Supplementary Online Content

Lee ARYB, Low CE, Yau CE, Li J, Ho R, Ho CSH. Lifetime burden of psychological symptoms, disorders, and suicide due to cancer in childhood, adolescent, and young adult years: a systematic review and meta-analysis. *JAMA Pediatr*. Published online June 22, 2023. doi:10.1001/jamapediatrics.2023.2168

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eTable 1: Search strategy

EMBASE

#1	(Pediatric* OR paediatric* OR juvenile* OR “young adult*” OR ‘childhood’):ti,ab
#2	"neoplasm"/exp or (‘neoplasm' OR 'cancer*' OR 'tumo*' OR 'malign*' OR ‘leukemia*’ OR ‘lymphoma*’):ti,ab
#3	(‘'depression' OR ‘depressive’ OR 'anxiety' OR 'anxiety disorder' OR 'suicidal behavior' OR ‘suicide’ OR ‘schizophrenia’ OR ‘schizo*’ OR ‘psychosis’ OR ‘psychotic’ OR ‘psychoses’)/exp

#1 and #2 and #3 and NOT [medline]/lim

PubMed

#1	("Pediatric*"[Title/Abstract] OR "paediatric*"[Title/Abstract] OR "Young Adult"[Title/Abstract] OR "Child*"[Title/Abstract] OR juvenile*[Title/Abstract] OR infant*[Title/Abstract] OR adolesc*[Title/Abstract])
#2	(neoplas*[Title/Abstract] OR cancer*[Title/Abstract] OR tumo*[Title/Abstract] OR malign*[Title/Abstract] OR leukemia*[Title/Abstract] OR lymphoma*[Title/Abstract]))
#3	("Anxiety"[Mesh] OR "Anxiety Disorders"[Mesh] OR "Post-Traumatic*"[Title/Abstract] OR "PTSD"[Title/Abstract] OR "posttraumatic*"[Title/Abstract] OR "Post Traumatic*"[Title/Abstract] OR "Depress*"[Title/Abstract] OR "Depressive*"[Title/Abstract] OR "Anxi*"[Title/Abstract] OR "Suicid*"[Title/Abstract] OR "Schizophrenia"[Mesh] OR 'Disorder*, Schizophrenic'[Title/Abstract] OR Schizo*[Title/Abstract] OR “Psychotic”[Title/Abstract] OR “Psychosis”[Title/Abstract])

#1 and #2 and #3

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eTable 2: Characteristics of included studies of childhood, adolescent and young adult cancer patients

Study	Publication year	Country of study	Cancer type	Proportion receiving chemotherapy (0 to 1)	Proportion receiving surgery (0 to 1)	Proportion receiving radiotherapy (0 to 1)	Control characteristics	Age at cancer diagnosis*	Age at follow-up / last outcome assessment*
Korhonen et al	2019	Denmark, Sweden, Finland	Various	NR	NR	NR	Matched control	NR	Reported in strata
Kunin-Batson et al	2016	USA	ALL	1	NR	NR	Normative population data	Range: 1-9.9	Range: 2-10.9
Gupta et al	2014	India	ALL	1	0	0	Matched control	NR	Range: 6-14
Myers et al	2014	USA	ALL	1	0	0	Normative population data	4.9 (2.2)	5.9 (2.2)
Monteiro et al (Cancer)	2013	Portugal	Various	0.527	0.611	0.194	Matched control	NR	28
Arabiat et al	2012	Jordan	Various	1	NR	NR	Matched control	NR	11 (2.6)
Yaffe Ornstein et al	2022	Israel	Various	NR	NR	NR	Caregivers	10.04 (5.99)	11.56 (6.05)
Sargin Yildirim et al	2017	Turkey	Various	1	0.36	0.58	Parents	12.14 (2.97)	12.39 (2.97)
Jorngarden et al	2007	Sweden	Various	1	NR	NR	Normative population data	15.7	NR
Larsson et al	2010	Sweden	Various	NR	NR	NR	Matched control	Range: 13-19	4 years after diagnosis
Yang et al	2021	USA	Various	NR	NR	NR	Normative population data	NR	NR

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Hoven et al	2020	Sweden	Various	NR	NR	NR	Matched control	NR	Median: 16.5
Lund et al	2013	Denmark	Various	NR	NR	NR	Matched control	Reported in strata	5 years after treatment ended
Kremer et al	2016	Germany	Various	NR	NR	NR	Matched control	8.1 (5.1)	23.8 (3.8)
Ford et al	2015	USA	RB	0.253	0.855	0.564	Siblings	1	43.3
Cantrell et al	2014	USA	Various	NR	NR	NR	Matched control	NR	Range: 24 to 34
Monteiro et al (Survivors)	2013	Portugal	Various	0.527	0.611	0.194	Matched control	NR	28.76
van der Geest et al	2013	Netherlands	Various	NR	0.02	0.236196319	Normative population data	NR	23 (Range: 15-46)
Cizek Sajko et al	2012	Slovenia	Various	0.72	0.53	0.56	Matched control	8.2 (4.9)	22.3 (11.9)
Harila et al	2011	Finland	ALL	1	0	0.62	Matched control	5 (Range: 0-15)	24 (Range: 17-37)
Tillery et al	2019	USA	Various	1	NR	NR	Matched control	2.15 (1.43)	4.48 (1.11)
Ahomaki et al	2015	Finland	Various	NR	NR	NR	Siblings	NR	NR
Zebrack et al (Haematological)	2002	USA	Haematological	1	0	0.401	Siblings	10.1 (5.5)	26.9 (6.2)
Prasad et al	2015	USA	Various	1	0.079	0.4	Siblings	Range: 11-21	>25
Seitz et al	2010	Germany	Various	0.905	0.718	0.578	Matched control	15.78 (0.89)	30.4 (6)

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Akechi et al	2022	Japan	Various	1	NR	NR	Matched control	NR	32.5 (6.3)
Liu et al	2018	USA	ALL	1	NR	NR	Non-participants	4.6 (2.4)	12.1 (2.6)
Nathan et al	2018	USA	Various	0.734	0.546	0.215	Matched control	Reported in strata	7.5 (Range: 1-21.9)
Zheng et al	2018	USA	Neuroblastoma	0.396	0.979	0.258	Siblings	Reported in strata	Reported in strata
Foster et al	2017	USA	Wilm's tumour	1	1	1	Siblings	2.8 (1.8)	15.3 (1.7)
de Laage et al	2016	France	Various	0.899	0.816	0.675	Normative population data	7 (5.1)	38.5 (8.5)
Kanellopoulos et al	2013	Norway	ALL	NR	NR	NR	Matched control	9.5 (5.3)	31 (8.2)
Li et al	2013	Hong Kong	Various	0.482	0.036	0	Matched control	NR	Reported in strata
Krull et al	2011	USA	Various	1	NR	NR	Siblings	NR	32 (7.6)
Schrag et al	2008	USA	Various	NR	NR	NR	Matched control	Range: 0-15	NR
Pedreira et al	2006	Australia	Craniopharyngioma	NR	1	0.46	Matched control	8.08 (3.65)	21.1 (6.7)
Zebrack et al (Brain cancer)	2004	USA	Various	0.211	NR	1	Siblings	26.5 (5.5)	NR
Hudon et al	2003	USA	Various	0.777	0.835	0.716	Siblings	10 (5.6)	26.8 (6.2)
De et al	2021	Canada	Various	0.776	0.41	0.7	Matched control	18 (16-20)	NR

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Zebrack et al (Solid cancer)	2007	USA	Solid cancers	1	NR	NR	Siblings	NR	27.1 (6.0)
Schwartz et al	2006	USA	Various	1	NR	NR	Matched control	11.35 (3.91)	21.7 (2.65)
Ross et al	2003	Denmark	Various	NR	NR	1	Normative population data	NR	Reported in strata
Barnes et al	2022	USA	Various	NR	NR	NR	Normative population data	Reported in strata	NR
Ljungman et al	2022	Sweden	Brain cancers	0.633	NR	1	Matched control	8.5 (4.3)	28.1 (6.8)
Shin et al	2022	USA	Various	0.776	0.709	0.581	Matched control	3.8	31.9 (8.3)
Aili et al	2021	Sweden	Leukaemias	NR	NR	0.044	Siblings	6 (Range: 0-15)	28 (Range: 23-41)
van Erp et al	2021	Netherlands	Various	0.954	0.616	0.371	Normative population data	10.5 (4.5)	24.1 (3.6)
Barone et al	2020	Italy	Various	NR	NR	NR	Matched control	4.26 (2.81)	12.9(3.1)
Yen et al	2020	USA	Haematological	NR	NR	NR	Matched control	NR	28.4 (5.9)
Brinkman et al	2019	USA	Various	NR	NR	NR	Siblings	10	34.8 (6.1)
D'Souza et al	2019	USA	Various	NR	NR	NR	Matched control	NR	18.6 (0.7)
Huang et al	2017	USA	Various	0.8	NR	0.658	Siblings	NR	31.8 (7.5)
Kazak et al	2010	USA	Various	NR	NR	NR	Matched control	NR	20.5 (3.2)

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Michel et al	2010	Switzerland	Various	NR	NR	NR	Normative population data	<16	>20
Yardeni et al	2021	Israel	Various	NR	NR	NR	Parents	13.56 (3.63)	14.56 (3.63)

Abbreviations: ALL, Acute lymphoblastic leukaemia; NR, Not reported; RB, Retinoblastoma

*Mean (standard deviation) reported where available, unless otherwise stated.

