NA	NA	NA	NA	NA	NA	NA
Kirkegaard 2023 ¹⁶			X	X			Low

Note. Low risk = No funding, government (gov.), public charity (pub. cha.), or private

foundation (pri. fou.) involved; Moderate risk = For-Profit Organization (FPO) funding

involved, can also be from within a con. (consortium) or group; High risk = FPO funding

only; NA = Not Available.

73 **Supplementary Figure B1**74 *Forest Plot of the Random-Effects Meta-Analysis Showing Survival Data of All 32 Included*75 *RCTs (Ordered According to Precision)*

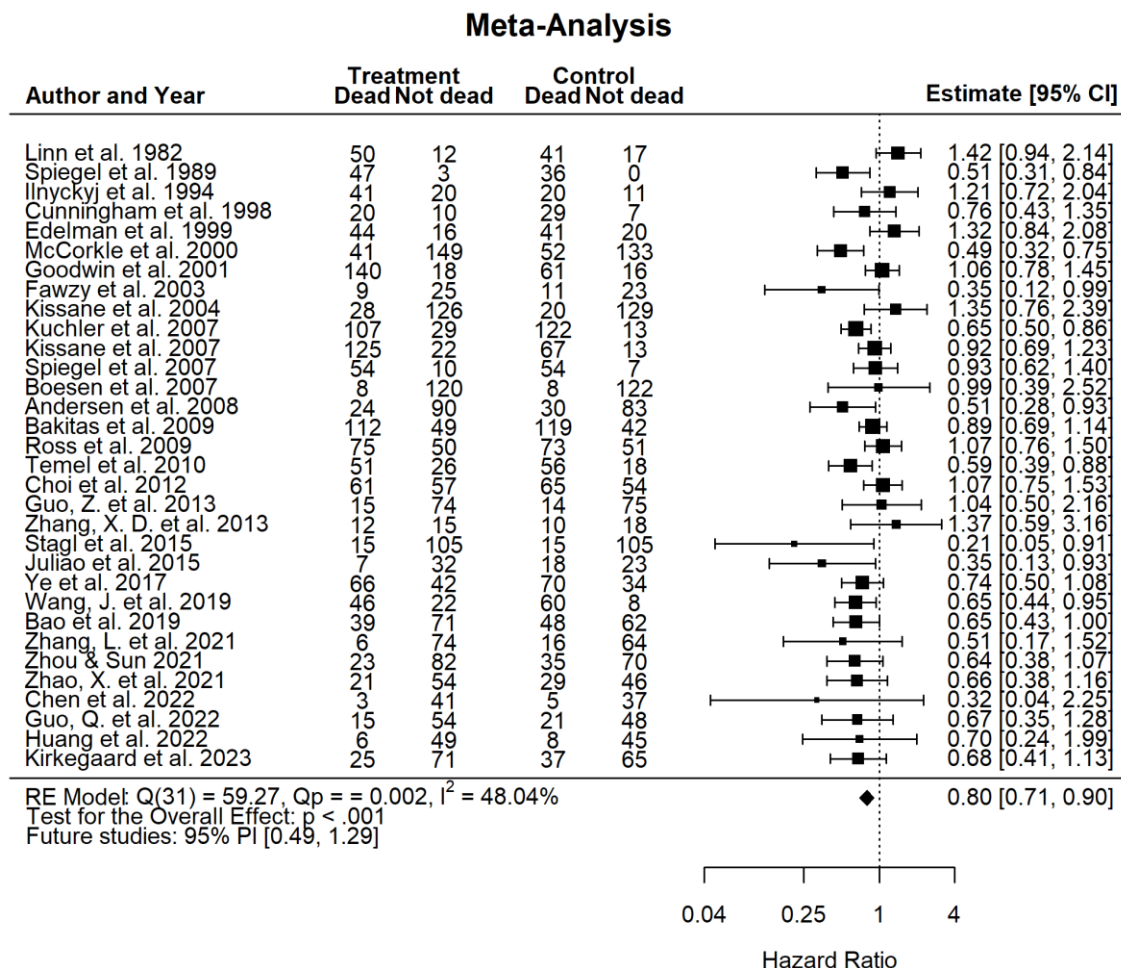
76

77 *Note. The 95% CIs in the forest plot may differ in the second decimal place from the CIs*78 *stated in the articles (see Table 4), as they had to be transformed to SEs for the meta-analysis*79 *and then were back-transformed for the forest plot by Metafor. RE Model = Random Effects*80 *Model, $Q = Q$ test for heterogeneity, $Qp = Q$ test p value, $I^2 =$ Proportion of true variance to*81 *total variance, 95% PI = 95% Prediction Interval, $k = 32$ studies.*

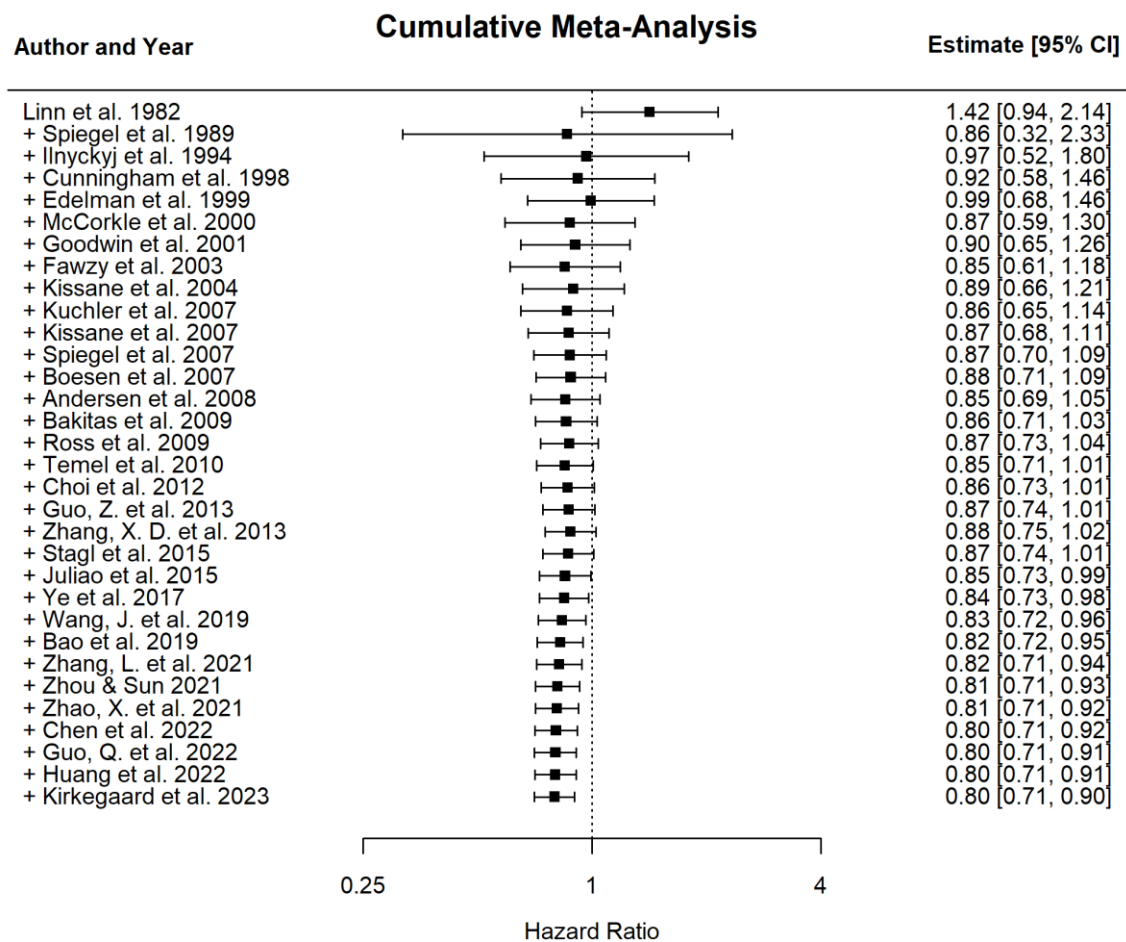
Supplementary Figure B2

Forest Plot of the Random-Effects Meta-Analysis Showing Survival Data of All 32 Included

RCTs (Ordered According to Publication Year)



Note. The 95% CIs in the forest plot may differ in the second decimal place from the CIs stated in the articles (see Table 4), as they had to be transformed to SEs for the meta-analysis and then were back-transformed for the forest plot by Metafor. RE Model = Random Effects Model, $Q = Q$ test for heterogeneity, $Qp = Q$ test p value, I^2 = Proportion of true variance to total variance, 95% PI = 95% Prediction Interval, $k = 32$ studies.

91 **Supplementary Figure B3**92 *Forest Plot of the Cumulative Meta-Analysis Including All 32 HRs Illustrating the Temporal*93 *Trend of the Overall Effect*

94

95 *Note.* Cumulative meta-analysis showing the development of the overall effect over time,96 adding studies sequentially in order of publication, $k = 32$ studies.

97 **Supplementary Figure B4**98 *The Five Domains of Risk of Bias and Overall Judgement Assessed with RoB 2 for All 32*99 *RCTs Included in the Meta-Analysis*

	Risk of bias domains					
	D1	D2	D3	D4	D5	Overall
Andersen 2008	-	+	+	+	-	-
Bakitas 2009	-	+	+	+	-	-
Bao 2019	+	+	+	+	-	-
Boesen 2007	-	-	+	+	-	-
Chen 2022	+	+	+	+	-	-
Choi 2012	-	-	+	+	-	-
Cunningham 1998	-	+	+	+	-	-
Edelman 1999	-	+	+	+	-	-
Fawzy 2003	-	X	X	+	-	X
Goodwin 2001	+	+	+	+	-	-
Guo Q. 2022	+	+	+	+	-	-
Guo Z. 2013	-	+	+	+	-	-
Huang 2022	+	+	+	+	-	-
Illyckyj 1994	+	+	+	+	-	-
Juliao 2015	-	+	+	+	-	-
Kirkegaard 2023	-	+	+	+	+	-
Kissane 2004	-	+	+	+	-	-
Kissane 2007	-	+	+	+	-	-
Kuchler 2007	+	-	+	+	-	-
Linn 1982	+	+	+	+	-	-
McCorkle 2000	-	+	+	+	-	-
Ross 2009	-	+	+	+	-	-
Spiegel 1989	-	+	+	+	-	-
Spiegel 2007	-	+	+	+	-	-
Stagl 2015	+	+	+	+	-	-
Temel 2010	-	+	+	+	-	-
Wang J. 2019	-	+	+	+	-	-
Ye 2017	+	-	+	+	-	-
Zhang L. 2021	+	+	+	+	-	-
Zhang X. D. 2013	-	X	+	+	-	X
Zhao X. 2021	+	+	+	+	-	-
Zhou & Sun 2021	+	+	+	+	-	-

Study

Domains:
D1: Bias arising from the randomization process.
D2: Bias due to deviations from intended intervention.
D3: Bias due to missing outcome data.
D4: Bias in measurement of the outcome.
D5: Bias in selection of the reported result.

Judgement
X High
- Some concerns
+ Low

101

Supplementary Section C

Supplementary Table C1

Results of the Moderator Analyses (Sorted by TfSD or ToM p Value)

Moderator	Subgroups	k^a	Rank of p value ^b	BHP value ^c	TfSD ^d or ToM ^e p value	TfSE p value ^f
Analysis Type	ITT, Not ITT	32	1	0.003	0.038	<0.001
Surgery	NA	24	2	0.007	0.063	NA
Priority Study Entry						
Sponsorship Bias	Low, Moderate, High	26	3	0.010	0.129	0.001
Study Quality	NA	32	4	0.014	0.13	NA
Patients Lost to Intervention	NA	25	5	0.017	0.146	NA
Funding Source	No Funding, Government involved, Public charity involved, Private foundation involved, For-profit organization involved, For-profit organization only	26	6	0.021	0.161	<0.001
Continent of Origin	AF, AS, AU, EU, NA, SA	32	7	0.024	0.167	<0.001
Marital Status	NA	25	8	0.028	0.194	NA
Lymph Node Status	NA	4	9	0.031	0.278	NA
Tumor Phase	Early, Late, Mixed	32	10	0.034	0.307	0.001
Meta-Analytics Post-Doc Power	NA	32	11	0.038	0.321	NA
Chemotherapy	NA	20	12	0.041	0.356	NA
Priority Study Entry						
Intervention Provider	Purely medical, Mixed teams, Purely psychological, Purely social	31	13	0.045	0.438	0.001
Hormone Therapy Prior to Study Entry	NA	10	14	0.048	0.461	NA
Intervention Period	NA	31	15	0.052	0.464	NA
Radiotherapy Prior to Study	NA	17	16	0.055	0.472	NA

Entry							
Age	NA	31	17	0.059	0.531	NA	
Estrogen Receptor Status	NA	9	18	0.062	0.535	NA	
Intervention Dose	NA	31	19	0.066	0.548	NA	
Tumor Stage	Mixed, Stage I, ~~Stage II, Stage III, Stage IV~~	32	20	0.069	0.562	0.002	
Metastasis	Metastatic, Mixed sample, Non-metastatic	32	21	0.072	0.659	0.003	
Intervention Type	CBT-based, Meaning-enhancing, Narrative-driven, Other counseling, ~~Education only, Other~~	32	22	0.076	0.664	0.006	
Cancer Type	Breast, Colorectal, Lung, Melanoma, Mixed sample, Other	32	23	0.079	0.691	0.013	
Sex	NA	32	24	0.083	0.772	NA	
Progesterone Receptor Status	NA	5	25	0.086	0.845	NA	
Intervention Onset	After hospital stay, During hospital stay	27	26	0.090	0.866	<0.001	
Control Group Type	Active, Passive	32	27	0.093	0.867	0.001	
Length to Follow-Up	NA	32	28	0.097	0.906	NA	
Intervention Format	Group, Individual	32	29	0.100	0.919	0.001	
Differences between groups in psychosocial intervention participation outside study	Yes, No	0	NA	NA	NA	NA	

Italicized characters indicate statistical parameters (APA 7th ed.). ^a*k* = Number of RCTs

included in the analysis, ^bSorted according to TfSE or ToM *p* value, ^cBHP = Benjamini-

Hochberg Procedure, ^dTfSD = Test for Subgroup Differences, ^eToM = Test of Moderator,

^fTfSE = Test for Subgroup Effects.

* *p* < .05

Supplementary Table C2A*List of Included Moderators in Exploratory MetaForest Moderator Analysis*

Moderator	Number of NA/total number of RCTs
Sex	0/32
Cancer type	0/32
Tumor stage	0/32
Tumor phase	0/32
Metastasis	0/32
Intervention type	0/32
Intervention format	0/32
Intervention provider	0/32
Control group type	0/32
Length of follow-up	0/32
Analysis type	0/32
Continent (country) of origin	0/32
Study quality	0/32
Meta-analytic post-hoc power	0/32
Age	1/32
Intervention dose	1/32
Intervention period	1/32

103 *Note.* NA = Not available (missing value)

104

Supplementary Table C2B*List of Excluded Moderators in Exploratory MetaForest Moderator Analysis*

Moderator	Number of NA/total number of RCTs
Intervention onset	5/32
Funding source	6/32
Sponsorship bias	6/32
Patients lost to intervention	7/32
Marital status	7/32
Surgery before to study entry	8/32
Chemotherapy before to study entry	12/32
Radiotherapy before to study entry	15/32
Hormone therapy before to study entry	23/32
Estrogen receptor status	23/32
Progesterone receptor status	27/32
Lymph node status	28/32
Differences between groups in attendance of psychosocial interventions outside of study	28/32

Note. NA = Not available (missing value)

105

106

Supplementary Table C3*List with Data for the Calculation of 95% Prediction Intervals (PI)*

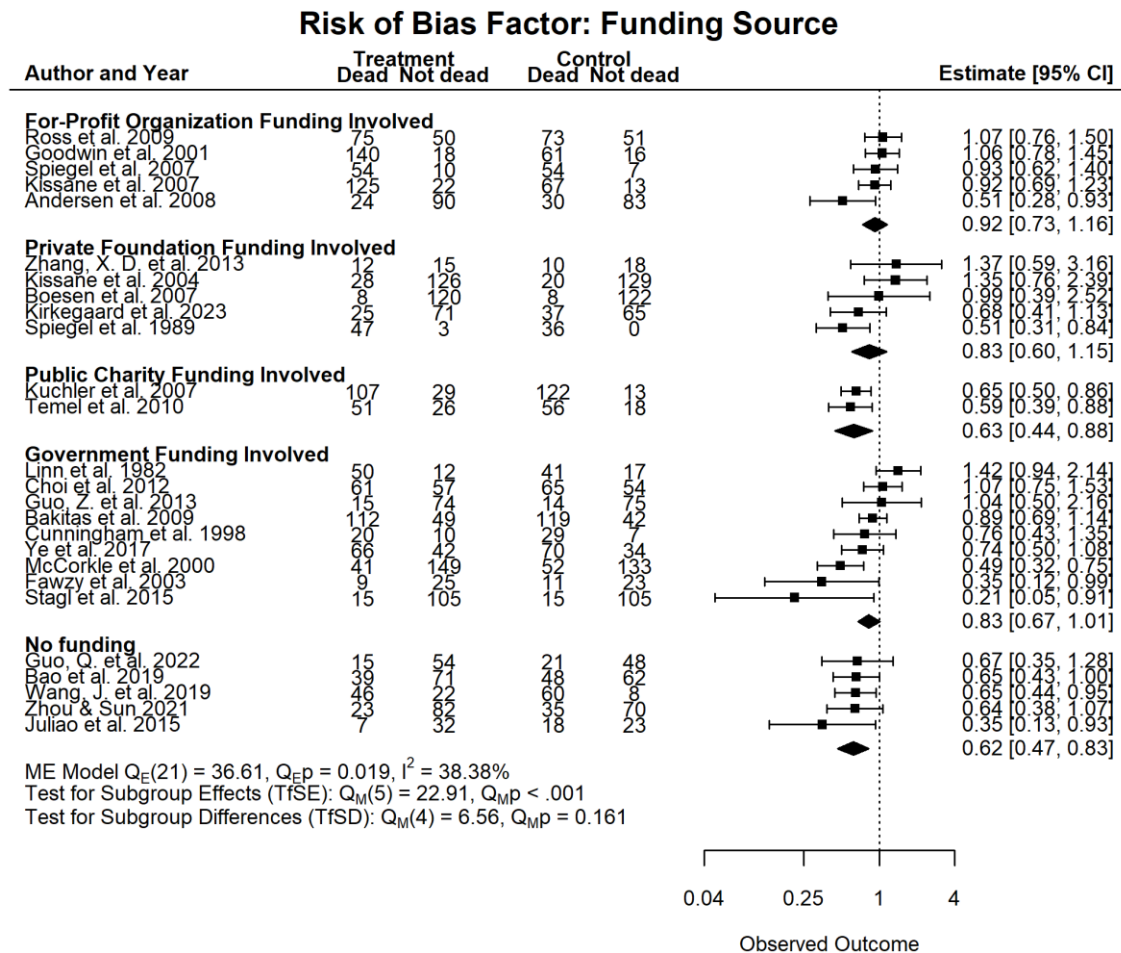
Name	Effect size and 95% CI	Number of studies	τ^2	χ^2	Steps for calculation	95% PI
Evans et al., 2024 ¹⁴²	<i>HR</i> 0.71, 95% <i>CI</i> [0.62, 0.82]	5	0.00 (rounded, not exact enough)	3.62	τ^2 from χ^2 , <i>SE</i> from 95% <i>CI</i> , and then 95% <i>PI</i>	<i>HR</i> [0.58, 0.87]
Garg et al., 2017 ¹⁴³	<i>RR</i> 0.93, 95% <i>CI</i> [0.79, 1.09]	4	NA	1.21	τ^2 from χ^2 , <i>SE</i> from 95% <i>CI</i> , and then 95% <i>PI</i>	<i>RR</i> [0.72, 1.21]
B. Ren et al., 2020 ¹⁴⁴	<i>OR</i> 0.63, 95% <i>CI</i> [0.50, 0.81]	21	NA	23.56	τ^2 from χ^2 , <i>SE</i> from 95% <i>CI</i> , and then 95% <i>PI</i>	<i>OR</i> [0.26, 1.54]
W. Ren et al., 2022 ¹⁴⁵	<i>HR</i> 0.87, 95% <i>CI</i> [0.78, 0.97]	13	0.0140	NA	<i>SE</i> from 95% <i>CI</i> and then 95% <i>PI</i>	<i>HR</i> [0.66, 1.15]
Yu et al., 2017 ¹⁴⁶	<i>HR</i> 0.79, 95% <i>CI</i> [0.69, 0.90]	18	0.055	NA	95% <i>PI</i> reported	<i>HR</i> [0.49, 1.28]