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eTable 3: Instruments, scales and diagnostic criteria used for depression and depressive symptoms by each included study

Study	Publication year	Country of study	Number (%)	Scale used to assess depression
Kunin-Batson et al	2016	USA		Behavior Assessment System for Children, Second Edition
Myers et al	2014	USA	2/44 (4.5%)	Behavior Assessment System for Children, Second Edition
Ljungman et al	2022	Sweden		Beck's Depression Inventory - 21
Harila et al	2011	Finland	2/44 (4.5%)	Beck's Depression Inventory - 21
Zheng et al	2018	USA		Basic Personality Inventory - 32
Foster et al	2017	USA	2/44 (4.5%)	Basic Personality Inventory - 32
Brinkman et al	2019	USA		Brief Symptom Inventory
de Laage et al	2016	France		Brief Symptom Inventory
Prasad et al	2015	USA		Brief Symptom Inventory
Krull et al	2011	USA		Brief Symptom Inventory
Zebrack et al (Brain cancer)	2004	USA		Brief Symptom Inventory
Zebrack et al (Solid cancer)	2007	USA		Brief Symptom Inventory
Ford et al	2015	USA		Brief Symptom Inventory
Shin et al	2022	USA		Brief Symptom Inventory
Zebrack et al (Haematological)	2002	USA		Brief Symptom Inventory
Kazak et al	2010	USA	10/44 (23%)	Brief Symptom Inventory

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Arabiat et al	2012	Jordan		Children's Depression Inventory
Sargin Yildirim et al	2017	Turkey		Children's Depression Inventory
Barone et al	2020	Italy	3/44 (6.8%)	Children's Depression Inventory
Li et al	2013	Hong Kong		Center for Epidemiological Studies - Depression Scale
Schwartz et al	2006	USA	2/44 (4.5%)	Center for Epidemiological Studies - Depression Scale
Gupta et al	2014	India	1/44 (2.3%)	Childhood Psychopathology Measurement Schedule
Aili et al	2021	Sweden	1/44 (2.3%)	Depression Anxiety and Stress Scale - 21
Liu et al	2018	USA	1/44 (2.3%)	Diagnostic Interview for Children and Adolescents - IV
Seitz et al	2010	Germany	1/44 (2.3%)	Diagnostic and Statistical Manual of Mental Disorders 4th Edition
Larsson et al	2010	Sweden		Hospital Anxiety and Depression Scale
Monteiro et al (Cancer)	2013	Portugal		Hospital Anxiety and Depression Scale
Jorngarden et al	2007	Sweden		Hospital Anxiety and Depression Scale
Kremer et al	2016	Germany		Hospital Anxiety and Depression Scale
Monteiro (Survivors)	2013	Portugal		Hospital Anxiety and Depression Scale
van der Geest et al	2013	Netherlands		Hospital Anxiety and Depression Scale
Kanellopoulos et al	2013	Norway		Hospital Anxiety and Depression Scale
van Erp et al	2021	Netherlands	8/44 (18%)	Hospital Anxiety and Depression Scale

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Akechi et al	2022	Japan		International Classification of Diseases 10th Revision
Hoven et al	2020	Sweden		International Classification of Diseases 10th Revision
Nathan et al	2018	USA		International Classification of Diseases 10th Revision
Lund et al	2013	Denmark		International Classification of Diseases 8th to 10th Revision
Ahomaki et al	2015	Finland	5/44 (11%)	International Classification of Diseases 8th to 10th Revision
D'Souza et al	2019	USA		Kiddie Schedule for Affective Disorders and Schizophrenia
Yardeni et al	2021	Israel	2/44 (4.5%)	Kiddie Schedule for Affective Disorders and Schizophrenia
Pedreira et al	2006	Australia	1/44 (2.3%)	Psychological General Well-Being Index
Yen et al	2020	USA		Unspecified
Cantrell et al	2014	USA		Unspecified
Huang et al	2017	USA	3/44 (6.8%)	Unspecified

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eTable 4: Meta-analyses of risk of severe depression stratified by categorical study-level characteristics using the random effects model

Variable	Cohorts	N, cancer	N, control	RR	95% CI	I2	Test of interaction (p-value)
Overall	9	27,613	274,539	1.57	1.24 to 1.99	91%	NA
Age at diagnosis between 5 and 12 years	3	4,893	1,341	1.78	1.50 to 2.10	0%	0.4802
Age at diagnosis between 12 and 18	1	820	1,027	1.59	1.24 to 2.05	NA	
Age at data collection between 5 and 12 years	1	4,117	20,269	1.35	0.69 to 2.62	NA	<0.001
Age at data collection between 12 and 18 years	1	2,822	28,220	1.31	0.68 to 2.52	NA	
Age at data collection between 25 and 30 years	2	2,816	460	1.45	0.77 to 2.71	0%	
Age at data collection above 30 years	3	6,456	37,498	2.12	1.44 to 3.12	92%	
Compared to matched controls	5	18,403	229,806	1.60	1.15 to 2.22	95%	0.86
Compared to siblings	4	9,210	44,733	1.52	1.01 to 2.30	58%	

Abbreviations: RR, risk ratio; NA, not applicable; CI, confidence interval

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eTable 5: Meta-analyses of risk of severe depression stratified by categorical study-level characteristics using the common effect model

Variable	Cohorts	N, cancer	N, control	RR	95% CI	I2	Test of interaction (p-value)
Overall	9	27,613	274,539	1.60	1.50 to 1.72	91%	NA
Age at diagnosis between 5 and 12 years	3	4,893	1,341	1.78	1.50 to 2.10	0%	0.4802
Age at diagnosis between 12 and 18	1	820	1,027	1.59	1.24 to 2.05	NA	
Age at data collection between 5 and 12 years	1	4,117	20,269	1.35	1.11 to 1.64	NA	0.46
Age at data collection between 12 and 18 years	1	2,822	28,220	1.31	1.13 to 1.52	NA	
Age at data collection between 25 and 30 years	2	2,816	460	1.45	1.04 to 2.04	0%	
Age at data collection above 30 years	3	6,456	37,498	2.12	2.05 to 2.56	92%	
Compared to matched controls	5	18,403	229,806	1.62	1.49 to 1.75	95%	0.68
Compared to siblings	4	9,210	44,733	1.56	1.37 to 1.78	58%	

Abbreviations: RR, risk ratio; NA, not applicable; CI, confidence interval

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eTable 6: Meta-analyses of depressive symptom severity stratified by categorical study-level characteristics using the common effect model

Variable	Cohorts	N, cancer	N, control	SMD	95% CI	I2	Test of interaction (p-value)
Overall	21	6,717	22,607	0.22	0.19 to 0.25	92%	NA
In remission	16	6,491	21,367	0.21	0.18 to 0.24	93%	<0.001
Undergoing or recent treatment	5	226	1,240	0.48	0.33 to 0.64	76%	
Age at diagnosis less than 5 years	2	510	2,899	–0.14	–0.24 to -0.05	0%	<0.001
Age at diagnosis between 5 and 12 years	5	332	794	0.17	0.04 to 0.30	74%	
Age at diagnosis between 12 and 18	1	56	391	0.61	0.33 to 0.90	NA	
Age at data collection between 5 and 12 years	1	58	64	-0.15	-0.50 to 0.21	NA	0.23
Age at data collection between 12 and 18 years	3	767	1,075	0.21	0.11 to 0.31	91	
Age at data collection between 18 and 25 years	7	1,381	2,163	0.13	0.02 to 0.24	63%	
Age at data collection over 25 years	5	4,385	9,432	0.15	0.11 to 0.19	92%	
Europe	9	1,102	2,918	0.54	0.46 to 0.62	93%	<0.01
North America	8	5,362	17,757	0.16	0.12 to 0.19	87%	

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Asia	3	235	1,914	0.27	0.12 to 0.41	74%	
Australia	1	18	18	0.09	-0.56 to 0.75	NA	
Compared to matched controls	17	1,702	13,349	0.42	0.36 to 0.48	89%	<0.01
Compared to siblings	4	5,015	9,258	0.15	0.12 to 0.19	94%	
Scale = Hospital Anxiety and Depression Scale	6	928	2,393	0.65	0.57 to 0.74	89%	<0.01
Scale = Novel questionnaire	1	66	8,186	0.41	0.16 to 0.65	NA	
Scale = Childhood Psychopathology Measurement Schedule Depression	1	40	50	0.60	0.17 to 1.02	NA	
Scale = Children's Depression Inventory	2	98	143	-0.22	−0.48 to 0.04	0%	
Scale = Beck's Depression Inventory-21	1	73	146	-0.32	−0.60 to −0.04	NA	
Scale = Behavior Problems Index-32	1	666	696	0.17	0.07 to 0.28	NA	
Scale = Center for Epidemiological Studies Depression Scale for Children /Center for Epidemiological Studies Depression Scale	2	194	1,883	0.32	0.17 to 0.48	0%	

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Scale = Psychological General Wellbeing	1	18	18	0.09	−0.56 to 0.75	NA	
Scale = Brief Symptom Inventory-18	3	4,046	5,912	0.20	0.15 to 0.24	84%	
Scale = Schedule for Affective Disorders and Schizophrenia for School-Age Children Epidemiologic—version 5	1	57	60	0.05	−0.32 to 0.41	NA	
Scale = Subscales from 36-Item Short Form Survey and Hospital Anxiety and Depression Scale	1	61	300	0.75	0.46 to 1.03	NA	

Abbreviations: SMD, standardised mean difference; NA, not applicable; CI, confidence interval

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eTable 7: Mixed effects meta-regression of standardised mean differences against potential effect moderators (continuous and categorical study-level characteristics) for the longitudinal association of depression symptom severity in paediatric cancer

	Estimate	p-value	95% CI Lower	95% CI Upper	I2 (% residual heterogeneity)
Surgery	–0.34	0.25	–0.9225	0.2418	92.41%
Chemo	0.12	0.63	–0.36	0.60	90.34%
Radiotherapy	–0.33	0.30	–0.95	0.29	94.13%
Age at diagnosis	0.06	<.0001	0.03	0.09	41.69%
Age at data collection	–0.01	0.58	–0.02	0.01	90.04%

Abbreviations: CI, confidence interval.

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eTable 8: Instruments, scales and diagnostic criteria used for anxiety disorders and anxiety symptoms by each included study

Study	Publication year	Country of study	Number (%)	Scale used to assess anxiety
Kunin-Batson et al	2016	USA		Behavior Assessment System for Children 2nd Edition
Myers et al	2014	USA	2/33 (6.1%)	Behavior Assessment System for Children 2nd Edition
Yardeni et al	2021	Israel	1/33 (3.0%)	Kiddie Schedule for Affective Disorders and Schizophrenia
Kazak et al	2010	USA		Brief Symptom Inventory
Ford et al	2015	USA		Brief Symptom Inventory
Shin et al	2022	USA		Brief Symptom Inventory
Prasad et al	2015	USA		Brief Symptom Inventory
Zebrack et al (Brain cancer)	2004	USA		Brief Symptom Inventory
Zebrack et al (Solid cancer)	2007	USA		Brief Symptom Inventory
de Laage et al	2016	France		Brief Symptom Inventory
Krull et al	2011	USA		Brief Symptom Inventory
Brinkman et al	2019	USA	9/33 (27%)	Brief Symptom Inventory
Aili et al	2021	Sweden	1/33 (3.0%)	Depression Anxiety and Stress Scale - 21
Liu et al	2018	USA	1/33 (3.0%)	Diagnostic Interview for Children and Adolescents - IV
Seitz et al	2010	Germany	1/33 (3.0%)	Diagnostic and Statistical Manual of Mental Disorders 4th Edition
Larsson et al	2010	Sweden	7/33 (21%)	Hospital Anxiety and Depression Scale

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Monteiro et al (Cancer)	2013	Portugal		Hospital Anxiety and Depression Scale
Jorngarden et al	2007	Sweden		Hospital Anxiety and Depression Scale
Kremer et al	2016	Germany		Hospital Anxiety and Depression Scale
Monteiro (Survivors)	2013	Portugal		Hospital Anxiety and Depression Scale
Kanellopoulos et al	2013	Norway		Hospital Anxiety and Depression Scale
van Erp et al	2021	Netherlands		Hospital Anxiety and Depression Scale
Nathan et al	2018	USA		International Classification of Diseases 10th Revision
Lund et al	2013	Denmark		International Classification of Diseases 8th to 10th Revision
Ahomaki et al	2015	Finland	3/33 (9.1%)	International Classification of Diseases 8th to 10th Revision
D'Souza et al	2019	USA	1/33 (3.0%)	Kiddie Schedule for Affective Disorders and Schizophrenia
Barone et al	2020	Italy	1/33 (3.0%)	Multidimensional Anxiety Scale for Children
Pedreira et al	2006	Australia	1/33 (3.0%)	Psychological General Well-Being Index
Sargin Yildirim et al	2017	Turkey		Screen for Child Anxiety Related Disorders
Yaffe Ornstein et al	2022	Israel	2/33 (6.1%)	Screen for Child Anxiety Related Disorders
Yen et al	2020	USA		Unspecified
Cantrell et al	2014	USA		Unspecified
Huang et al	2017	USA	3/33 (9.1%)	Unspecified

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eTable 9: Meta-analyses of risk of severe anxiety stratified by categorical study-level characteristics using the random effects model

Variable	Cohorts	N, cancer	N, control	RR	95% CI	I2	Test of interaction (p-value)
Overall	7	21,232	210,729	1.29	1.13 to 1.48	47%	NA
Age at data collection between 5 and 12 years	1	4,117	20,269	1.14	1.00 to 1.30	NA	0.016
Age at data collection between 25 and 30 years	2	2,816	460	1.70	1.07 to 2.70	0%	
Age at data collection above 30 years	2	2,897	1,908	1.50	1.28 to 1.77	0%	
Compared to matched controls	3	12,022	165,996	1.19	1.03 to 1.38	65%	0.12
Compared to siblings	4	9,210	44,733	1.44	1.20 to 1.73	0%	

Abbreviations: RR, risk ratio; NA, not applicable; CI, confidence interval

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eTable 10: Meta-analyses of risk of severe anxiety stratified by categorical study-level characteristics using the common effect model

Variable	Cohorts	N, cancer	N, control	RR	95% CI	I2	Test of interaction (p-value)
Overall	7	21,232	210,729	1.25	1.15 to 1.37	47%	NA
Age at data collection between 5 and 12 years	1	4,117	20,269	1.14	0.99 to 1.30	NA	0.016
Age at data collection between 25 and 30 years	2	2,816	460	1.70	1.07 to 2.70	0%	
Age at data collection above 30 years	2	2,897	1,908	1.50	1.28 to 1.77	0%	
Compared to matched controls	3	12,022	165,996	1.18	1.06 to 1.31	65%	0.040
Compared to siblings	4	9,210	44,733	1.43	1.23 to 1.67	0%	

Abbreviations: RR, risk ratio; NA, not applicable; CI, confidence interval

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eTable 11: Meta-analyses of anxiety symptom severity stratified by categorical study-level characteristics using the common effect model

Variable	Cohorts	N, cancer	N, control	SMD	95% CI	I2	Test of interaction (p-value)
Overall	16	5,110	19,410	0.07	0.04; 0.11	77%	NA
After remission	11	4906	18194	0.07	0.03; 0.10	84%	0.37
During treatment	5	204	1,216	0.14	-0.02; 0.30	0%	
Age range at diagnosis (0 to 5)	2	510	2899	-0.19	-0.29; -0.10	93%	<0.01
Age range at diagnosis (5 to 12)	4	238	742	0.33	0.18; 0.48	30%	
Age range at data collection (5 to 12)	2	76	90	0.27	-0.03; 0.58	0%	0.05
Age range at data collection (18 to 25)	6	487	1232	0.16	0.05; 0.27	63%	
Age range at data collection (More than 25)	5	3350	14801	0.04	-0.01; 0.08	90%	
Asia	2	76	90	0.27	-0.03; 0.58	0%	0.26
North America	6	4,639	16,978	0.02	-0.01; 0.06	88%	
Europe	6	226	1,675	0.12	-0.02; 0.27	1%	
Australia	1	18	18	0.00	-0.73; 0.73	NA	
Compared to caregivers	1	36	40	0.32	-0.13; 0.77	NA	0.13

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Compared to matched controls	9	478	10,064	0.12	0.01; 0.22	0%	
Compared to siblings	3	4,349	8,562	0.02	-0.01; 0.06	95%	
Scale = HADS	6	337	2245	0.21	0.01; 0.42	43%	0.12
Scale = BSI-18	3	4046	5912	0.10	0.06; 0.14	0%	
Scale = Novel questionnaire	2	106	8236	0.14	-0.54; 0.82	0%	
Scale = Screen for Child Anxiety Related Disorders	1	36	40	0.32	-0.13; 0.77	NA	
Scale = Psychological General Well-Being Index	1	18	18	0.00	-0.65; 0.65	NA	
Scale = Multidimensional Anxiety Scale for Children	1	40	79	0.51	0.12; 0.89	NA	
Scale = Kiddie Schedule for Affective Disorders and Schizophrenia	1	57	60	-0.19	-0.55; 0.17	NA	

Abbreviations: SMD, standardised mean difference; CI, confidence interval

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eTable 12: Mixed effects meta-regression of standardised mean differences against potential effect moderators (continuous and categorical study-level characteristics) for the longitudinal association of anxiety symptom severity in paediatric cancer

	Estimate	**P-value**	**95% CI Lower**	**95% CI Upper**	**I^2 (% residual heterogeneity)**
Surgery	-1.2565	0.2033	-3.7225	1.2095	55.69%
Chemo	0.3547	0.0806	-0.0589	0.7682	79.80%
Radiotherapy	-0.1128	0.7777	-1.1498	0.9241	85.32%
Age at diagnosis	0.0039	0.7531	-0.0253	0.0332	78.38%
Age at data collection	-0.0147	**0.0153**	-0.0261	-0.0034	58.20%

Abbreviations: CI, confidence interval

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eTable 13: Diagnostic criteria used for schizophrenia and psychotic disorders by each included study

Study	Publication year	Country of study	Scale used to assess schizophrenia and psychotic disorders
Hoven et al	2020	Sweden	International Classification of Diseases 9th and 10th Revision; all psychotic disorders included
Ahomaki et al	2015	Finland	International Classification of Diseases 8th to 10th Revision; all psychotic disorders included
Nathan et al	2018	USA	International Classification of Diseases 10th Revision; all psychotic disorders included
Lund et al	2013	Denmark	International Classification of Diseases 8th to 10th Revision; all psychotic disorders included
De et al	2021	Canada	International Classification of Diseases 9th and 10th Revision; all psychotic disorders included