Note. Italicized characters indicate statistical parameters (APA 7th ed.¹⁴⁷). An estimate for τ^2 (if only χ^2 was available) was calculated using the formula: $\tau^2 = \max\left(0, \frac{Q - (k-1)}{C}\right)$, the standard error (*SE*) was estimated from the 95% confidence interval (*CI*) by first log-transforming the upper and lower 95% *CI* limits and applying the formula: $SE = \frac{\ln(\text{Upper } CI) - \ln(\text{Lower } CI)}{2 \times 1.96}$, and the 95% prediction interval (*PI*) was then computed using the formula (assuming τ^2 was estimated via the DerSimonian & Laird method, as RevMan was used for the meta-analysis): $95\% \text{ PI} = \exp\left(\hat{\theta} \pm t_{0.975, k-1} \cdot \sqrt{SE^2 + \tau^2}\right)$ after which the 95% *PI* was exponentiated back to the original scale. Q = Cochran's Q-statistic; k = Number of studies; C = Correction factor; $\ln$ = Natural logarithm; $\exp$ = Exponential function with base e ; θ = Natural logarithm of the pooled effect estimate; t = critical value from the Student's t -distribution; τ^2 = Between-study variance (heterogeneity) on the log scale.

Supplementary Table C4*List of Effect Size Categories*

Effect Size Category	Hazard Ratio (<i>HR</i>)	Odds Ratio (<i>OR</i>)
Small	0.77 (inverse of 1.3 ^a)	0.60 (inverse of 1.7 ^b)
Medium	0.53 (inverse of 1.9 ^a)	0.29 (inverse of 3.5 ^b)
Large	0.36 (inverse of 2.8 ^a)	0.15 (inverse of 6.7 ^b)

119 *Note.* Italicized characters indicate statistical parameters (APA 7th ed.). *HR/OR* < 1 indicate a
120 survival benefit of the intervention group; *HR/OR* > 1 indicate a survival benefit of the
121 control group. ^a Azuero 2016¹⁴⁸; ^b H. Chen 2010¹⁴⁹

122 **Supplementary Figure C1**123 *Subgroup Forest Plot for the Risk of Bias Factor Funding Source*

124

125 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

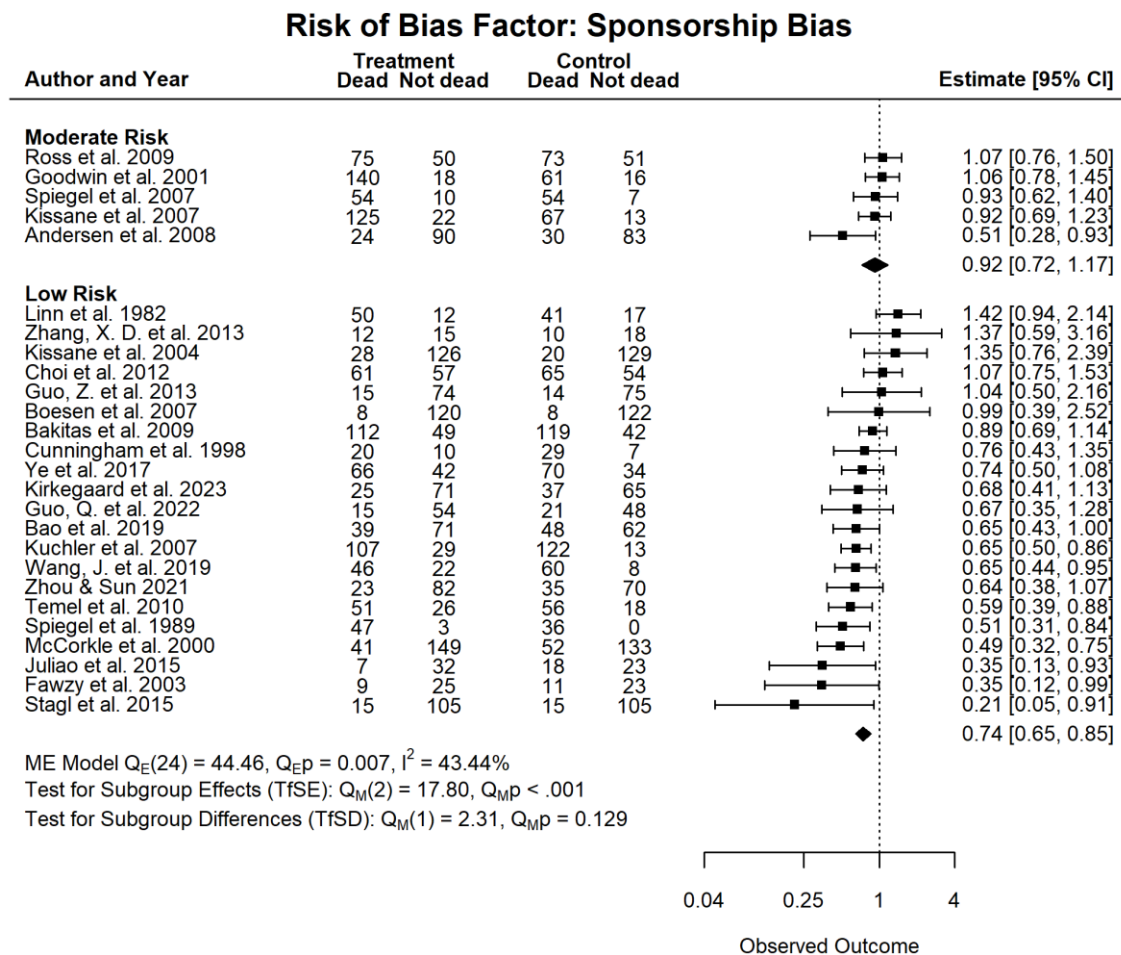
126 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for

127 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

128 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

129 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),

130 95% CI = 95% Confidence Interval, $k = 26$ studies.

131 **Supplementary Figure C2**132 *Subgroup Forest Plot for the Risk of Bias Factor Sponsorship Bias*

133

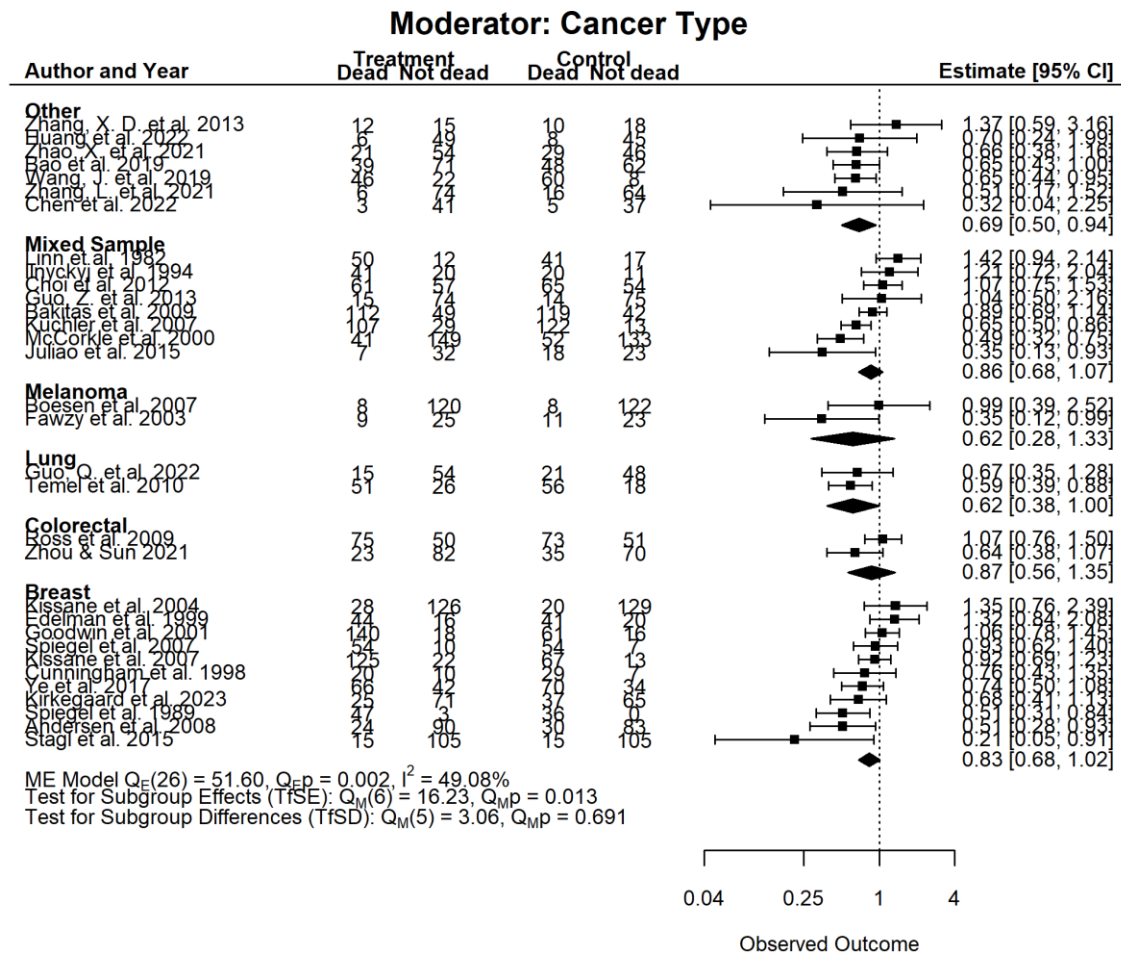
134 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a135 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for136 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

137 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

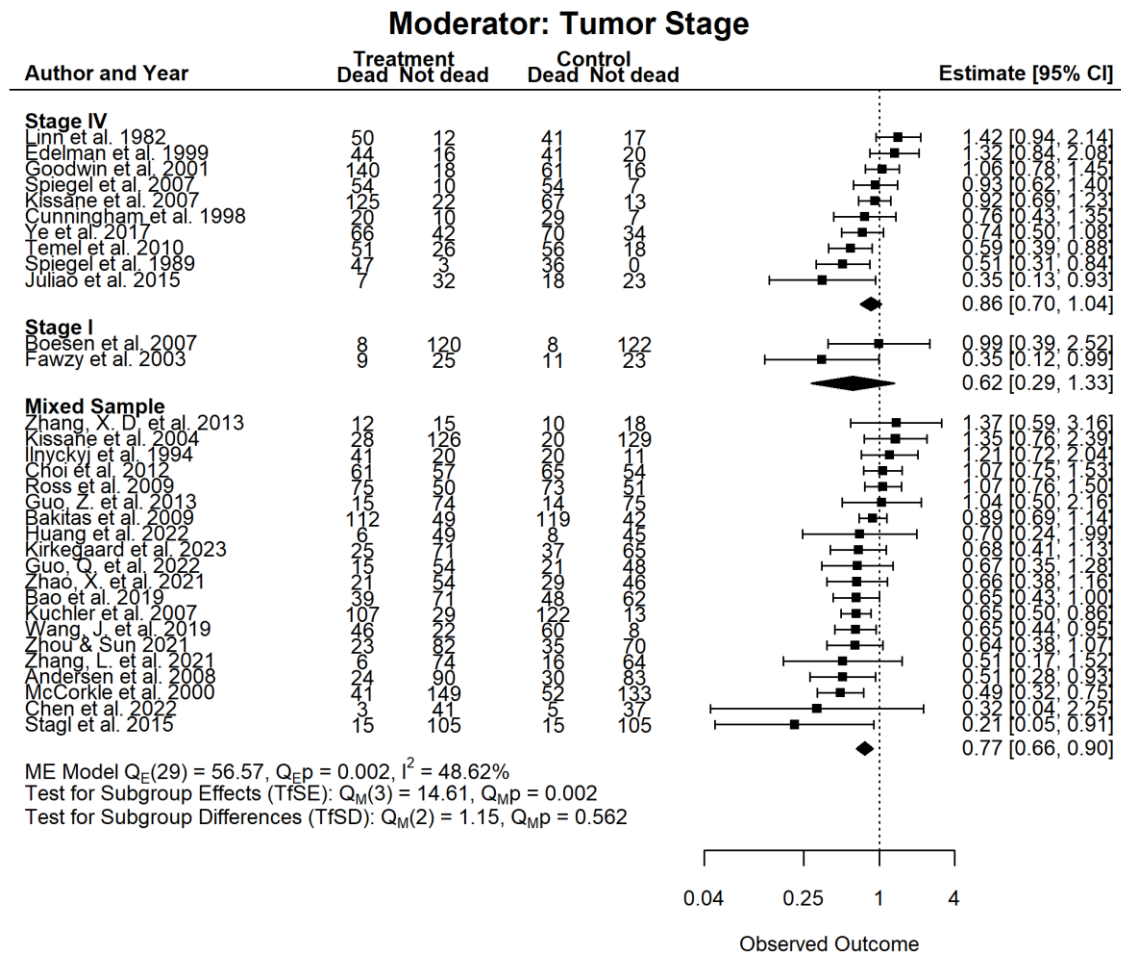
138 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),139 95% CI = 95% Confidence Interval, $k = 26$ studies.

Supplementary Figure C3

Subgroup Forest Plot for the Moderator Cancer Type



Note. $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator), 95% CI = 95% Confidence Interval, $k = 32$ studies.

149 **Supplementary Figure C4**150 *Subgroup Forest Plot for the Moderator Tumor Stage*

151

152 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

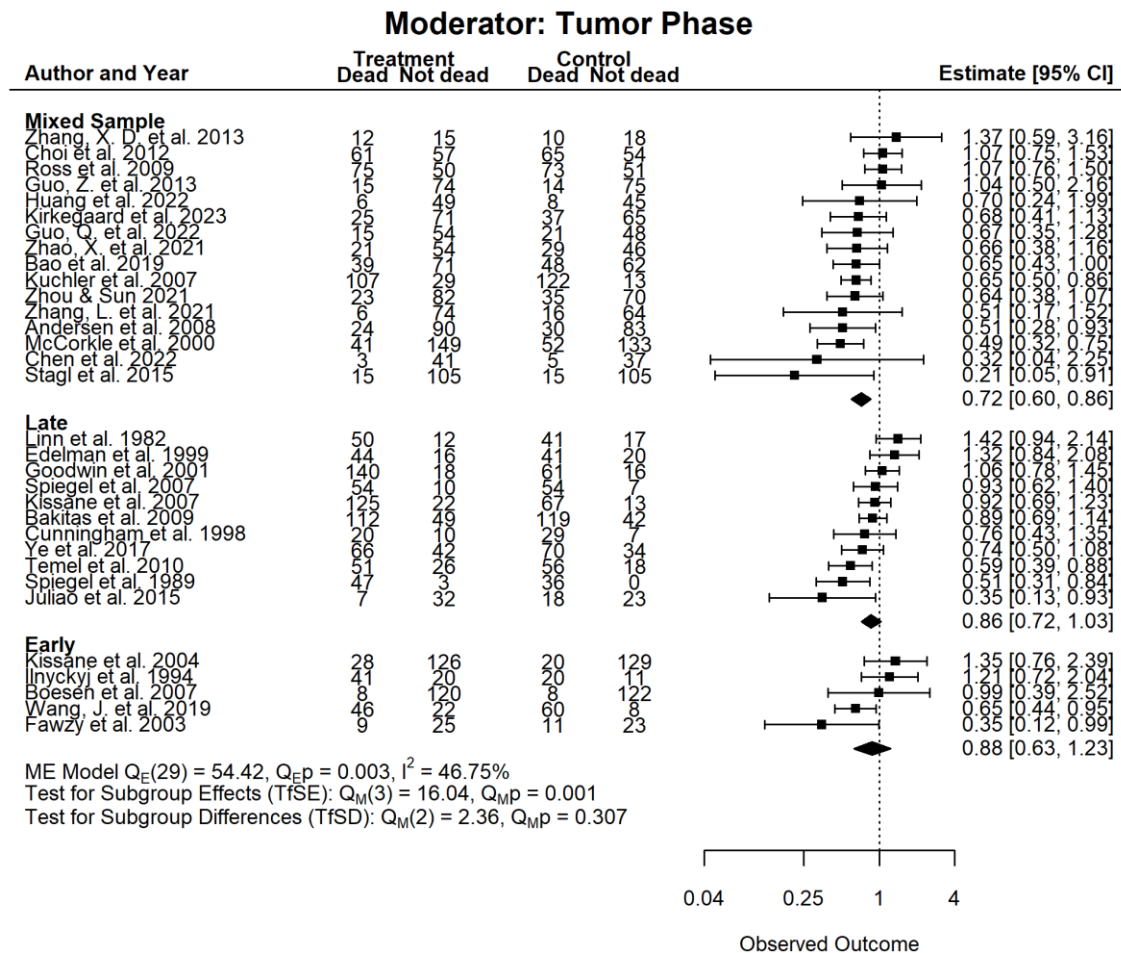
153 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for

154 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

155 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

156 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),

157 95% CI = 95% Confidence Interval, $k = 32$ studies.