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eTable 14: Evaluation of the mediating or confounding effect of education level of participants on psychological outcomes

Author	Year	Country	Study population	Key findings†
Yen et al	2020	USA	Survivors of haematological malignancies treated at St. Jude Children's Research Hospital between 1982-2005, mean age at diagnosis 9.8 5.3 years	Non-college education increased OR for depression [OR 1.5 (1.1-2.0)] and anxiety [OR 1.3 (1.0-1.7)] compared to college education
Michel et al	2010	Switzerland	987 CYACs from the Swiss Childhood Cancer Survivor Study (SCCSS) with a variety of cancers, diagnosed between 1976-2003, age of diagnosis between 0-15 years	No significant association between education (other vs university degree) and having high risk of psychological distress (OR 1.55, 95% CI 0.85-2.80, p = 0.152)
van der Geest et al	2013	Netherlands	652 CYACs of various cancers who visited Erasmus MC-Sophia Children's Hospital from 2001-2009, age of diagnosis between 0-18 years.	High education achievement was significantly associated with a lower HADS score (B = -1.28, p<0.01) compared to CYACs with medium educational achievement
Zebrack et al	2002	USA	5736 CYACs of the CCSS cohort with childhood leukaemia, Hodgkin's disease, and non-Hodgkin's lymphoma, diagnosed between 1970-1986, age of diagnosis 0-20 years	Lower education attainment (less than high school graduate vs college graduate) was associated with increased risk of depression in leukaemia survivors [RR 2.27 (1.24-4.15), p=0.008], Hodgkin's Disease survivors [RR 2.56 (1.20-5.43), p=0.024] and Non-Hodgkin's Lymphoma survivors [RR 5.15 (1.67-15.90), p=0.004]
Hamre et al	2013	Norway	279 CYACs of childhood leukaemia or lymphoma (ALL, Hodgkin's disease, and non-Hodgkin's lymphoma) treated at university hospitals in Norway or Oslo University Hospital. Median age of diagnosis was 9.5 years (range 0.3-18.4 years)	No association between educational level and probability of having chronic fatigue
Langeveld et al	2004	Denmark	400 CYACs of various cancers from patients who attended long-term follow-up clinic at The Emma Kinderziekenhuis/ Academic Medical Center between 1996-1999, mean age at diagnosis was 8±4.6 years	Low vs high education level was associated with worse MOS-24 and Worry scores (p<0.05)
Zebrack et al	2004	USA	14,024 CYACs from the CCSS cohort with various cancers, diagnosed between 1970-1986, age <21 years at time of diagnosis	Lower education attainment (being less than high school graduate) was associated with increased raw mean BSI scores than high school graduate or college graduate (p = 0.005)
Hudson et al	2003	USA	9535 CYACs from the CCSS cohort with various cancers, diagnosed between 1970-1986, age <21 at diagnosis	Lower education attainment (being less than high school vs high school + some college) was associated with adverse mental health outcome of either depression, somatization or anxiety using the BSI-18 [OR 1.3 (1.1-1.5)]

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Zebrack et al	2007	USA	2778 CYACs from the CCSS cohort with various solid tumours treated during childhood or adolescence, across 25 centres in the US and Canada	Lower educational attainment was associated with higher levels of depression, anxiety and global distress
Barnes et al	2022	USA	49,836 individuals diagnosed with a first primary malignancy at 0-19 years between 1975-2016, identified from the Surveillance, Epidemiology, and End Results (SEER) database. SEER is a population-based resource composed of cancer registries across the United States covering 28% of the US population	Patients living in county with high vs low % without high school was not associated with significant increased risk of suicide after childhood cancer diagnosis [HR 0.42(0.13-1.48), p=0.15]
Shin et al	2022	USA	3085 CYACs from the St Jude Lifetime Cohort (SJLIFE) treated at St Jude Children's Research Hospital, age at evaluation 31.9 ±8.3 years, time since diagnosis: 28.1 ± 9.1 years	Lower education status was associated with high physical, somatic and psychological symptoms (below high school vs college graduate/post-graduate: [OR 7.71 (4.46-13.31) p<0.0001]

Abbreviations: ALL, Acute Lymphoblastic Leukaemia; BSI-18, Brief Symptom Inventory 18; CYACs, Children and Young Adult Cancer Survivors; CCSS, Childhood Cancer Survivor Study; HADS, Hospital Anxiety and Depression Scale; HR, Hazard Ratio; OR, Odds Ratio; RR, risk ratio

†Outcomes of interest include logistic or linear regression analysis for any association between level of education attainment and risk of mental health conditions (depression, anxiety, schizophrenia or suicide)

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eTable 15: Evaluation of the mediating or confounding effect of income and socioeconomic status of participants on psychological outcomes

Author	Year	Country	Population	Key findings
Michel et al	2010	Switzerland	987 CYACs from the Swiss Childhood Cancer Survivor Study (SCCSS) with a variety of cancers, diagnosed between 1976-2003, age of diagnosis between 0-15 years	No significant association between income level and having high risk of psychological distress: CHF < 3001 vs CHF > 4500 [OR 0.68 (0.42-1.08) p=0.103]
Myers et al	2014	USA	159 CYCP with SR-ALL, with mean age at 5.9 years, who were enrolled on the COG AALL0331 protocol between 2005 and 2009 at 31 sites in the US	No significant association between annual family income (>$50,000 vs <$50,000) and anxiety [OR 1.11 (0.63-1.98), p=0.720] or depression [OR 1.17 (0.68-2.01), p=0.564]
Zebrack et al	2002	USA	5736 CYACs of the CCSS cohort with childhood leukaemia, Hodgkin's disease, and non-Hodgkin's lymphoma, diagnosed between 1970-1986, age of diagnosis 0-20 years	Increased risk of depression in lower income <$20,000 compared to higher income >$20,000 in leukaemia survivors [RR 2.67 (1.85-3.85), p<0.001], Hodgkin's Disease survivors [RR 2.49 (1.52-4.06), p<0.001], not significant in Non-Hodgkin's Lymphoma survivors [RR 1.23 (0.57-2.69), p=0.60]
Prasad et al	2015	USA	6192 CYACs of the CCSS cohort with childhood leukaemia, Hodgkin's disease, and non-Hodgkin's lymphoma, with ages ranging from 15 to 35 years, diagnosed between 1970-1986	Unemployment was associated with depression [OR 1.94 (1.43-2.63)]; not associated with anxiety [OR 1.0]
Zebrack et al	2004	USA	14,024 CYACs from the CCSS cohort with various cancers, diagnosed between 1970-1986, age <21years at time of diagnosis	Lower income (<$20,000 vs >$20,000) was associated with higher raw mean BSI scores for depression (p=0.012) and anxiety (p<0.001)
Hudson et al	2003	USA	9535 CYACs from the CCSS cohort with various cancers, diagnosed between 1970-1986, age <21 at diagnosis	Lower household income (<$20,000 vs >$20,000) was associated with adverse mental health outcome of either depression, somatization or anxiety using the BSI-18 [OR 1.8 (1.5-2.0)]
Zebrack et al	2007	USA	2778 CYACs from the CCSS cohort with various solid tumours treated during childhood or adolescence, across 25 centres in the US and Canada	Living with lower household income (<$20,000) was associated with significantly greater symptom levels across all subscales (depression, somatization and anxiety)
Kunin-Batson et al	2016	USA	159 children with ALL, age at diagnosis 1.0-9.9 years, enrolled on a Children's Oncology Group therapeutic study (AALL0331; NCT00103285) between 2005 and 2009	No association between lower household income and anxiety or depression (>$50,000 vs <$50,000): anxiety [OR 0.55 (0.16-1.93), p=0.284]; depression [OR 0.93 (0.36-2.38), p=0.854]

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Foster et al	2017	USA	666 adolescent participants from CCSS, diagnosed with Wilms tumour and treated between 1970-1999. Mean age at survey 15.3±1.7 years, mean age at diagnosis 2.8±1.8 years.	Association between lower household income and anxiety/depression <$40,000 compared to >$100,000 [RR 3.05 (1.33-6.98)]
Barnes et al	2022	USA	49,836 individuals diagnosed with a first primary malignancy at 0-19 years between 1975-2016, identified from the Surveillance, Epidemiology, and End Results (SEER) database. SEER is a population-based resource composed of cancer registries across the United States covering 28% of the US population	Patients living in high vs low income county was not associated with significant increased risk of suicide after childhood cancer diagnosis [HR 0.6 (0.33-1.11), p=0.11]
Langeveld et al	2004	Denmark	400 CYACs of various cancers from patients who attended long-term follow-up clinic at The Emma Kinderziekenhuis/ Academic Medical Center between 1996-1999, mean age at diagnosis was 8±4.6 years	Employment status (unemployed vs employed) was associated with worse MOS-24 and Worry scores (p<0.05)
Nathan et al	2018	USA	4117 CYACs from the Pediatric Oncology Group of Ontario's Networked Information System (POGONIS), including all paediatric cancers (0-18 years at diagnosis) treated in Ontario's 5 paediatric centres from 1985	Low income (lowest income quintile vs highest income quintile) at diagnosis was not associated with increased risk of mental health care visit rates [RR 1.31 (0.9-1.91), p=0.164]
Schultz et al	2007	USA	2979 CYACs from the CCSS cohort with various malignancies diagnosed between 1970-1986, age 0-9 at diagnosis	Lower household income (<$20,000 vs vs >$60,000) was associated with risk of depression/anxiety [RR 1.3 (1.0-1.9)]
De et al	2021	Canada	CYACs from The Initiative to Maximize Progress in Adolescent and Young Adult Cancer Therapy (IMPACT) database, with various malignancies, diagnosed between 1992-2012 in Ontario, age 15-21 at diagnosis	High income (highest income quintile vs lowest income quintile) at diagnosis was associated with increased rate of mental health outpatient visits [RR 1.2 (1.1-1.4), p=0.003] and reduced rate of severe psychiatric episodes [RR 0.4 (0.4-1.0), p=0.04]