158 **Supplementary Figure C5**159 *Subgroup Forest Plot for the Moderator Tumor Phase*

160

161 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

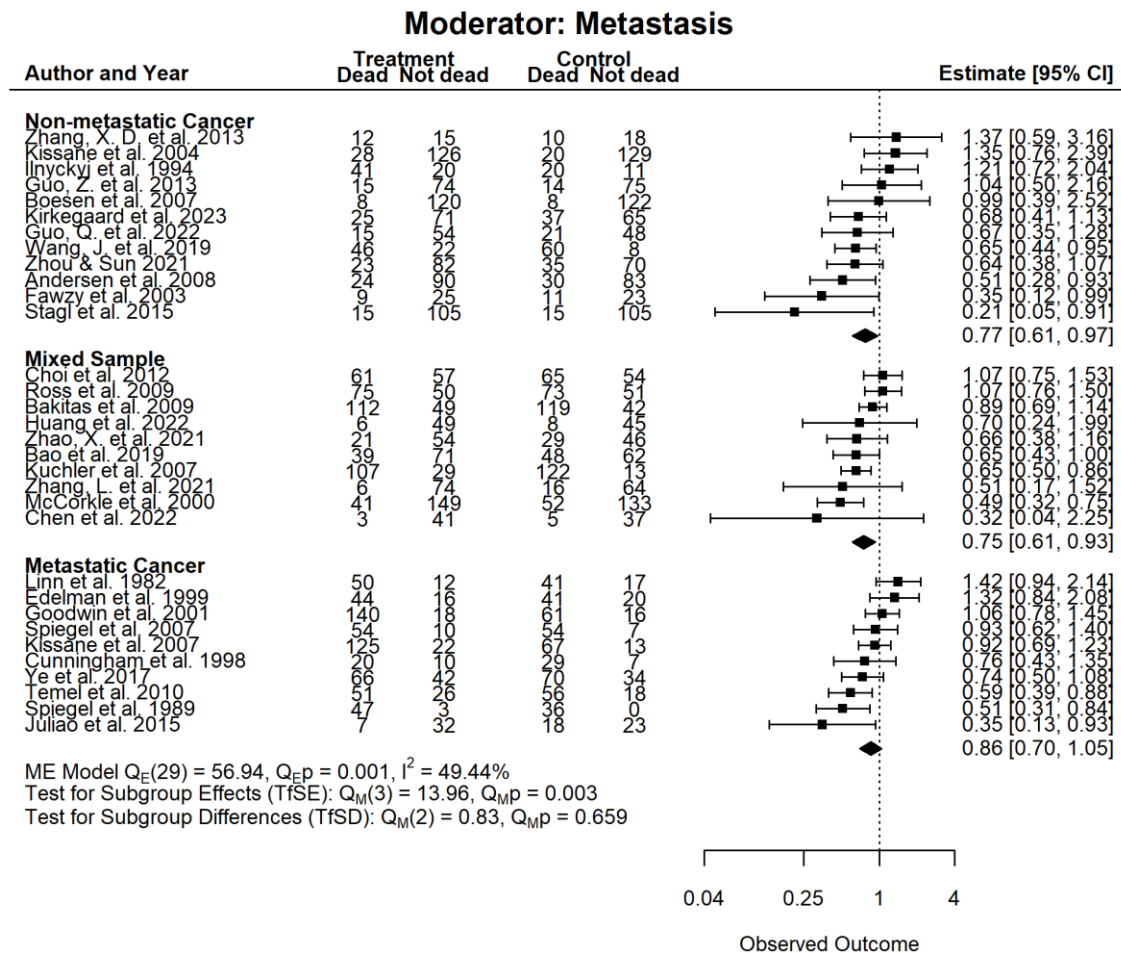
162 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for

163 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

164 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

165 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),

166 95% CI = 95% Confidence Interval, $k = 32$ studies.

167 **Supplementary Figure C6**168 *Subgroup Forest Plot for the Moderator Metastasis*

169

170 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

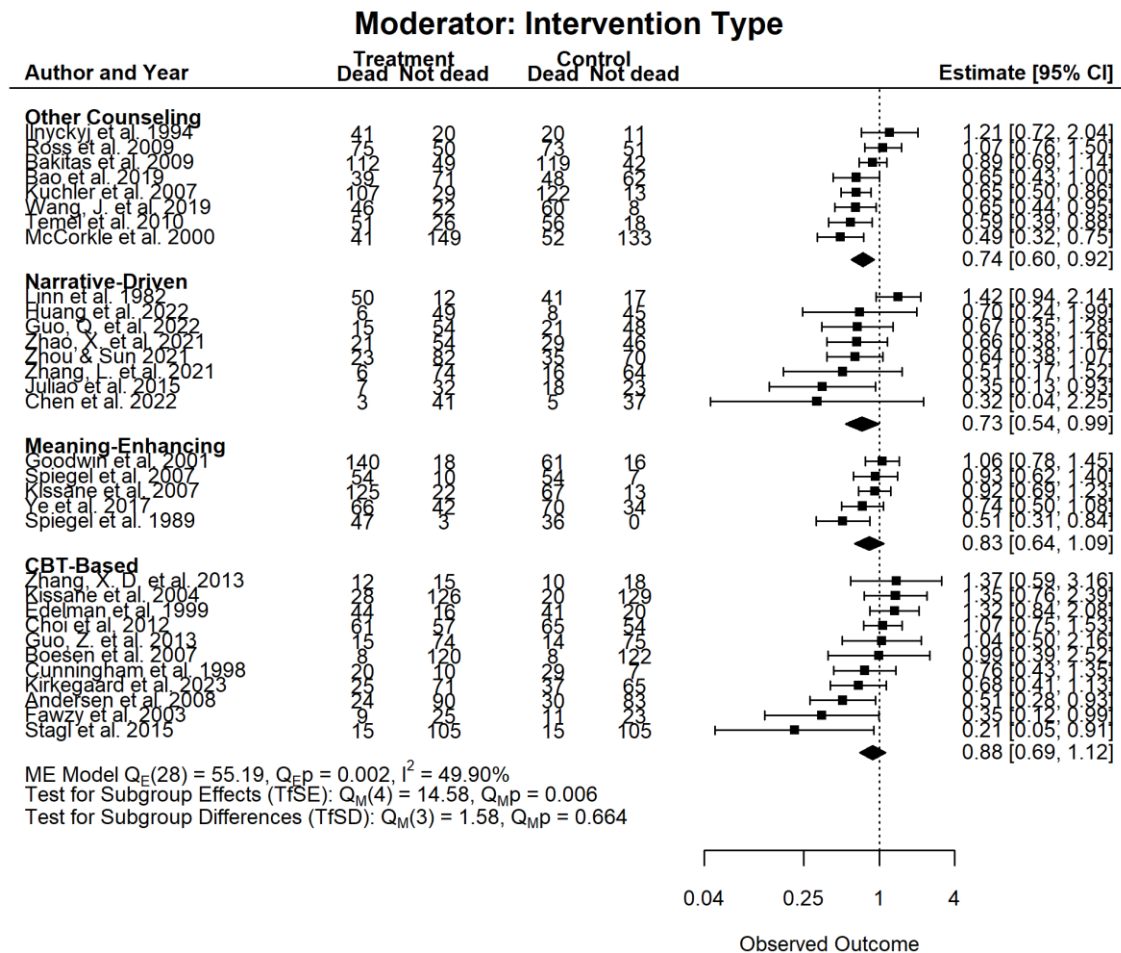
171 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for

172 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

173 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

174 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),

175 95% CI = 95% Confidence Interval, $k = 32$ studies.

176 **Supplementary Figure C7**177 *Subgroup Forest Plot for the Moderator Intervention Type*

178

179 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

180 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for

181 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

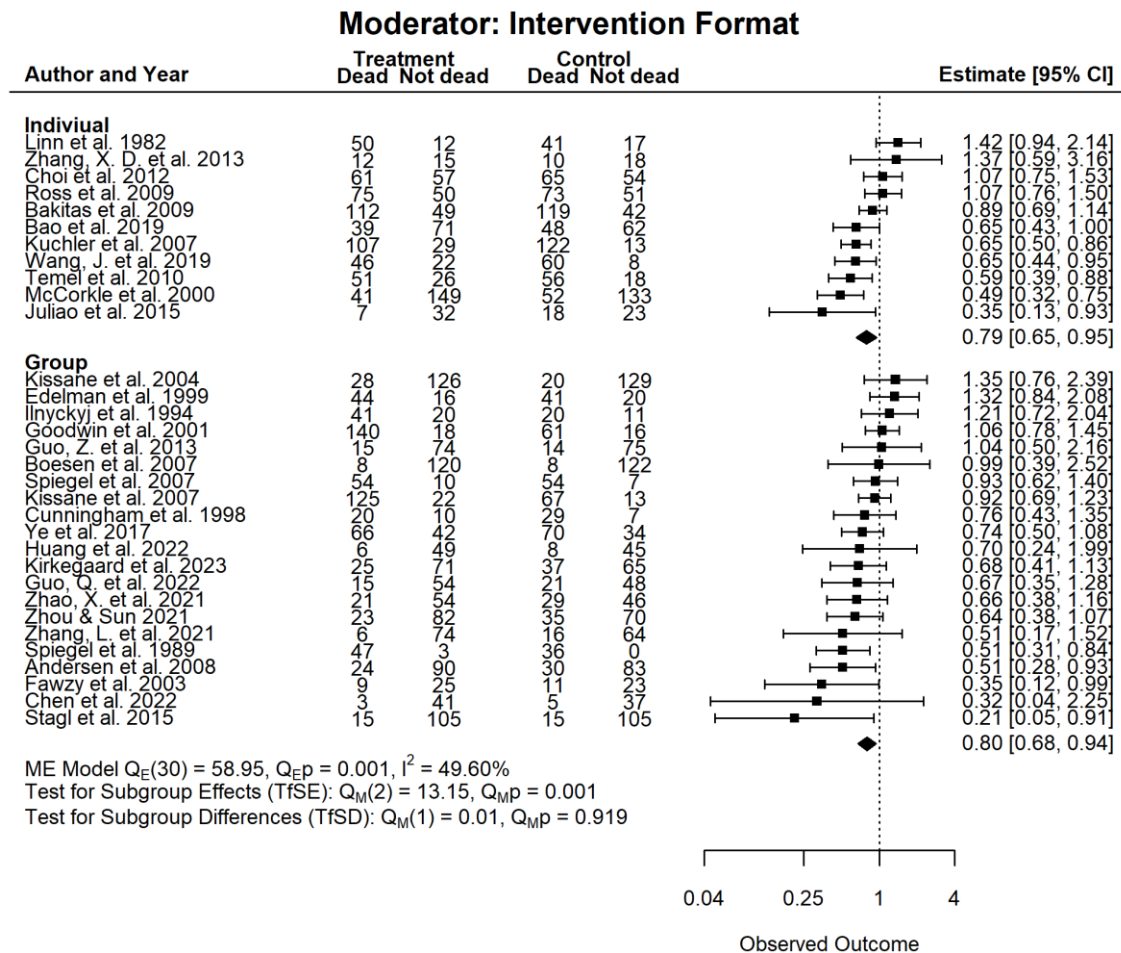
182 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

183 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),

184 95% CI = 95% Confidence Interval, $k = 32$ studies.

Supplementary Figure C8

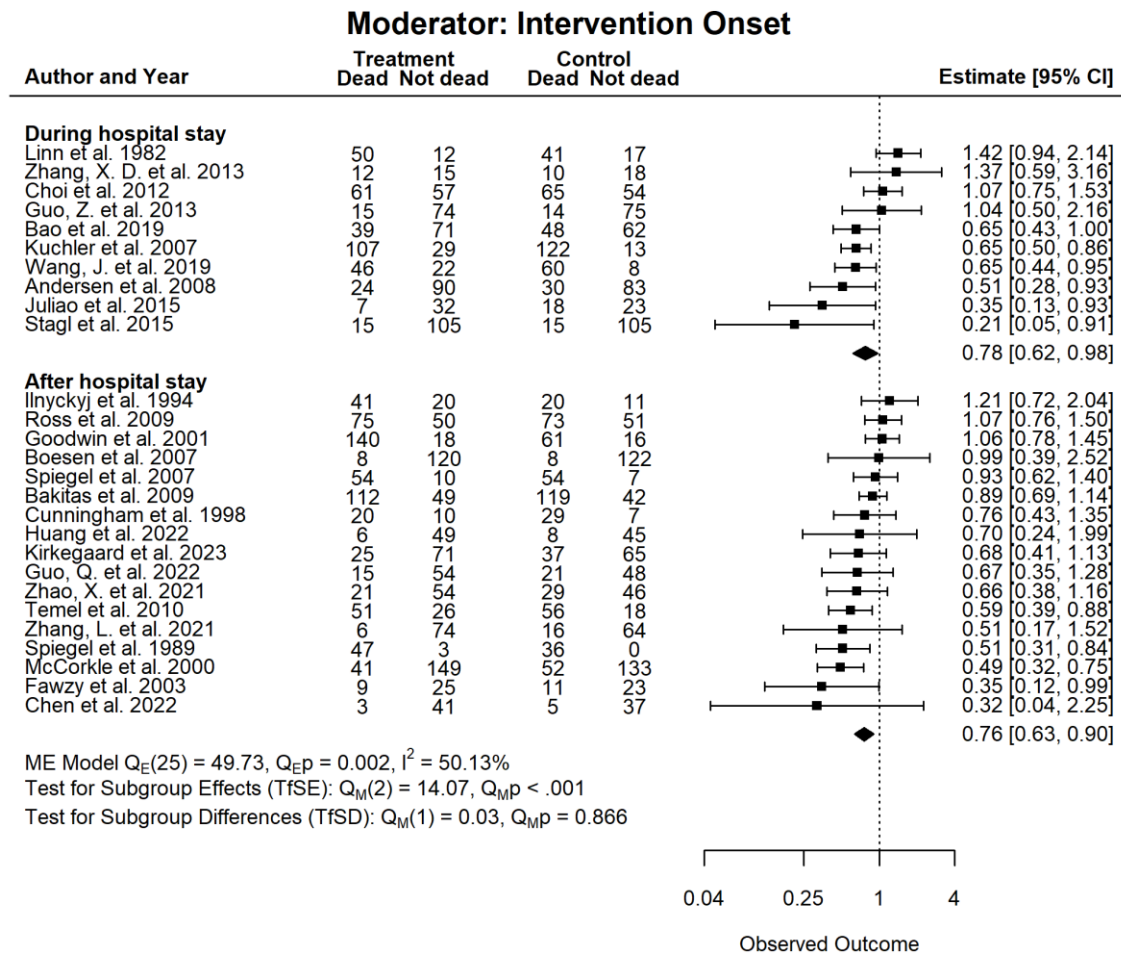
Subgroup Forest Plot for the Moderator Intervention Format



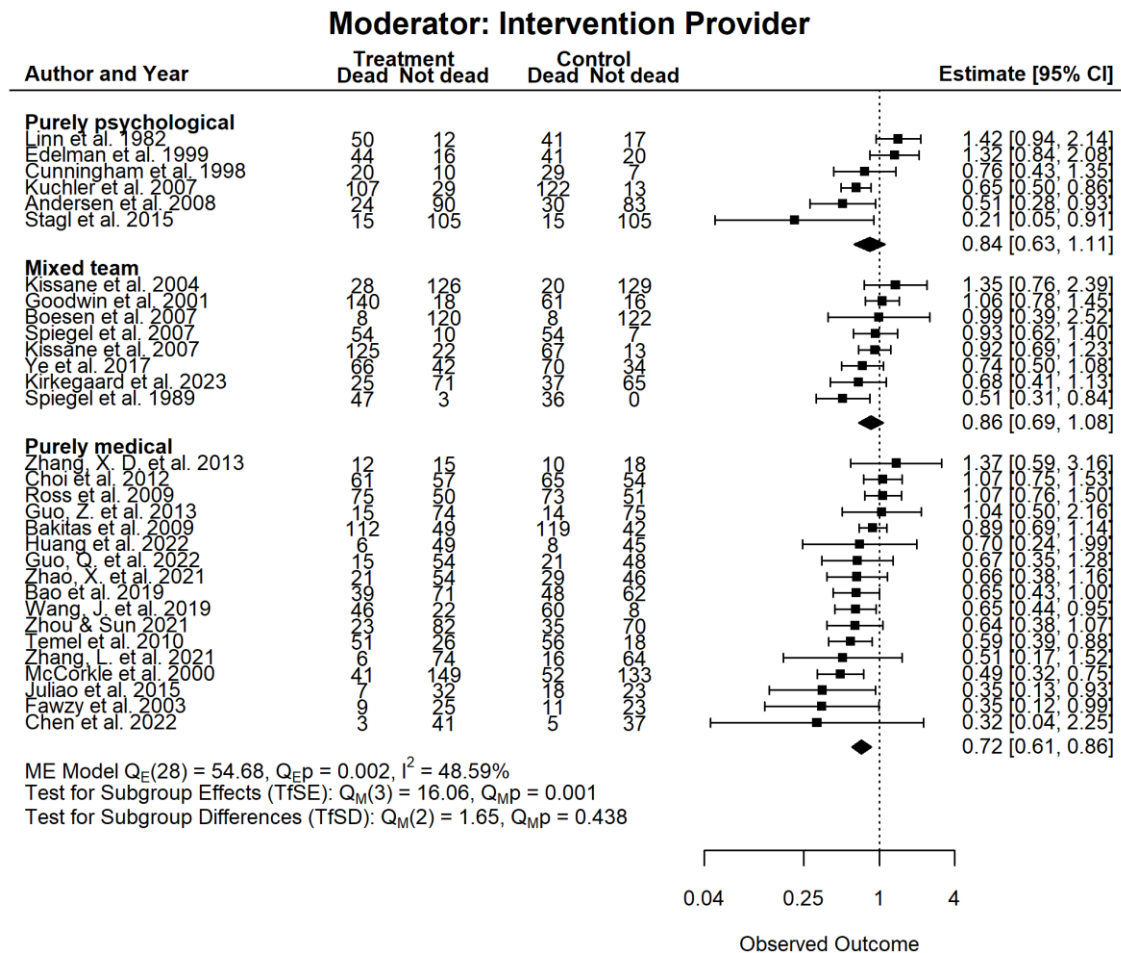
Note. $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator), 95% CI = 95% Confidence Interval, $k = 32$ studies.

Supplementary Figure C9

Subgroup Forest Plot for the Moderator Intervention Onset



Note. $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator), 95% CI = 95% Confidence Interval, $k = 27$ studies.