Abbreviations: ALL, Acute Lymphoblastic Leukaemia; BSI-18, Brief Symptom Inventory 18;CYACs, Children and Young Adults with Cancer; CCSS Childhood Cancer Survivor Study, CCSS; HADS Hospital Anxiety and Depression Scale; HR, Hazard Ratio; OR, Odds Ratio; RR, risk ratio

†Outcomes of interest include logistic or linear regression analysis for any association between income level or any related measure of socio-economic status and risk of mental health conditions (depression, anxiety, schizophrenia or suicide)

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eTable 16: Evaluation of the mediating or confounding effect of social environment and degree of social support of participants on psychological outcomes

Author	Year	Country	Population	Key findings
Yen et al	2020	USA	Survivors of haematological malignancies treated at St. Jude Children's Research Hospital between 1982-2005, mean age at diagnosis 9.8 ± 5.3 years	Being single/divorced/other vs living with partner was associated with depression [OR 2.0 (1.5-2.6)] and anxiety [OR 1.3 (1.0-1.7)]
Michel et al	2010	Switzerland	987 CYACs from the Swiss Childhood Cancer Survivor Study (SCCSS) with a variety of cancers, diagnosed between 1976-2003, age of diagnosis between 0-15 years	Significantly increased risk of psychological distress [OR 1.96 (1.02-3.76), p = 0.043] if immigrant compared to being a native Swiss
Myers et al	2014	USA	159 CYCP with SR-ALL, with mean age at 5.9 years, who were enrolled on the COG AALL0331 protocol between 2005 and 2009 at 31 sites in the US	Association with anxiety [OR 3.01 (1.76-5.15), p<0.001[and depression [OR 2.37 (1.45-3.85), p=0.001] in unhealthy family functioning than healthy family functioning, measured by the General Functioning Scale of the Family Assessment Device (FAD-GF)
Prasad et al	2015	USA	6192 CYACs of the CCSS cohort with childhood leukaemia, Hodgkin's disease, and non-Hodgkin's lymphoma, with ages ranging from 15 to 35 years, diagnosed between 1970-1986	Living dependently is associated with depression [OR 1.66 (1.13-2.41)]; not associated with anxiety [OR 1.0]
Zebrack et al	2004	USA	14,024 CYACs from the CCSS cohort with various cancers, diagnosed between 1970-1986, age <21years at time of diagnosis	Marital status: not currently married (vs married or living as married) was associated with depression (p<0.001) and anxiety (p=0.007)
Shin et al	2022	USA	3085 CYACs from the St Jude Lifetime Cohort (SJLIFE) treated at St Jude Children's Research Hospital, age at evaluation 31.9 ±8.3 years, time since diagnosis: 28.1 ± 9.1 years	Unmarried (widowed, divorced, separated or single) vs married: associated with high physical, somatic and psychological symptoms [OR 1.46 (1.05-2.05), p=0.026]
Kunin-Batson et al	2016	USA	159 children with ALL, age at diagnosis 1.0-9.9 years, enrolled on a Children's Oncology Group therapeutic study (AALL0331; NCT00103285) between 2005 and 2009	No association with anxiety [OR 1.98 (0.61-6.43), p<0.225], association with depression [OR 2.62 (1.61-5.92), p=0.024] in unhealthy family functioning than healthy family functioning, measured by the General Functioning Scale of the Family Assessment Device (FAD-GF)
Husson et al	2017	USA	169 participants with various cancers, mean age of diagnosis was 14-17 years in 46.7%, 18-25 years in 19.5%	Social support was not associated with psychological distress

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Hamre et al	2013	Norway	279 CYACs of childhood leukaemia or lymphoma (ALL, NHL and HL) treated at university hospitals in Norway or Oslo University Hospital. Median age of diagnosis was 9.5 years (range 0.3-18.4 years)	No association between partnership status and probability of having chronic fatigue
Langeveld et al	2004	Denmark	400 CYACs of various cancers from patients who attended long-term follow-up clinic at The Emma Kinderziekenhuis/ Academic Medical Center between 1996-1999, mean age at diagnosis was 8±4.6 years	Marital status (single vs married/cohabitant) was not associated with differences in MOS-24 and Worry scores ($p<0.05$)
de Laage et al	2016	France	348 CYACs with >5 years follow-up were recruited from Institut Gustav-Roussy and Institut Curie between Jan 2012-March 2013, age of diagnosis between 0-20 years	Marital status: being married (vs single) was associated with reduced level of distress (according to BSI-18, IES and IWS) [OR 0.59 (0.33-1.03), p=0.006]

Abbreviations: ALL, Acute Lymphoblastic Leukaemia; BSI-18, Brief Symptom Inventory 18; CYACs, Children and Young Adults with Cancer; CCSS, Childhood Cancer Survivor Study; HADS, Hospital Anxiety and Depression Scale; HR, Hazard Ratio; OR, Odds Ratio; RR, risk ratio

†Outcomes of interest include logistic or linear regression analysis for any association between social supportive factors (marriage, caregivers, social support) and risk of mental health conditions (depression, anxiety, schizophrenia or suicide)

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eTable 17: Quality assessment of included cohort studies using the Joanna Brigg's Institute Critical Appraisal tool

Study	1	2	3	4	5	6	7	8	9	10	11
Hoven et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Lund et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Korhonen et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Kremer et al	Y	Y	Y	N	N	U	Y	Y	Y	NA	Y
Kunin-Batson et al	N	Y	Y	N	N	U	Y	Y	Y	NA	Y
Ford et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Cantrell et al	Y	Y	Y	N	N	U	Y	Y	Y	NA	Y
Gupta et al	Y	Y	Y	N	N	U	Y	Y	Y	NA	Y
Myers et al	N	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Monteiro et al	Y	Y	Y	N	N	U	Y	Y	Y	NA	Y
van der Geest et al	N	Y	Y	Y	U	U	Y	Y	Y	NA	Y
Arabiat et al	Y	Y	Y	Y	U	U	Y	Y	Y	NA	Y
Cizek Sajko et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Harila et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Tillery et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y

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Ahomaki et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Zebrack et al (Haematological)	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Prasad et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Seitz et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Akechi et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Yaffe Ornstein et al	N	Y	Y	N	N	Y	Y	Y	Y	NA	Y
Liu et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Nathan et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Zheng et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Foster et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Sargin Yildirim et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
de Laage et al	N	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Kanellopoulos et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Li et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Krull et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Schrag et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Jorngarden et al	N	Y	Y	Y	Y	U	Y	Y	Y	NA	Y

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Pedreira et al	Y	Y	Y	N	N	U	Y	Y	Y	NA	Y
Zebrack et al (Brain cancer)	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Hudson et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
De et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
Zebrack et al (Solid cancer)	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Schwartz	N	Y	Y	N	N	U	Y	Y	N	NA	Y
Ross et al	Y	Y	Y	N	N	Y	Y	Y	Y	NA	Y
Barnes et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Ljungman et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Shin et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Aili et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y
van Erp et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Yang et al	N	Y	Y	Y	U	U	Y	Y	Y	NA	Y
Barone et al	Y	Y	Y	Y	U	U	Y	Y	Y	NA	Y
Michel et al	Y	Y	Y	Y	Y	U	Y	Y	Y	Y	Y
Yen et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Brinkman et al	Y	Y	Y	Y	Y	Y	Y	Y	Y	NA	Y

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D'Souza et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Huang et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Kazak et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Larsson et al	Y	Y	Y	Y	Y	U	Y	Y	Y	NA	Y
Yardeni et al	N	Y	Y	Y	U	U	Y	Y	Y	NA	Y

Checklist
1. Were the two groups similar and recruited from the same population?
2. Were the exposures measured similarly to assign people to both exposed and unexposed groups?
3. Was the exposure measured in a valid and reliable way?
4. Were confounding factors identified?
5. Were strategies to deal with confounding factors stated?
6. Were the groups/participants free of the outcome at the start of the study (or at the moment of exposure)?
7. Were the outcomes measured in a valid and reliable way?
8. Was the follow up time reported and sufficient to be long enough for outcomes to occur?
9. Was follow up complete, and if not, were the reasons to loss to follow up described and explored?
10. Were strategies to address incomplete follow up utilized?
11. Was appropriate statistical analysis used?