203 **Supplementary Figure C10**204 *Subgroup Forest Plot for the Moderator Intervention Provider*

205

206 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

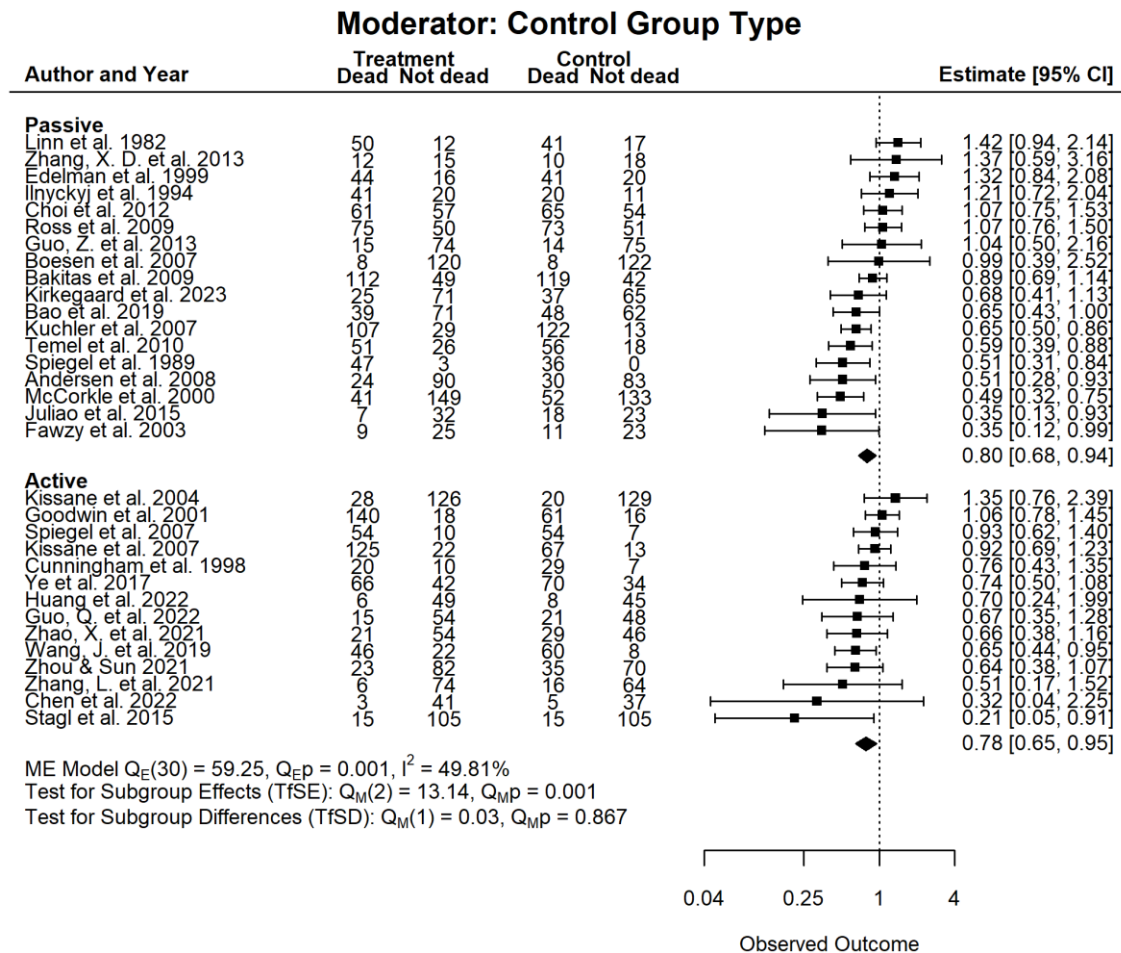
207 survival benefit of the control group. ME Model = Mixed Effects model, $Q_E = Q$ test for

208 heterogeneity (whole model), $Q_{Ep} = Q$ test p value (whole model), I^2 = Proportion of true

209 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

210 Differences, $Q_M = Q$ test for heterogeneity (moderator), $Q_{Mp} = Q$ test p value (moderator),

211 95% CI = 95% Confidence Interval, $k = 31$ studies.

212 **Supplementary Figure C11**213 *Subgroup Forest Plot for the Moderator Control Group Type*

214

215 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

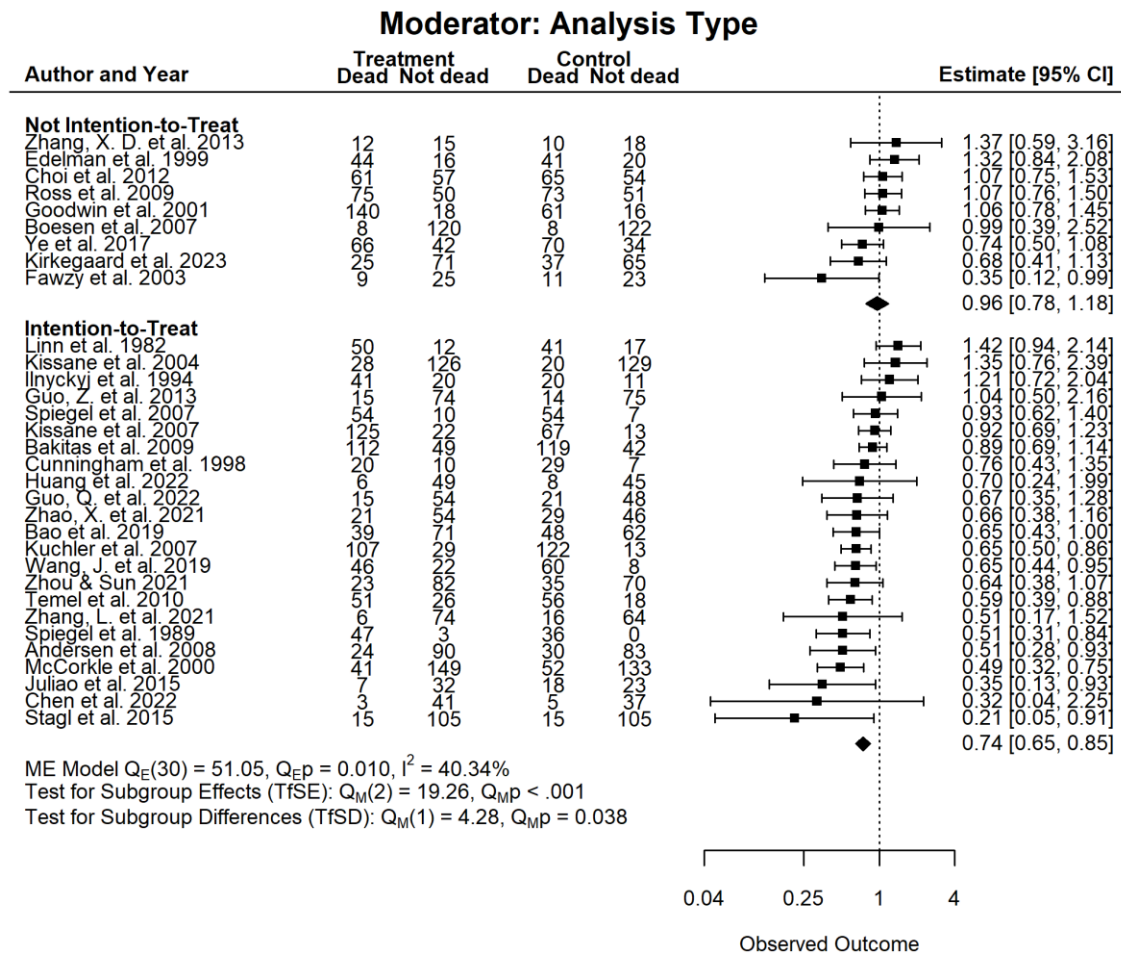
216 survival benefit of the control group. ME Model = Mixed Effects model, $Q_E = Q$ test for

217 heterogeneity (whole model), $Q_{Ep} = Q$ test p value (whole model), I^2 = Proportion of true

218 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

219 Differences, $Q_M = Q$ test for heterogeneity (moderator), $Q_{Mp} = Q$ test p value (moderator),

220 95% CI = 95% Confidence Interval, $k = 32$ studies.

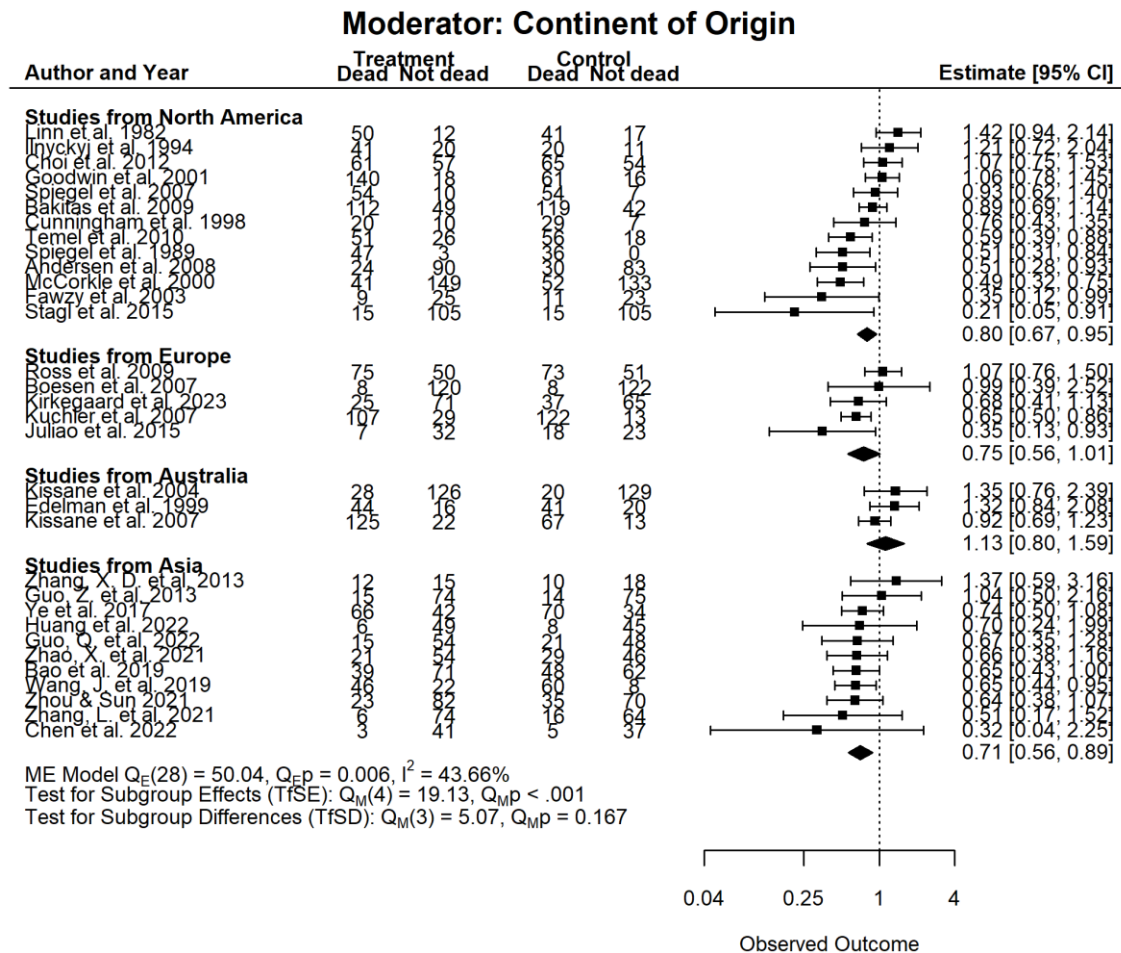
221 **Supplementary Figure C12**222 *Subgroup Forest Plot for the Moderator Analysis Type*

223

224 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a225 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for226 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

227 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

228 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),229 95% CI = 95% Confidence Interval, $k = 32$ studies.

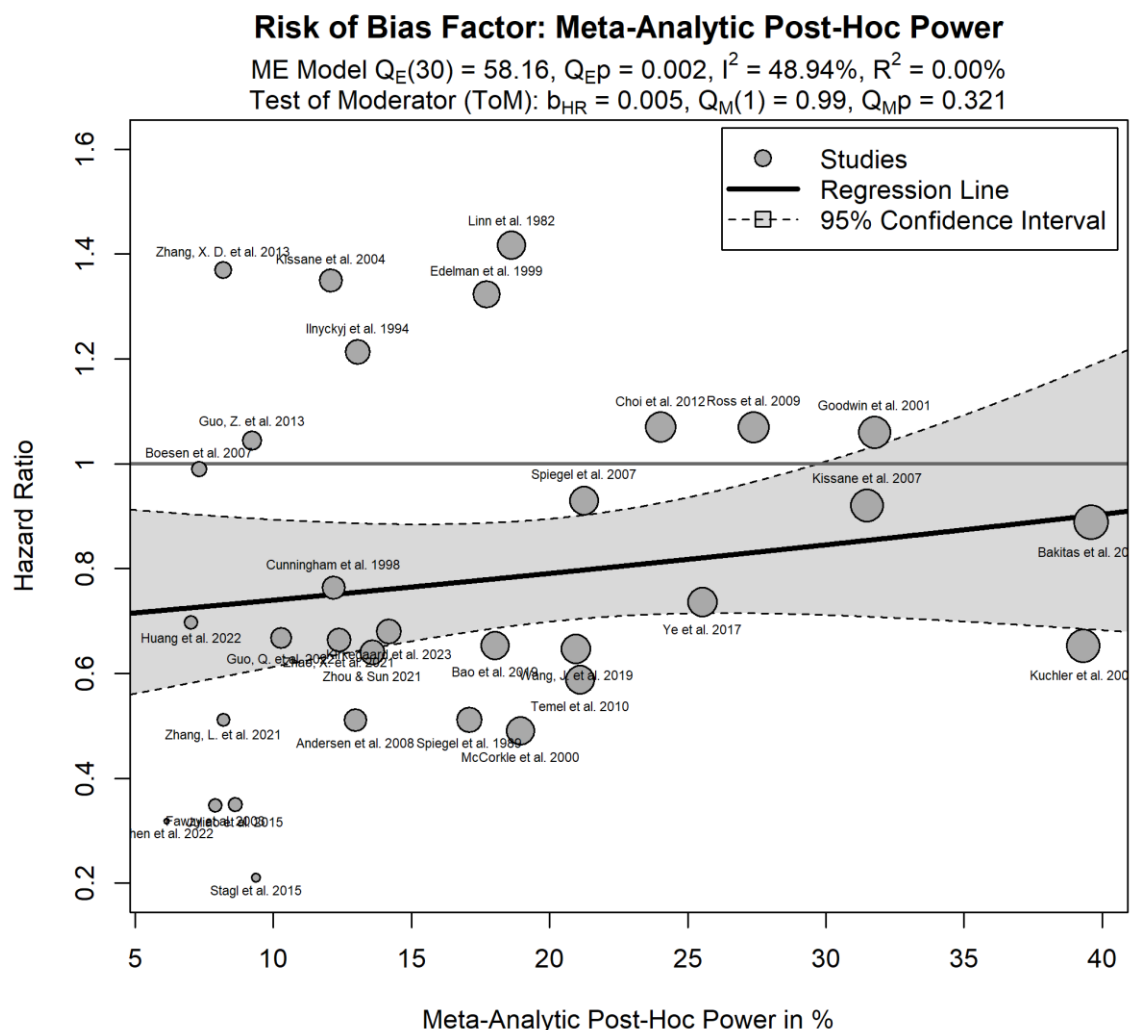
230 **Supplementary Figure C13**231 *Subgroup Forest Plot for the Moderator Continent of Origin*

232

233 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a234 survival benefit of the control group. ME Model = Mixed Effects model, $QE = Q$ test for235 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

236 variance to total variance, TfSE = Test for Subgroup Effects, TfSD = Test for Subgroup

237 Differences, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator),238 $95\% CI = 95\%$ Confidence Interval, $k = 32$ studies.

248 **Supplementary Figure C15**249 *Bubble Plot for the Risk of Bias Factor Meta-Analytic Post-Hoc Power*

250

251 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

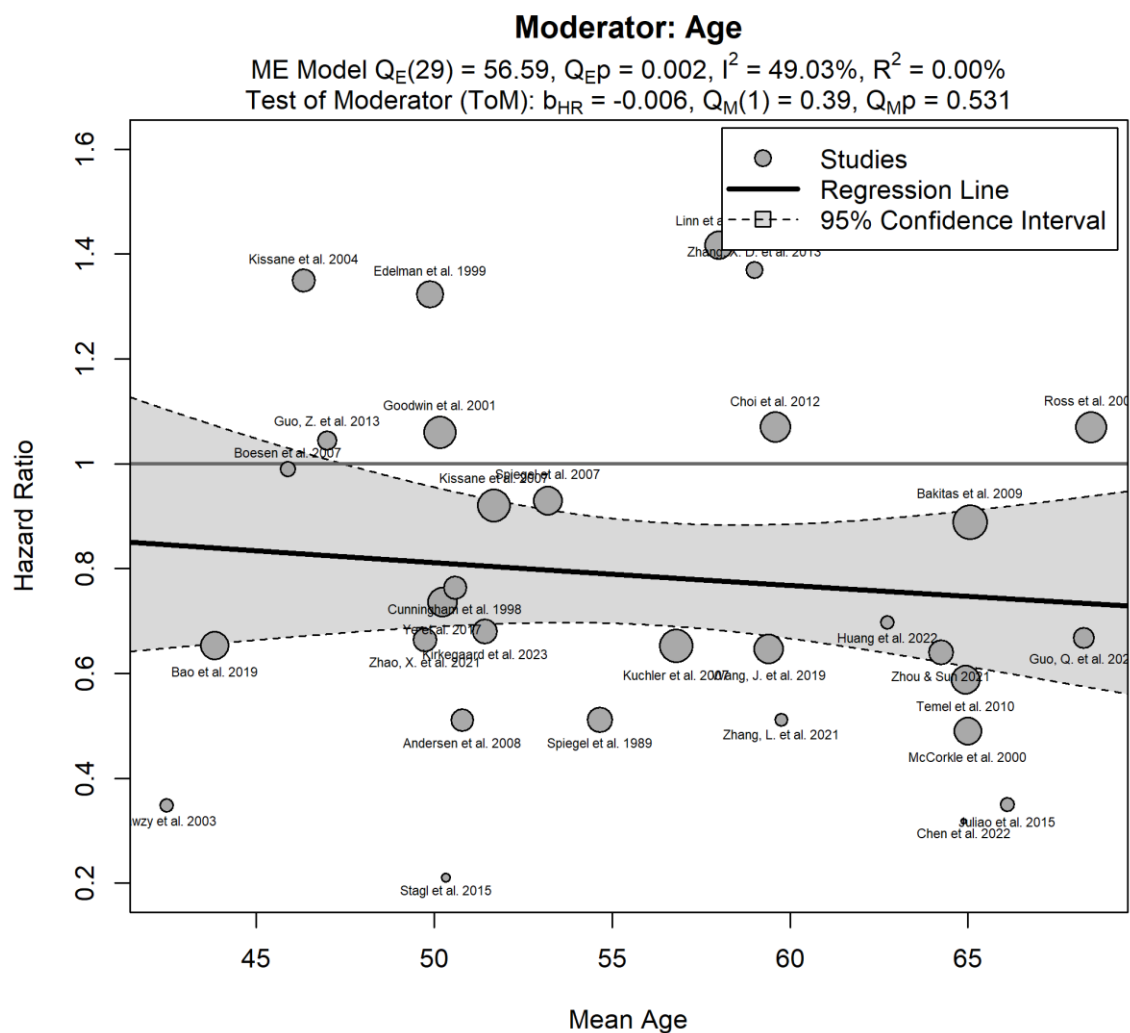
252 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

253 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

254 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

255 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

256 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 32$ studies.