Legend:
Y – Yes
N – No
U – Unclear
NA – Not applicable

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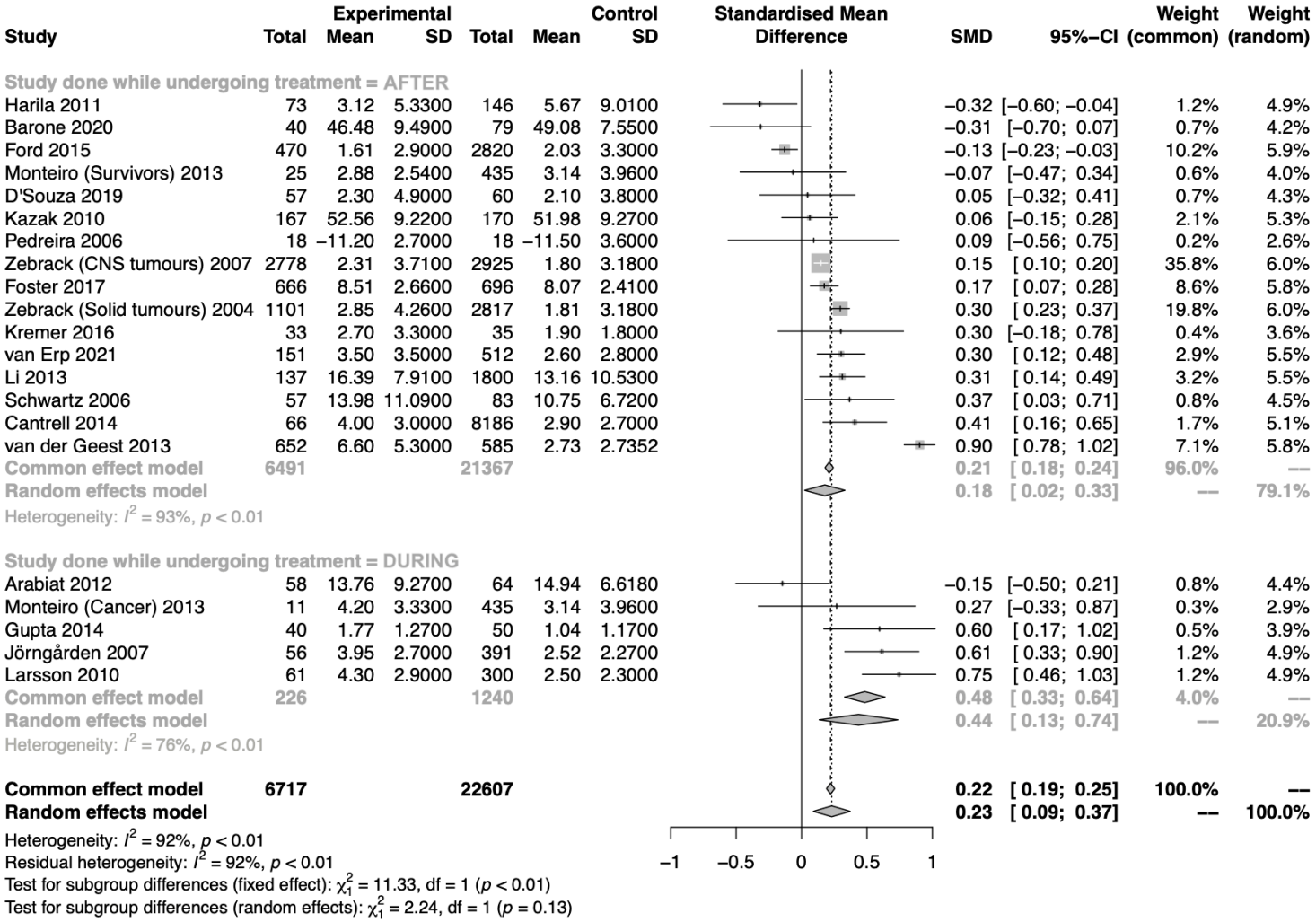
eFigure 1: Depressive symptom score in CYACs, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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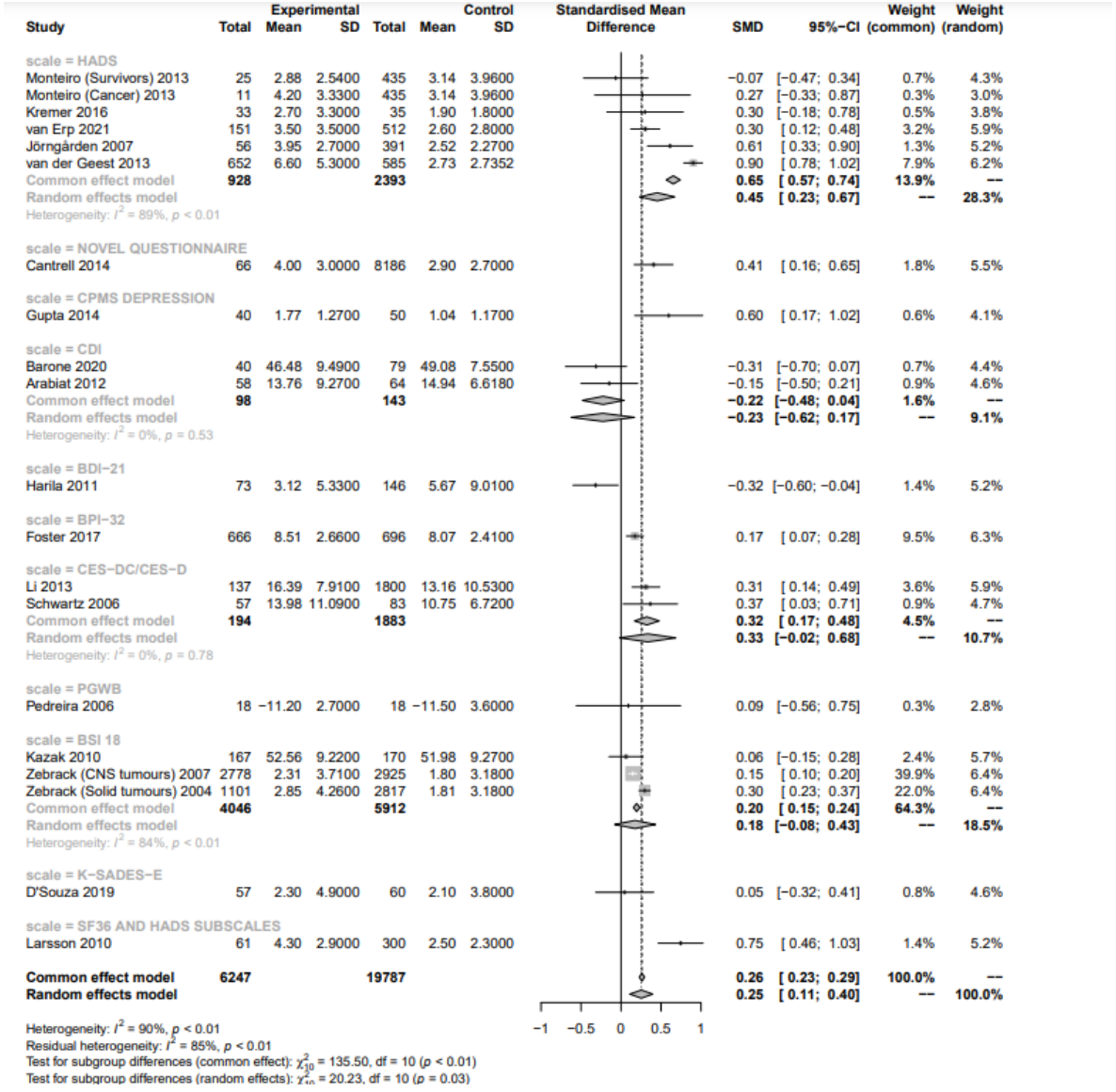
eFigure 2: Subgroup analyses of depression symptom severity stratified by scales using the random effect model



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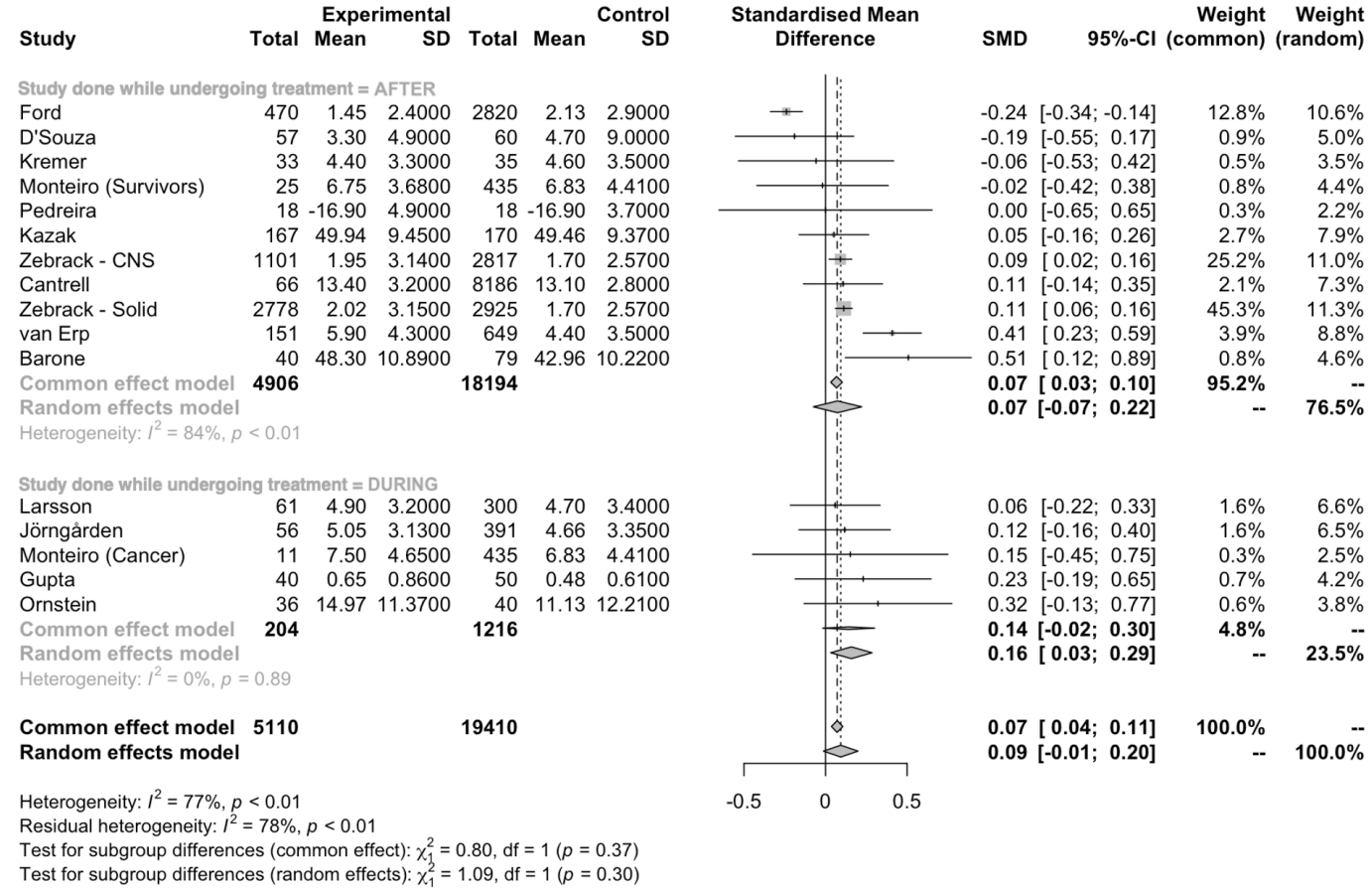
eFigure 3: Anxiety symptom score in CYACs, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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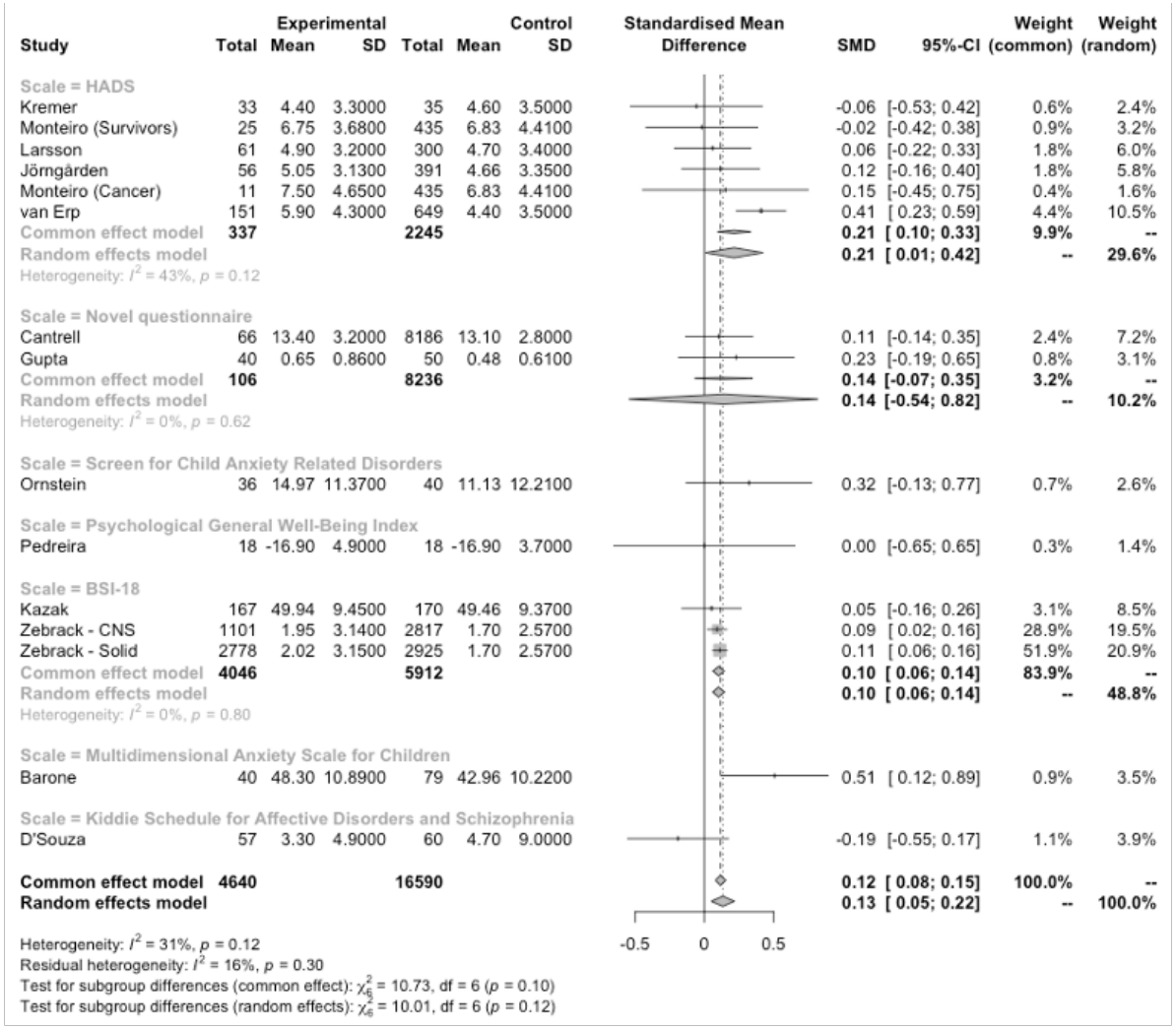
eFigure 4: Subgroup analyses of anxiety symptom severity stratified by scales using the random effect model



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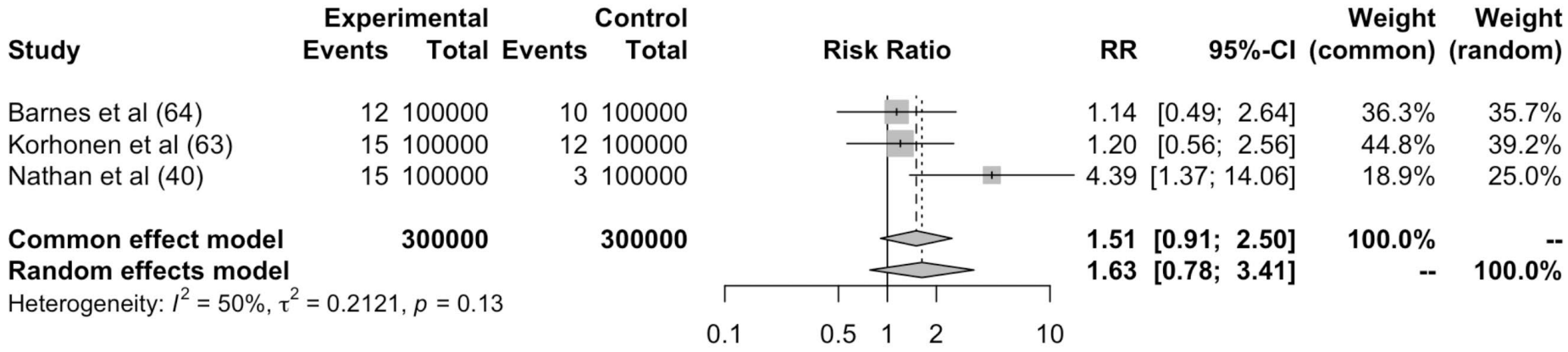
eFigure 5. Suicide Mortality per 100 000 Person-Years in Children, Adolescent, and Young Adult Patients With Cancer (CYACs) Compared With Controls Without Cancer



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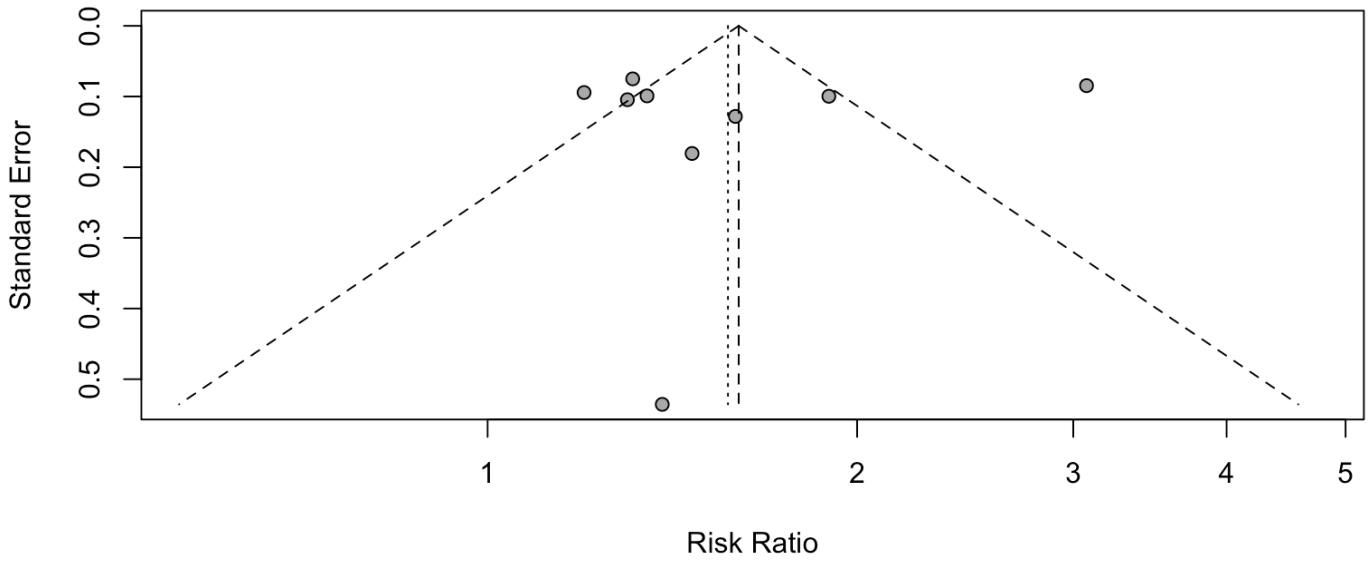
eFigure 6: Funnel plot for visual inspection of publication bias in studies assessing risk of severe depression