257 **Supplementary Figure C16**258 *Bubble Plot for the Moderator Age*

259

260 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

261 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

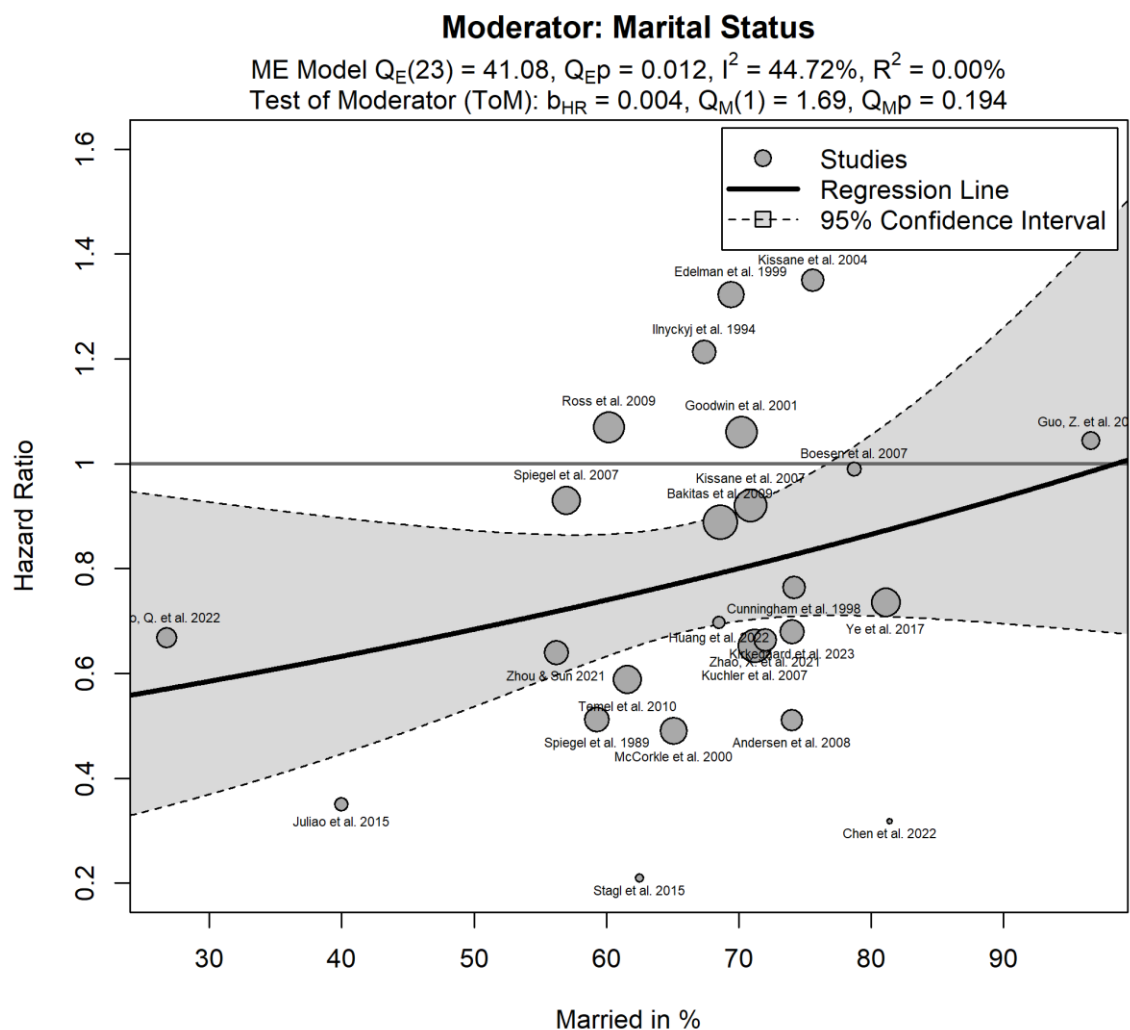
262 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

263 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

264 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

265 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 31$ studies.

Note. $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM = Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 32$ studies.

275 **Supplementary Figure C18**276 *Bubble Plot for the Moderator Marital Status*

277

278 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

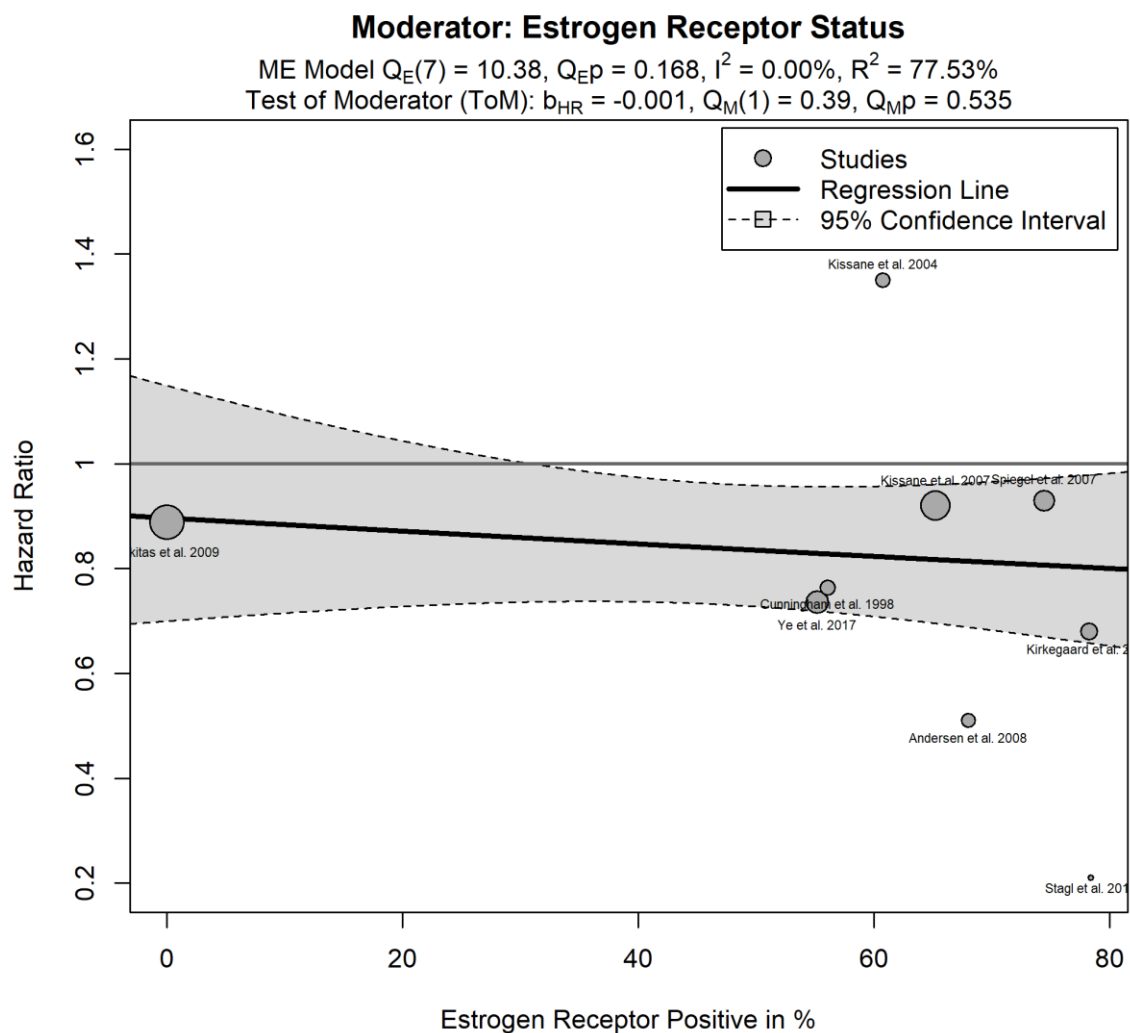
279 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

280 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

281 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

282 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

283 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 25$ studies.

284 **Supplementary Figure C19**285 *Bubble Plot for the Moderator Estrogen Receptor Status*

286

287 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

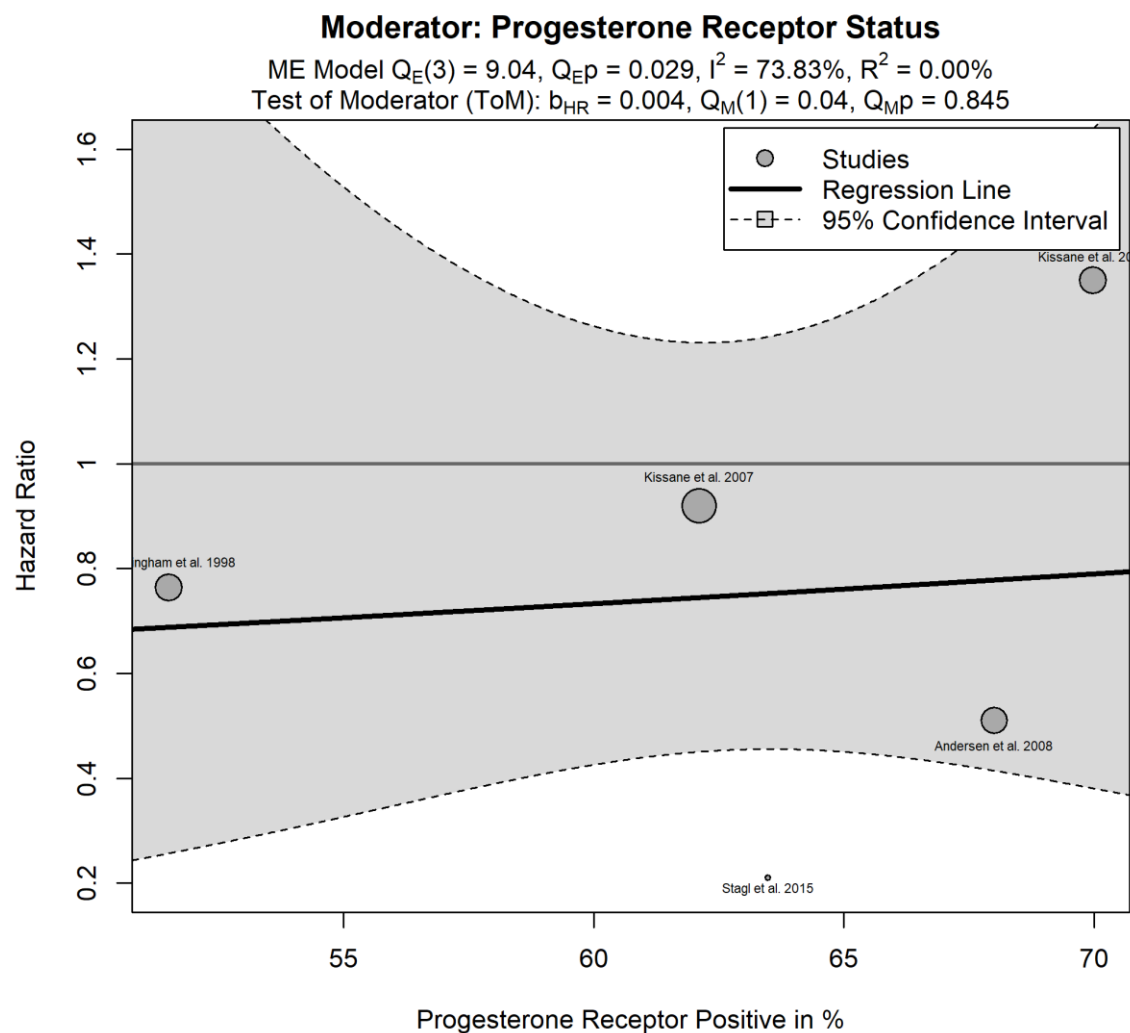
288 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

289 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

290 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

291 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

292 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 9$ studies.

293 **Supplementary Figure C20**294 *Bubble Plot for the Moderator Progesterone Receptor Status*

295

296 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

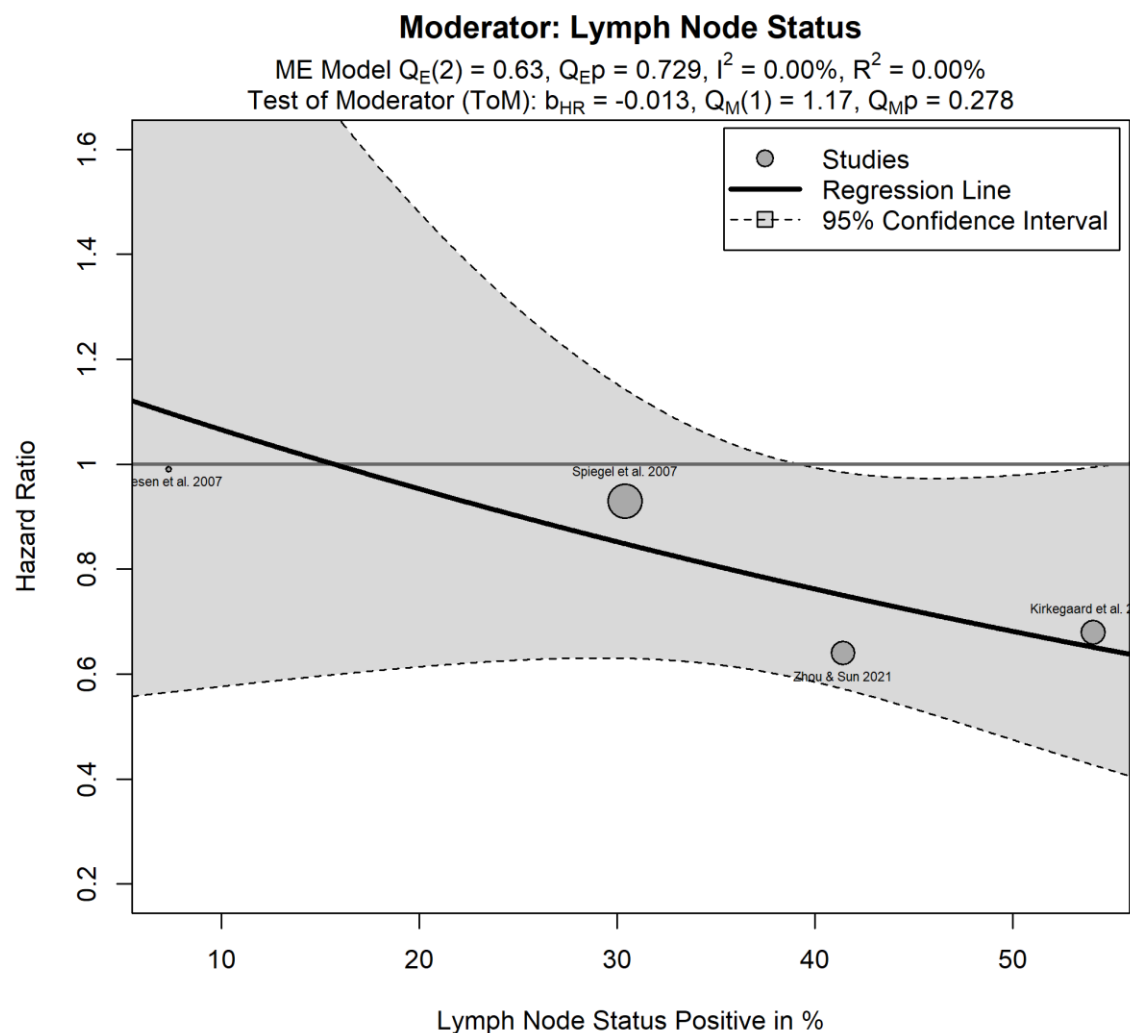
297 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

298 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

299 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

300 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

301 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 5$ studies.

302 **Supplementary Figure C21**303 *Bubble Plot for the Moderator Lymph Node Status*

304

305 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

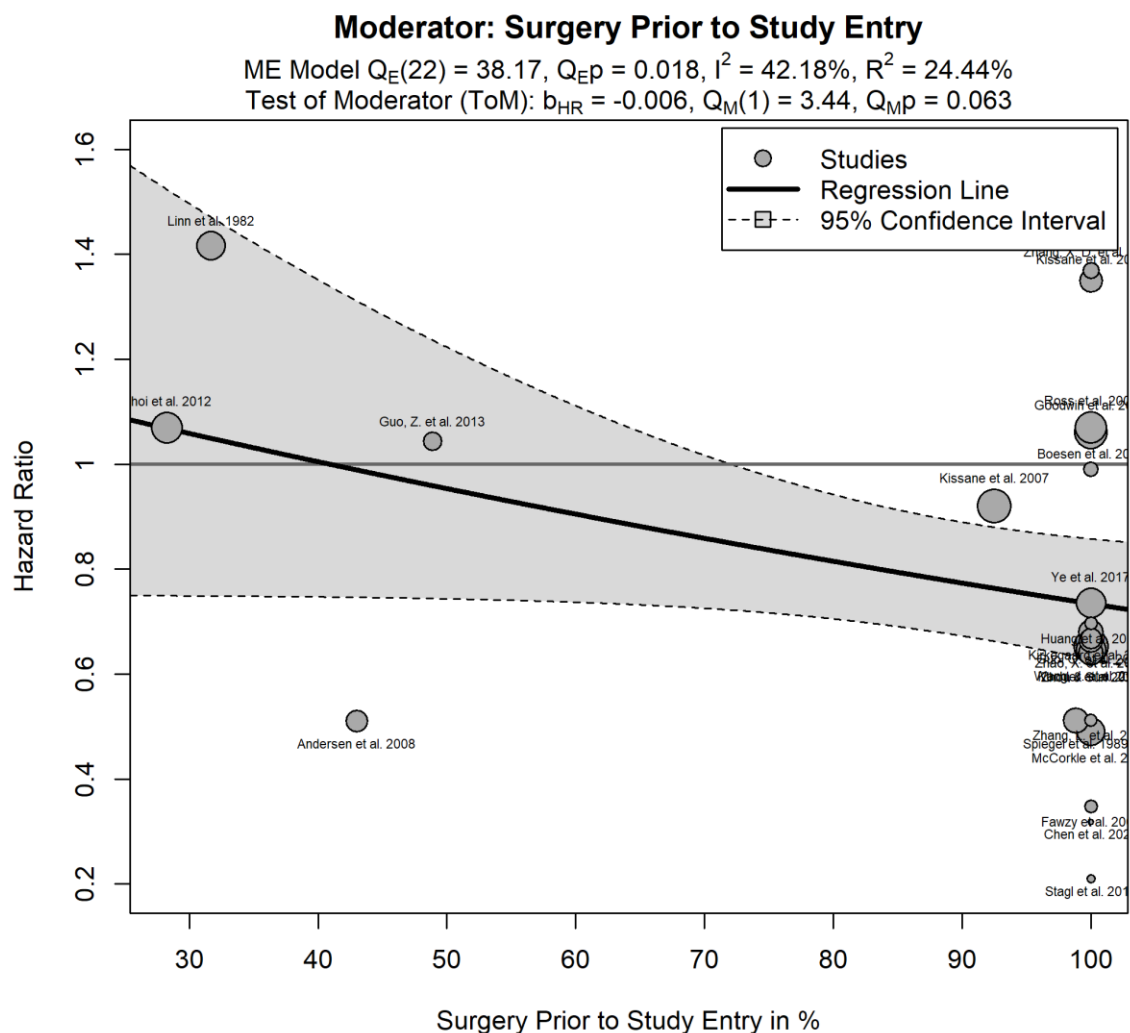
306 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

307 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

308 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

309 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

310 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 4$ studies.

311 **Supplementary Figure C22**312 *Bubble Plot for the Moderator Surgery Prior to Study Entry*

313

314 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

315 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

316 heterogeneity (whole model), $QEP = Q$ test p value (whole model), I^2 = Proportion of true

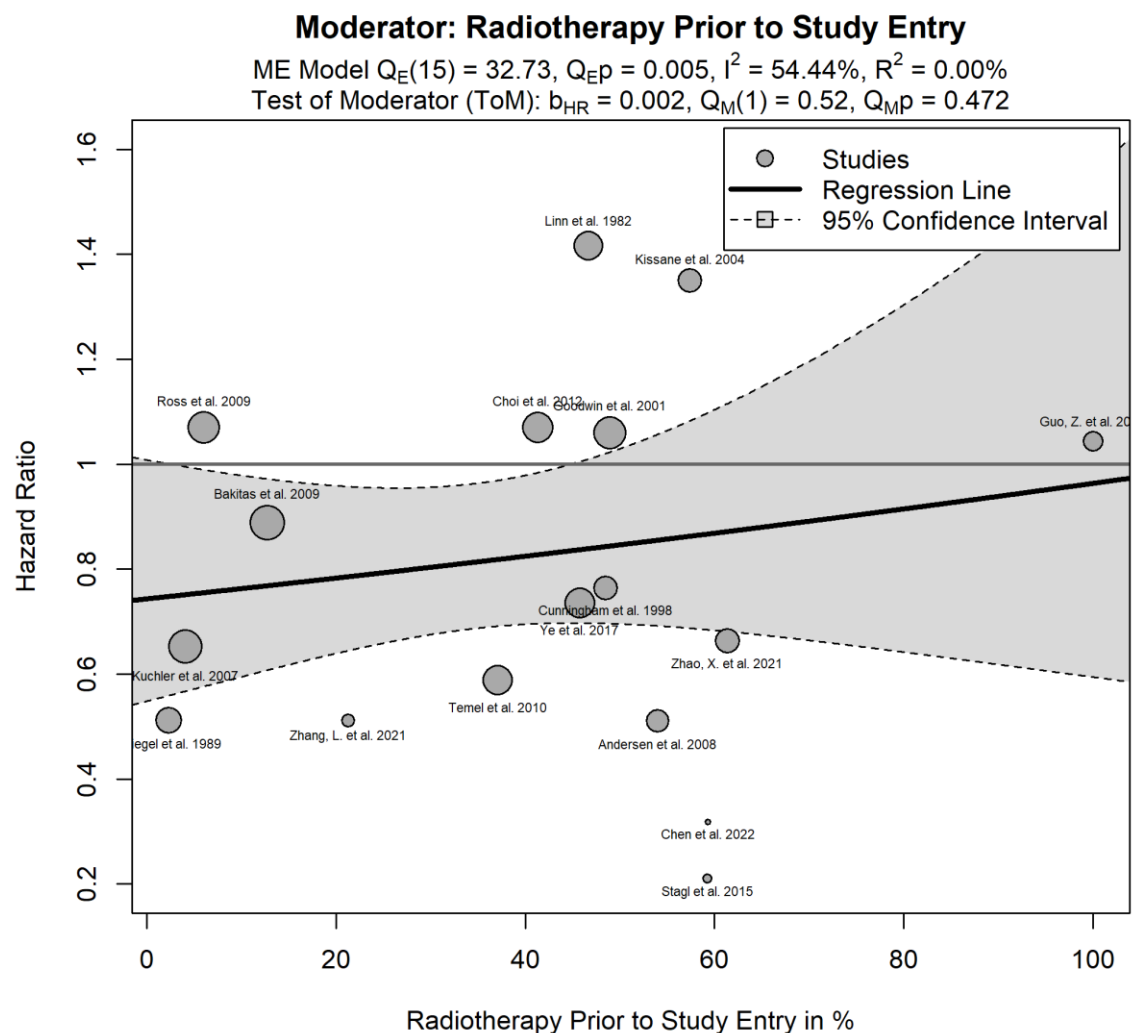
317 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

318 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

319 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 24$ studies.

321 *Bubble Plot for the Moderator Chemotherapy Prior to Study Entry*

323 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a
324 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for
325 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true
326 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =
327 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for
328 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 20$ studies.

329 **Supplementary Figure C24**330 *Bubble Plot for the Moderator Radiotherapy Prior to Study Entry*

331

332 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

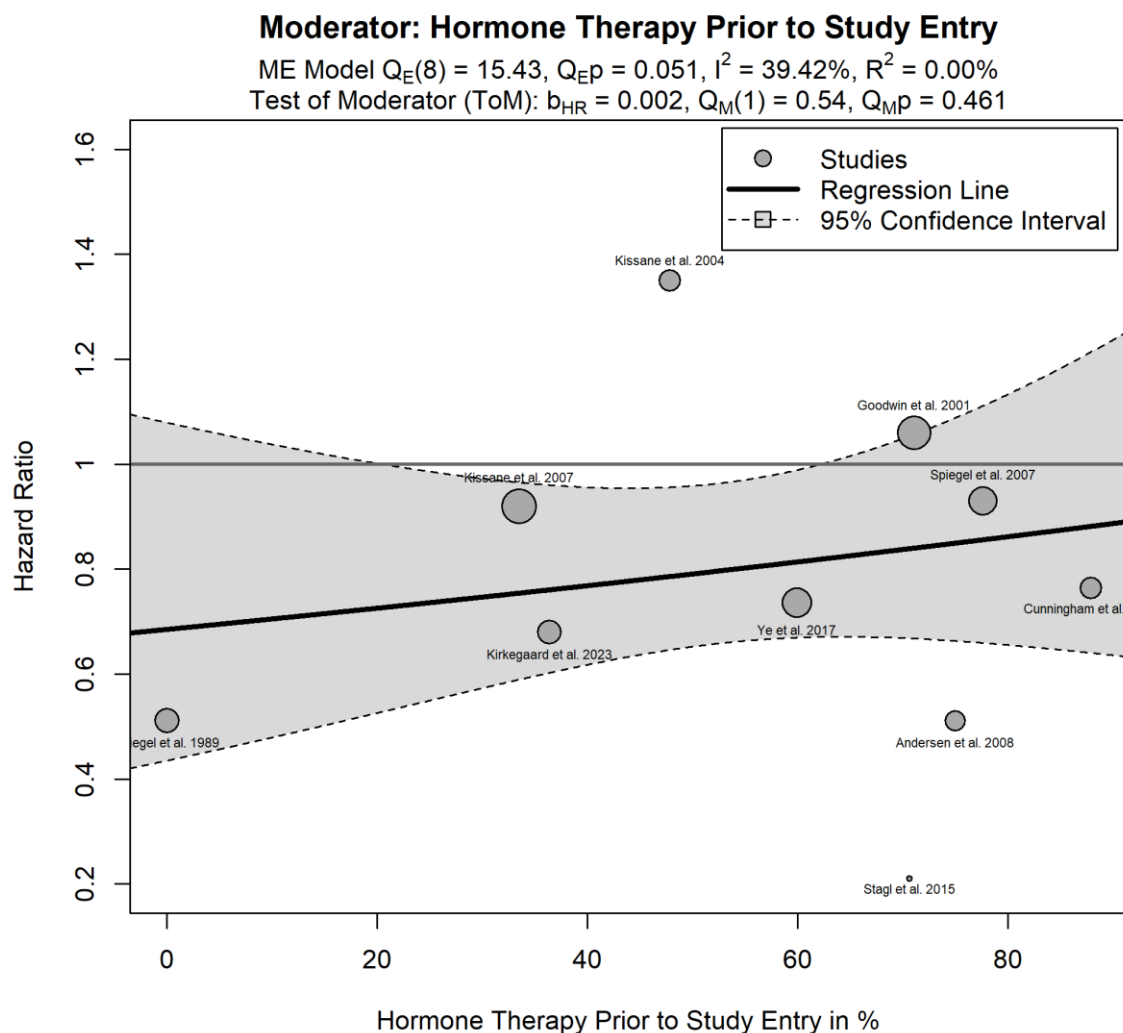
333 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

334 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

335 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

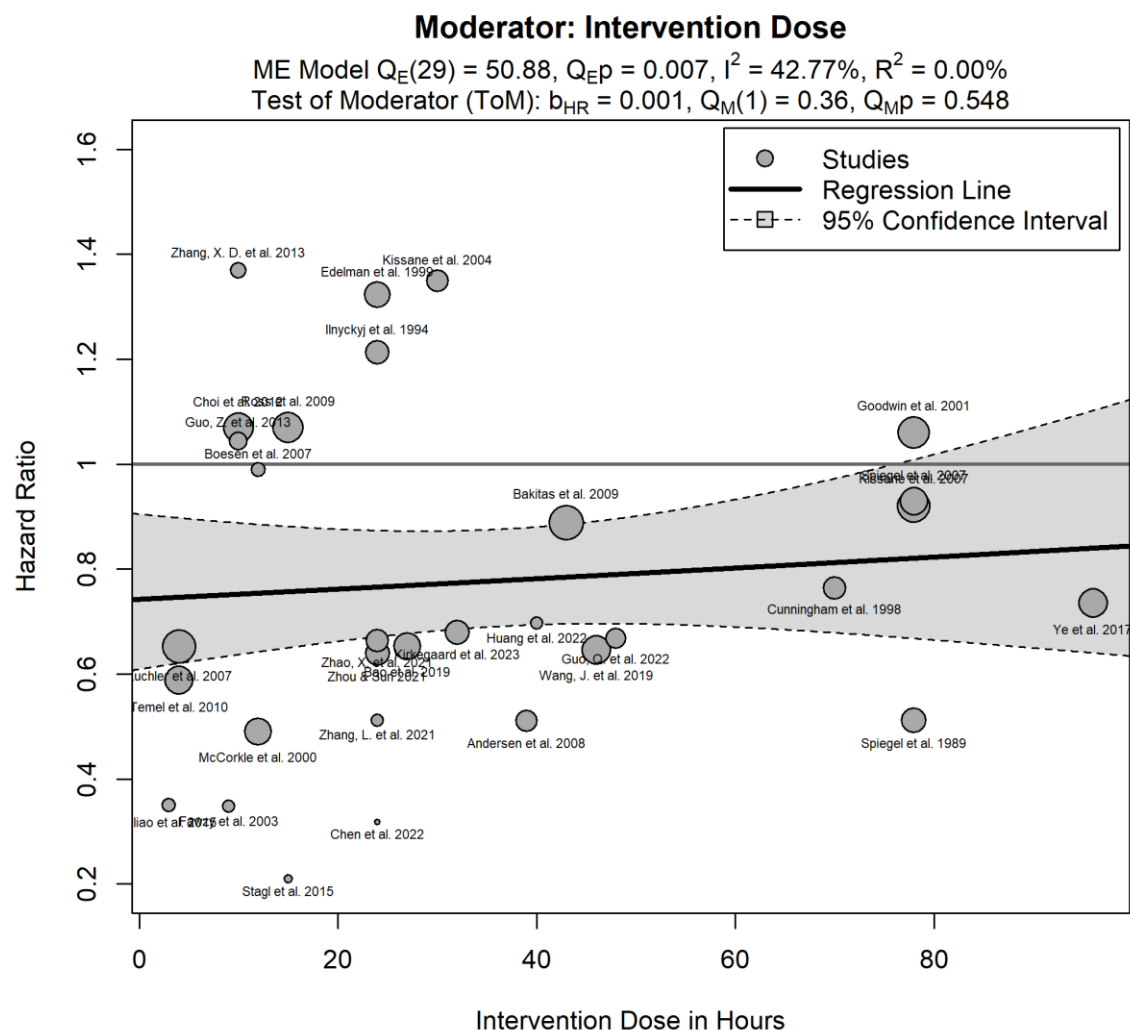
336 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

337 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 17$ studies.

338 **Supplementary Figure C25**339 *Bubble Plot for the Moderator Hormone Therapy Prior to Study Entry*

340

341 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a
 342 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for
 343 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true
 344 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =
 345 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for
 346 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 10$ studies.

347 **Supplementary Figure C26**348 *Bubble Plot for the Moderator Intervention Dose*

349

350 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

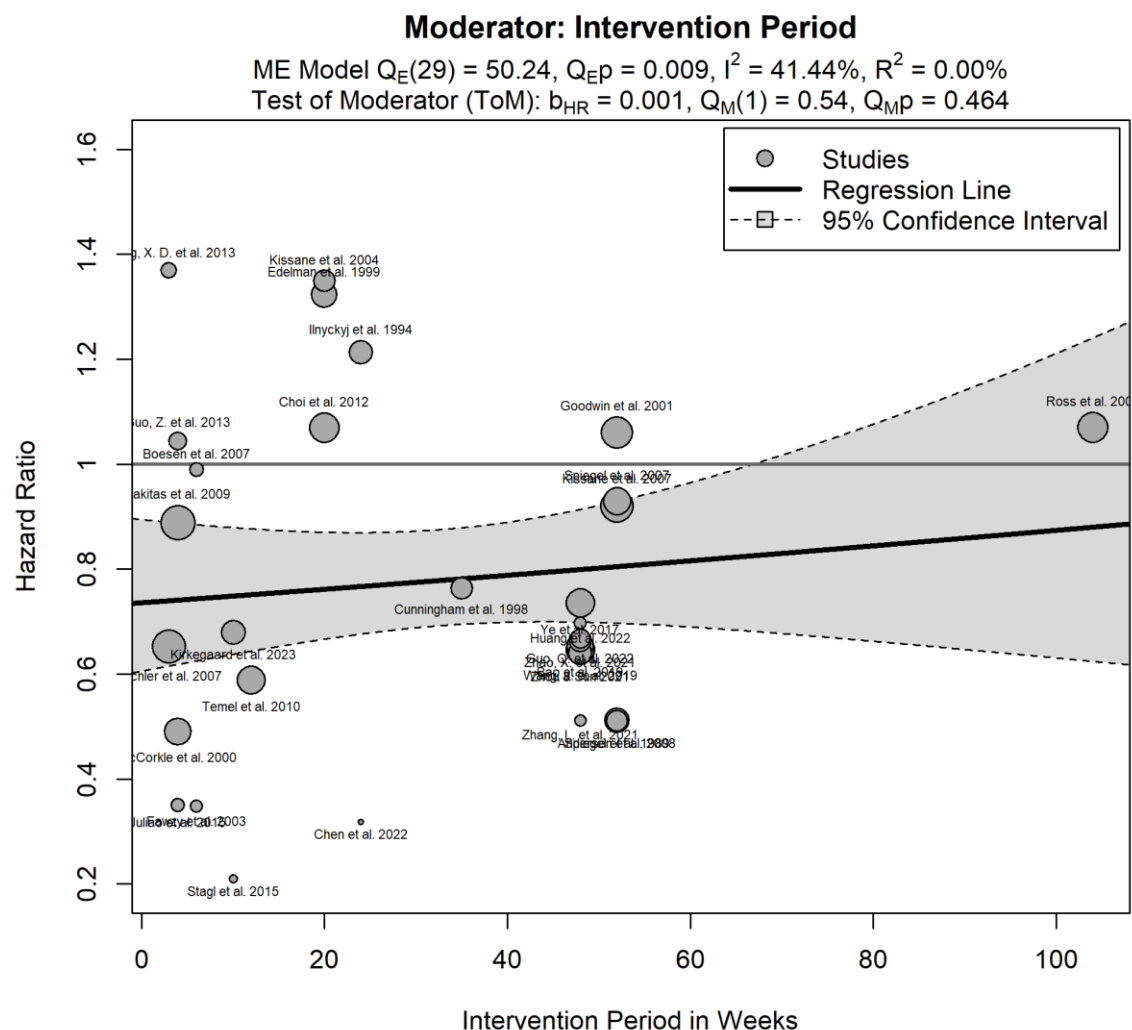
351 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

352 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

353 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

354 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

355 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 31$ studies.

356 **Supplementary Figure C27**357 *Bubble Plot for the Moderator Intervention Period*

358

359 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

360 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

361 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

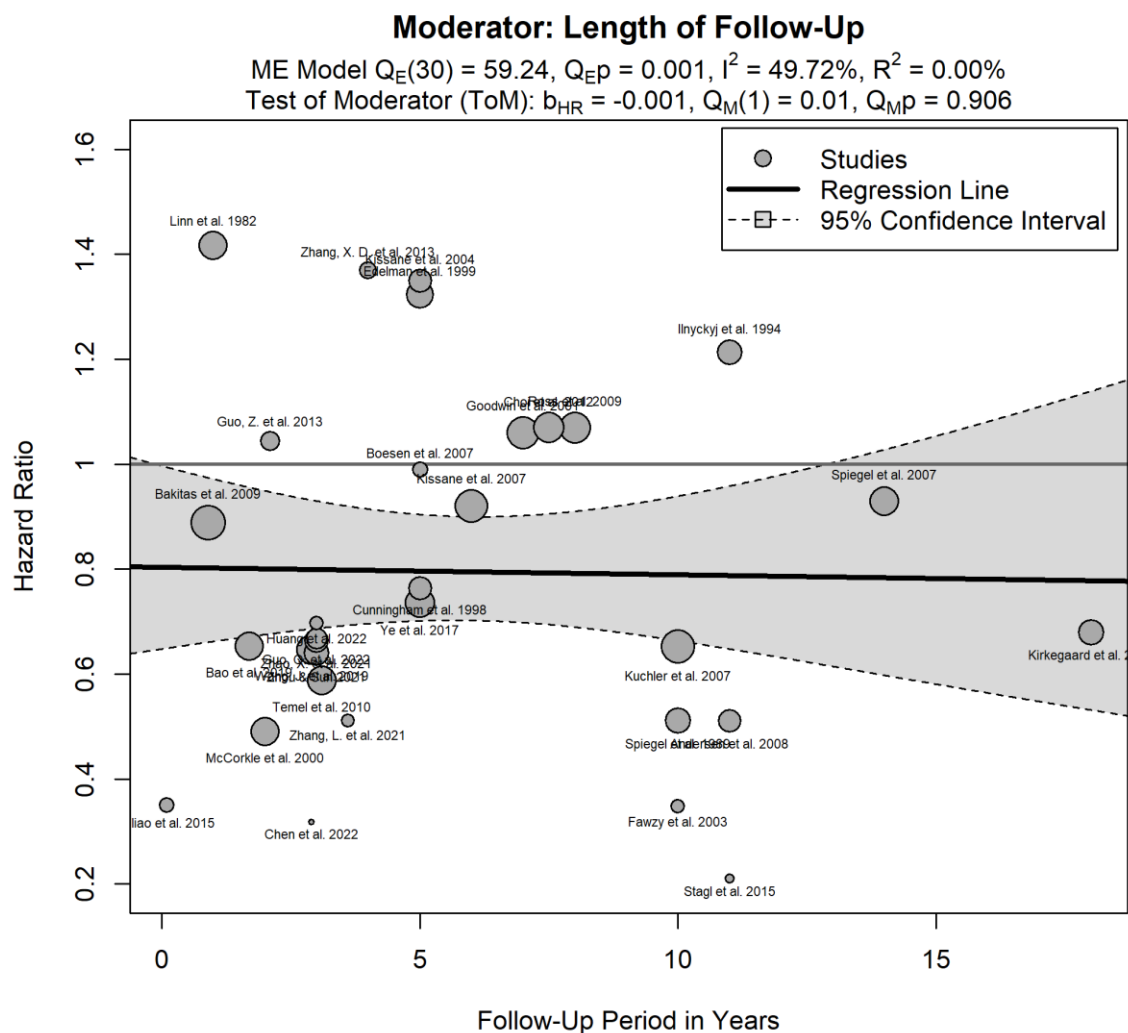
362 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

363 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

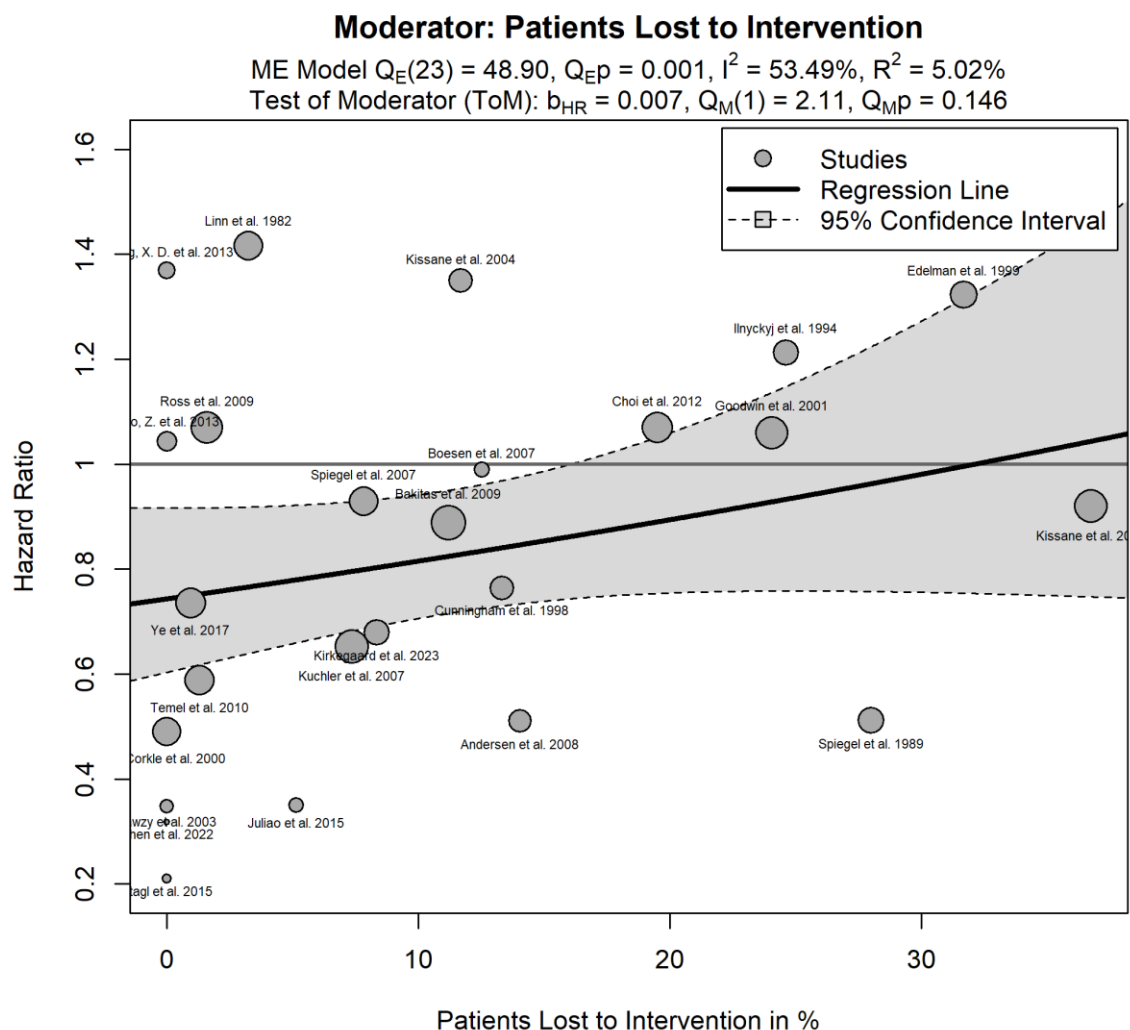
364 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 31$ studies.

Supplementary Figure C28

Bubble Plot for the Moderator Length of Follow-Up



Note. $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for heterogeneity (whole model), $Q_{Ep} = Q$ test p value (whole model), I^2 = Proportion of true variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM = Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $Q_M = Q$ test for heterogeneity (moderator), $Q_{Mp} = Q$ test p value (moderator), $k = 32$ studies.

374 **Supplementary Figure C29**375 *Bubble Plot for the Moderator Patients Lost to Intervention*

376

377 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

378 survival benefit of the control group. ME Model = Mixed effects model, $QE = Q$ test for

379 heterogeneity (whole model), $QEp = Q$ test p value (whole model), I^2 = Proportion of true

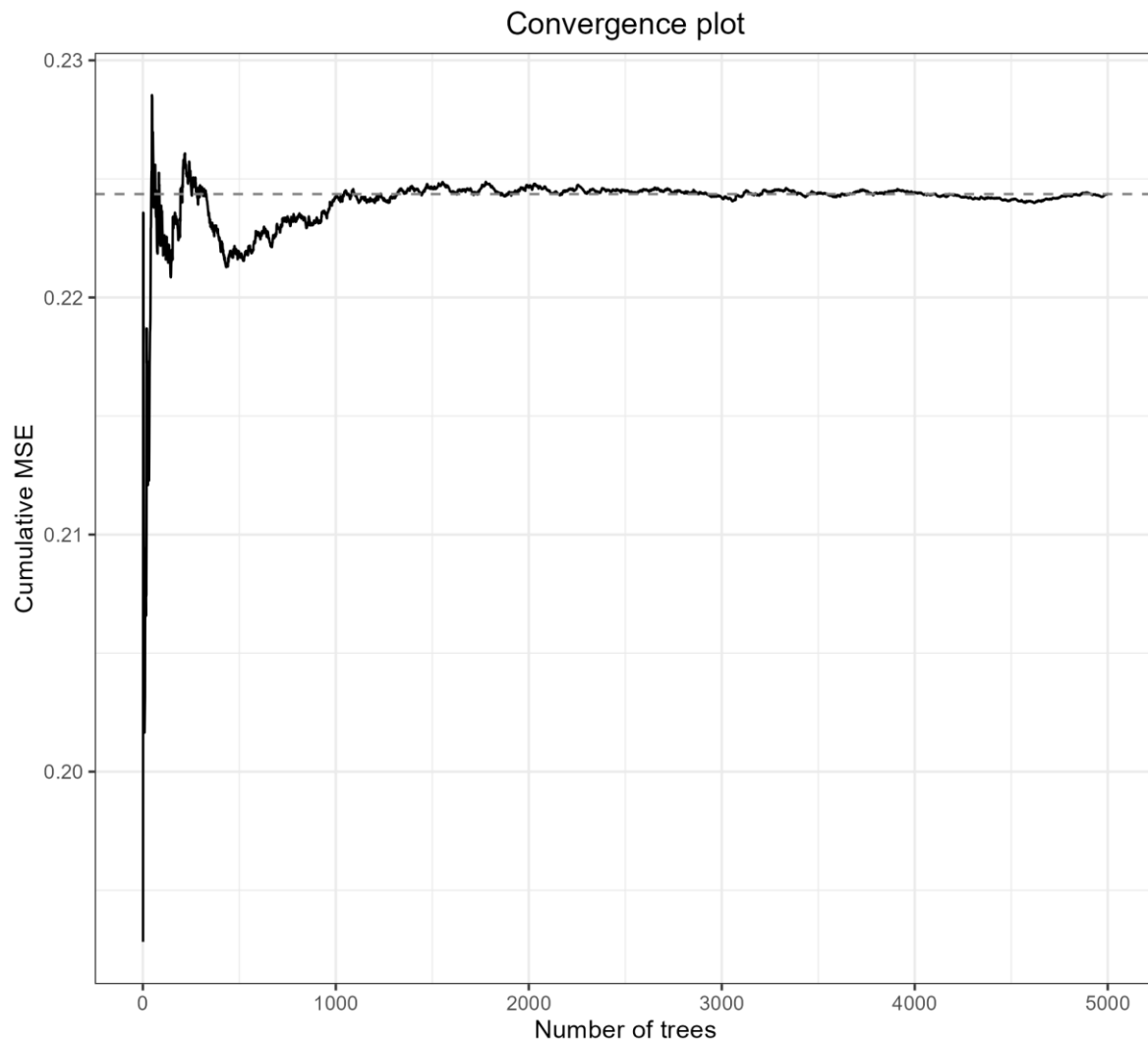
380 variance to total variance, R^2 = Amount of heterogeneity explained by the Moderator, ToM =

381 Test of Moderator, b = beta coefficient, SE = Standard Error, $z = Z$ value, $QM = Q$ test for

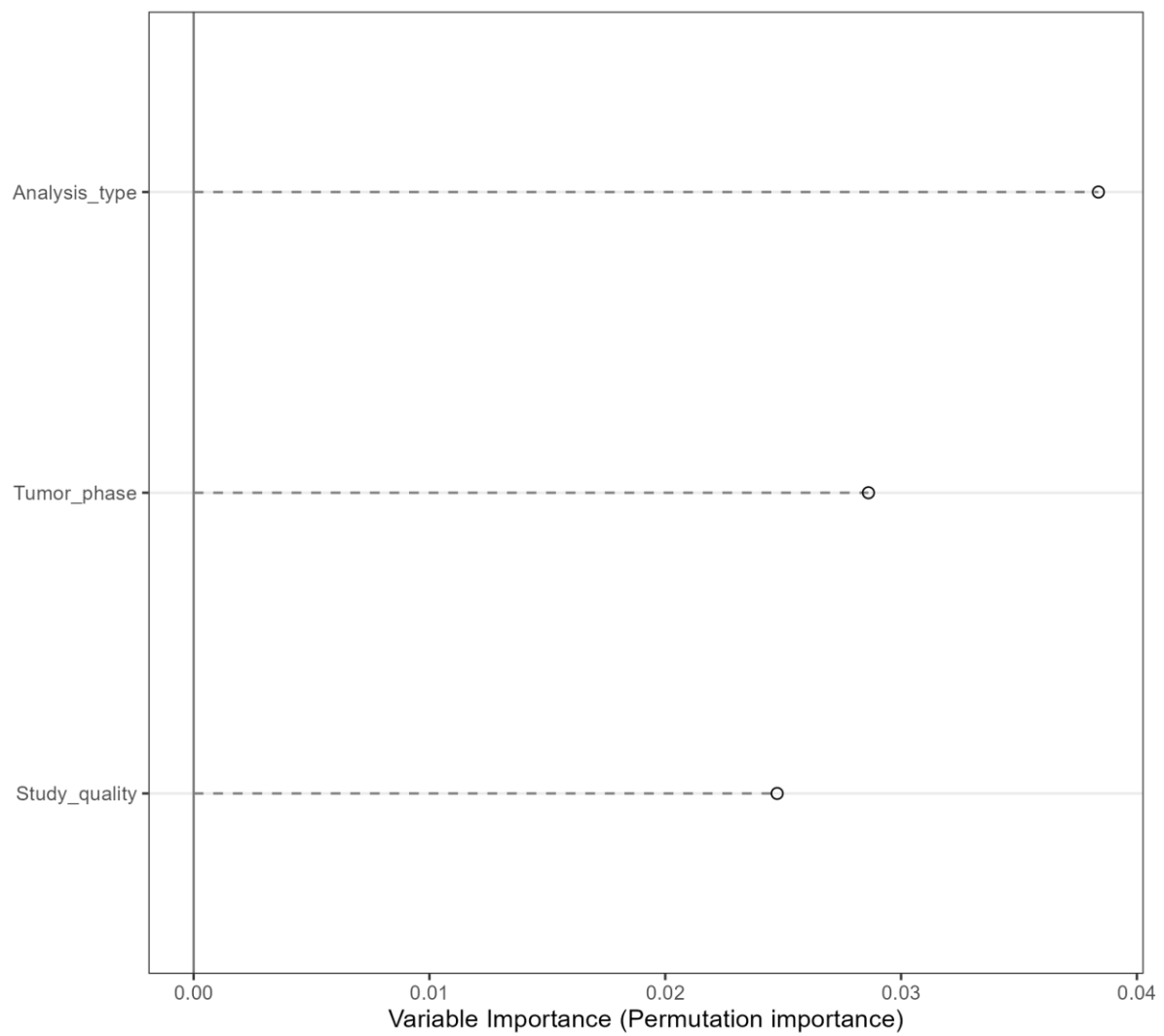
382 heterogeneity (moderator), $QMp = Q$ test p value (moderator), $k = 25$ studies.

Supplementary Section D**Supplementary Figure D1**

Convergence Plot for the Final Model of the Exploratory Moderator Analysis (MetaForest)



Note. Convergence plot that indicates the value of the cumulative Mean Squared prediction Error (MSE_{obb}) and at what number of trees (here: ~5000) the model stabilized.

389 **Supplementary Figure D2**390 *Variable Importance Plot of the Exploratory Moderator Analysis (MetaForest)*

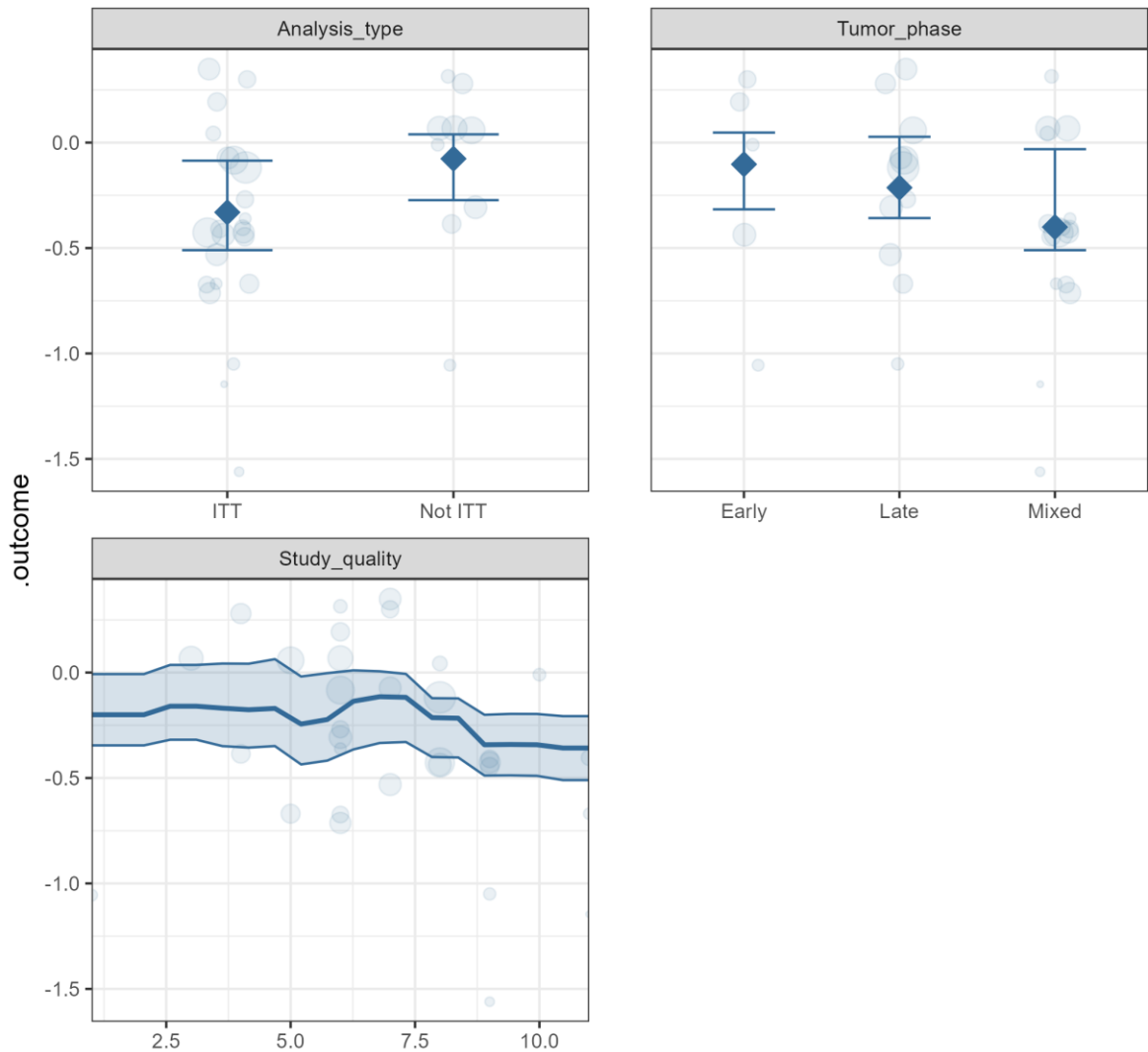
391

392 *Note.* Variable importance plot displaying the three identified moderators (analysis type,

393 tumor phase, and study quality).

Supplementary Figure D3

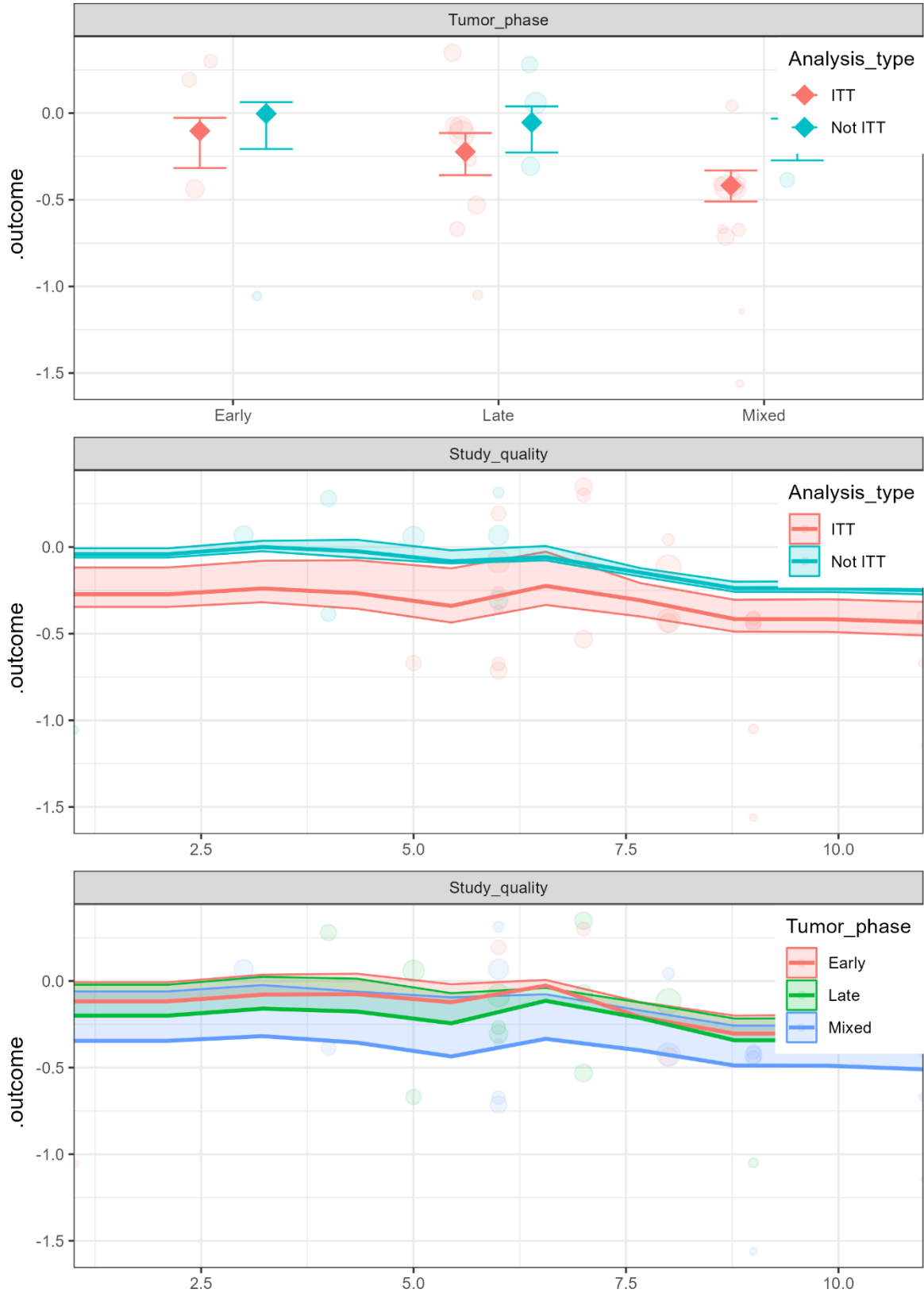
Partial Dependence Plots of the Exploratory Moderator Analysis (MetaForest)



Note. Partial dependence plots displaying the relationship of each identified moderator (analysis type, tumor phase, and study quality) with the outcome (logHR) while the influence of the other moderators were partialled out.

Supplementary Figure D4

Partial Dependence Plots of Bivariate Interactions Between Identified Moderators of the
Exploratory Moderator Analysis (MetaForest)

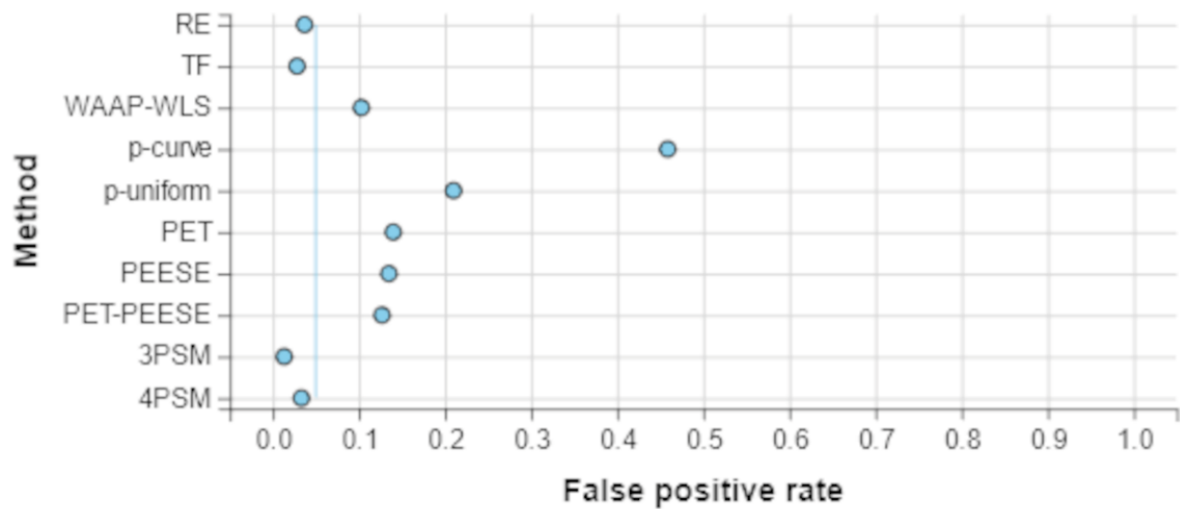


404 *Note.* Partial dependence plots of bivariate interactions between the three identified
405 moderators (analysis type, tumor phase, and study quality).

Supplementary Section E

Supplementary Figure E1

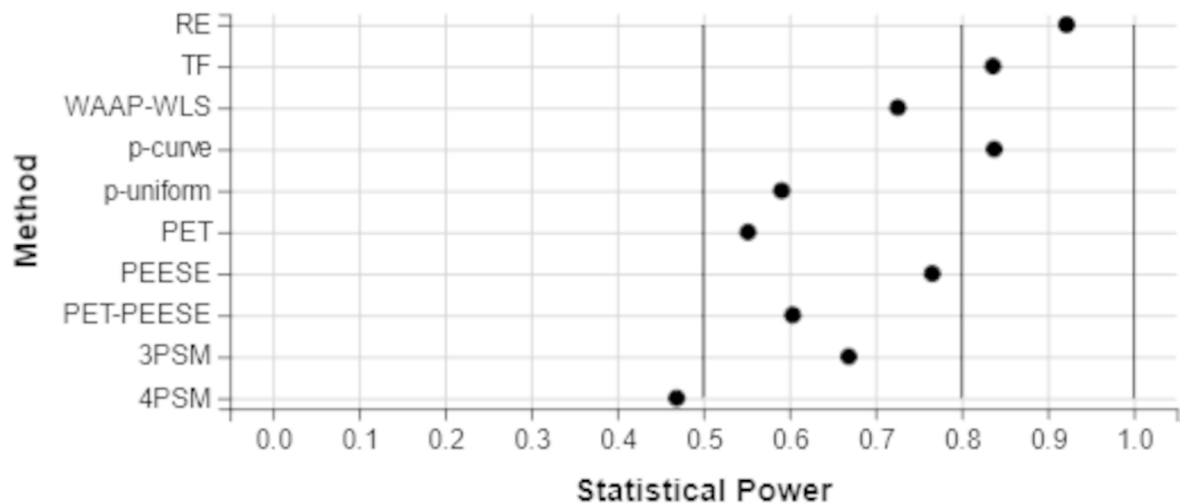
Meta Showdown Explorer Plot Showing the False Positive Rate (Type I Error) for Several Methods in Estimating the Overall Effect Under the Conditions of the Current Dataset



Note. RE = Random Effects model, TF = Trim-and-Fill, WAAP = Weighted Average of Adequately Powered studies, WLS = Weighted Least Squares meta-regression, PET = Precision Effect Test, PEESE = Precision Effect Estimate with Standard Errors, 3PSM = Three Parameter Selection Model, 4PSM = Four Parameter Selection Model.

Supplementary Figure E2

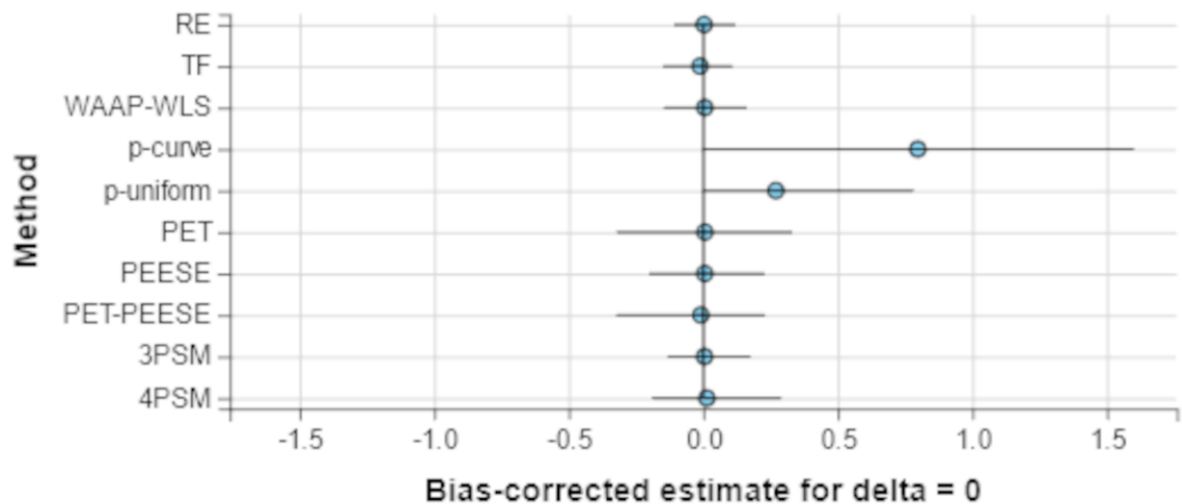
Meta Showdown Explorer Plot Showing the True Positive Rate (Statistical Power) for Several Methods in Estimating the Overall Effect Under the Conditions of the Current Dataset



Note. RE = Random Effects model, TF = Trim-and-Fill, WAAP = Weighted Average of Adequately Powered studies, WLS = Weighted Least Squares meta-regression, PET = Precision Effect Test, PEESE = Precision Effect Estimate with Standard Errors, 3PSM = Three Parameter Selection Model, 4PSM = Four Parameter Selection Model.

Supplementary Figure E3

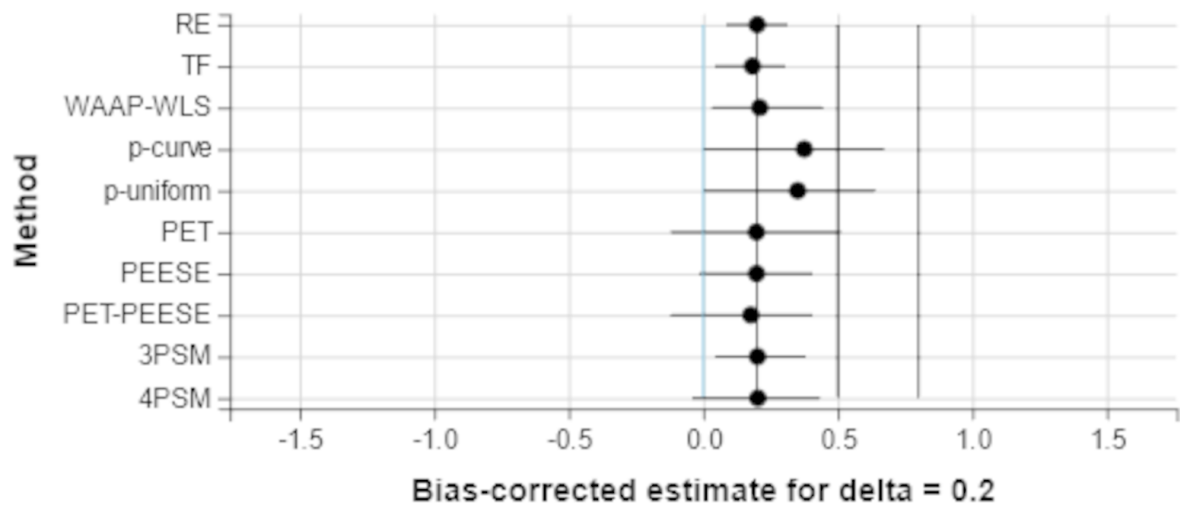
Meta Showdown Explorer Plot Showing the Precision for Several Methods of Correctly Estimating Zero Overall Effect ($\delta = 0$) of Several Methods Under the Conditions of the Current Dataset



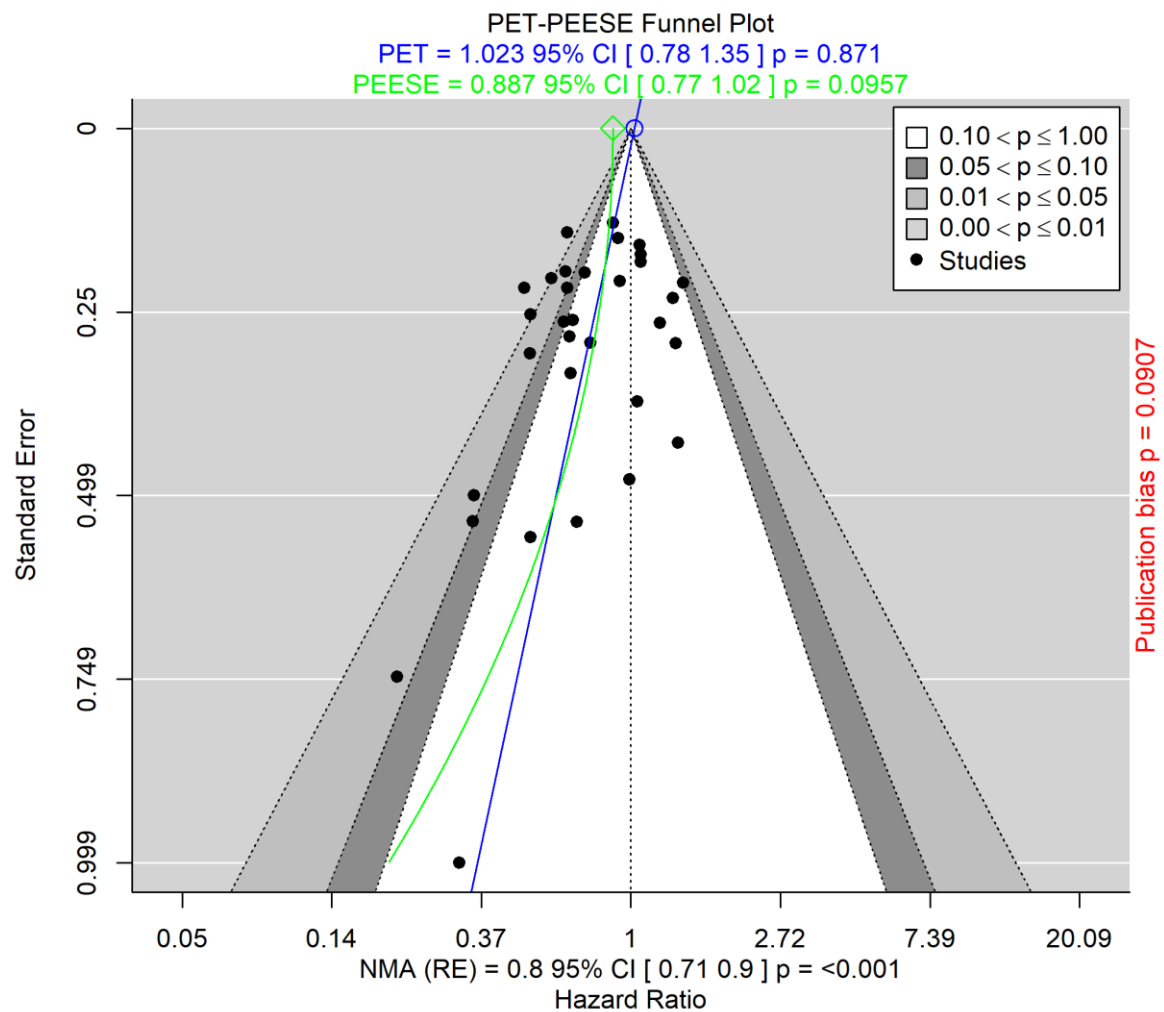
Note. RE = Random Effects model, TF = Trim-and-Fill, WAAP = Weighted Average of Adequately Powered studies, WLS = Weighted Least Squares meta-regression, PET = Precision Effect Test, PEESE = Precision Effect Estimate with Standard Errors, 3PSM = Three Parameter Selection Model, 4PSM = Four Parameter Selection Model.

Supplementary Figure E4

Meta Showdown Explorer Plot Showing the Precision for Several Methods of Correctly Estimating a Small Overall Effect ($\delta = 0.2$) of Several Methods Under the Conditions of the Current Dataset



Note. RE = Random Effects model, TF = Trim-and-Fill, WAAP = Weighted Average of Adequately Powered studies, WLS = Weighted Least Squares meta-regression, PET = Precision Effect Test, PEESE = Precision Effect Estimate with Standard Errors, 3PSM = Three Parameter Selection Model, 4PSM = Four Parameter Selection Model.

441 **Supplementary Figure E5**442 *FAT-PET-PEESE Funnel Plot with Effect Sizes from All 32 RCTs*

443

444 *Note.* $HR < 1$ indicates a survival benefit of the intervention group; $HR > 1$ indicates a

445 survival benefit of the control group. FAT = Funnel Asymmetry Test, PET = Precision Effect

446 Test, PEESE = Precision Effect Estimate with Standard Errors, NMA = Native Meta-

447 Analysis, RE = Random Effects, $k = 32$ studies.

448 **Supplementary Figure E6**449 *Summary of Findings Table for All 32 RCTS*

Summary of findings				
Study event rates (%)		Relative effect (95% CI)	Anticipated absolute effects	
With active or passive controls	With psychosocial interventions		Risk with active or passive controls	Risk difference with psychosocial interventions
2750 participants	5704 participants	HR 0.80 (0.71 to 0.90) [Hazard ratio]	Low	
			220 per 1,000	40 fewer per 1,000 (from 58 fewer to 20 fewer)
			Moderate	
			460 per 1,000	71 fewer per 1,000 (from 106 fewer to 34 fewer)
			High	
			750 per 1,000	80 fewer per 1,000 (from 124 fewer to 37 fewer)

450

451 *Note. HR = Hazard Ratio, 95% CI = 95% Confidence Interval.*

452

Supplementary Figure E7

GRADE Evidence Profile for All 32 RCTS

Certainty assessment						
Participants (studies) Follow-up	Risk of bias	Inconsistency	Indirectness	Imprecision	Publication bias	Overall certainty of evidence
Hazard ratio (follow-up: range 1 years to 18; assessed with: Time until death)						
5704 (32 RCTs)	not serious	serious ^a	not serious	not serious	none	⊕⊕⊕○ Moderate ^a

Note. *HR* = Hazard Ratio, *95% CI* = 95% Confidence Interval. ^aThe between-study heterogeneity ($I^2 = 48\%$, $\tau^2 = 0.05$, $\tau = 0.23$) and the broad prediction interval ($HR = 0.49$ to 1.29) indicate variation in effect sizes across contexts. Intensive analysis suggested that this was due to the underpowered studies to detect a small effect (at 17%) and limited number of trials in this field of research that made it necessary to pool studies over various kinds of psychosocial interventions, types of cancers and tumor stages together.

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