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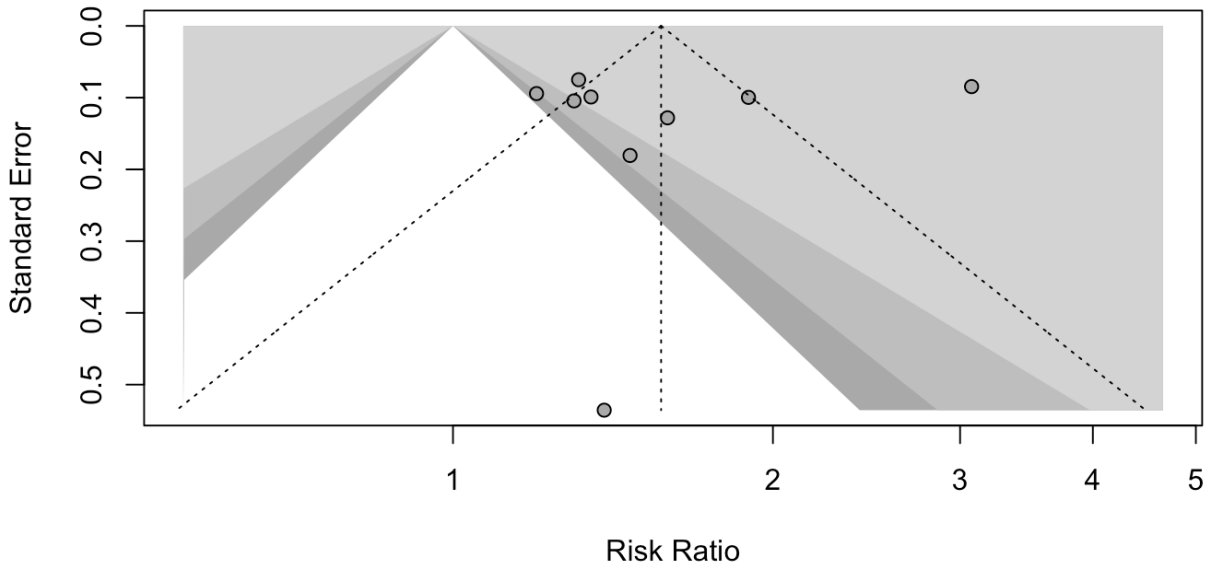
eFigure 7: Trim-and-fill plot for publication bias in studies assessing risk of severe depression



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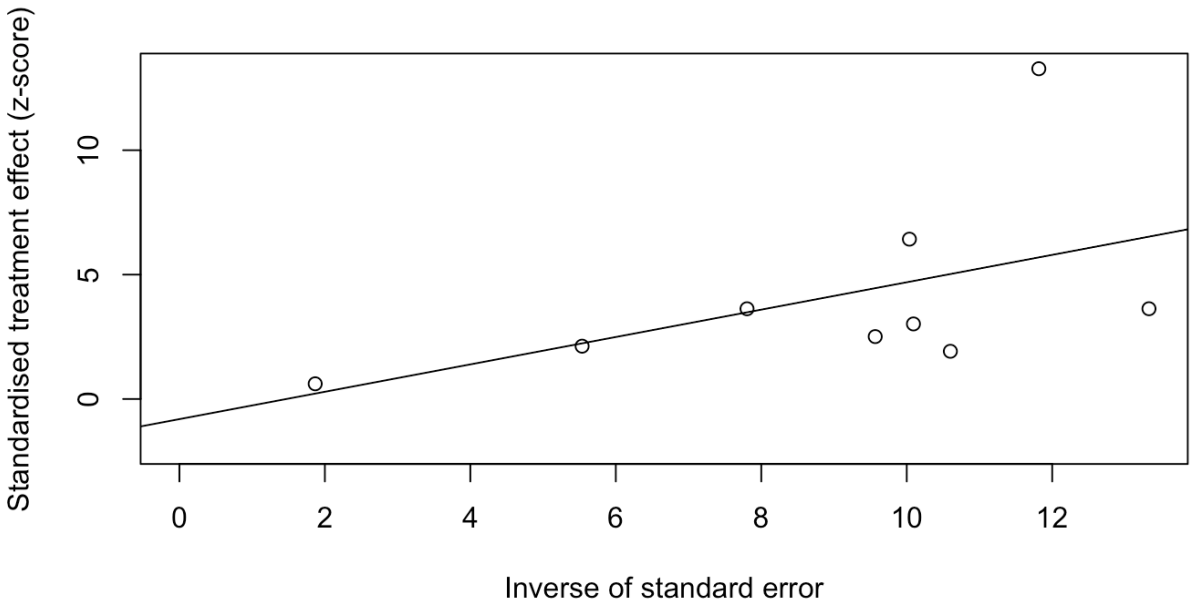
eFigure 8: Quantitative assessment publication bias in studies assessing risk of severe depression



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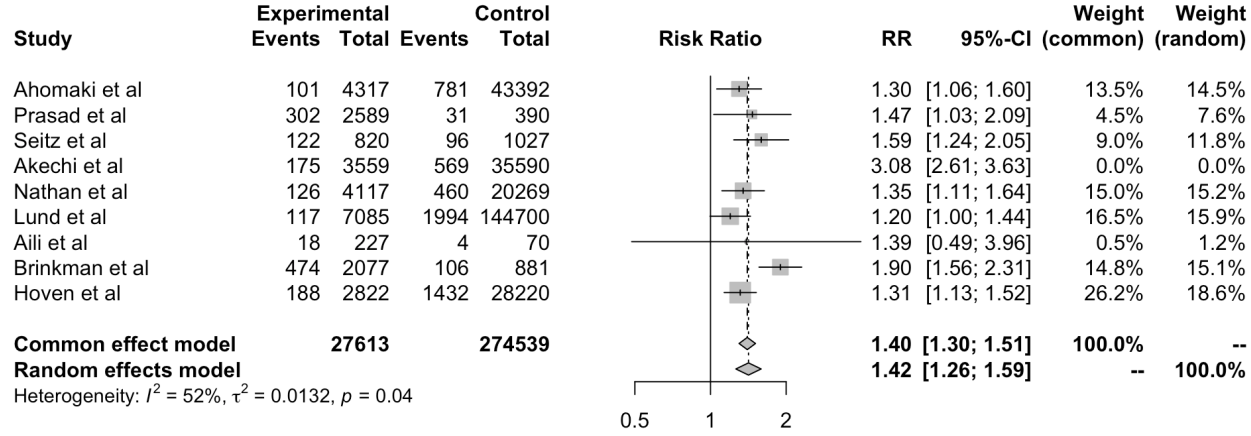
eFigure 9: Outlier assessment of studies assessing the risk of severe depression of CYACs, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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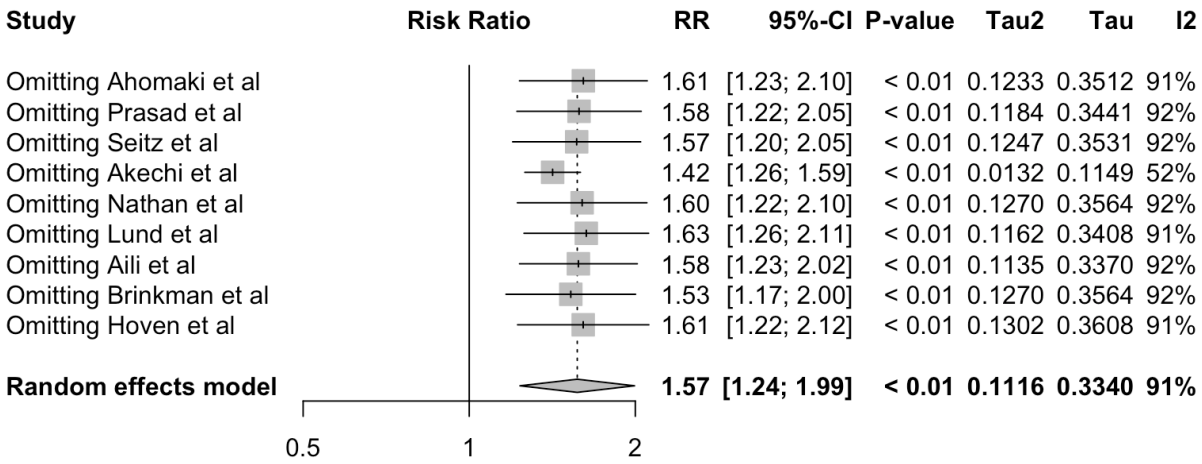
eFigure 10: Leave-one-out analysis of studies assessing the risk of severe depression, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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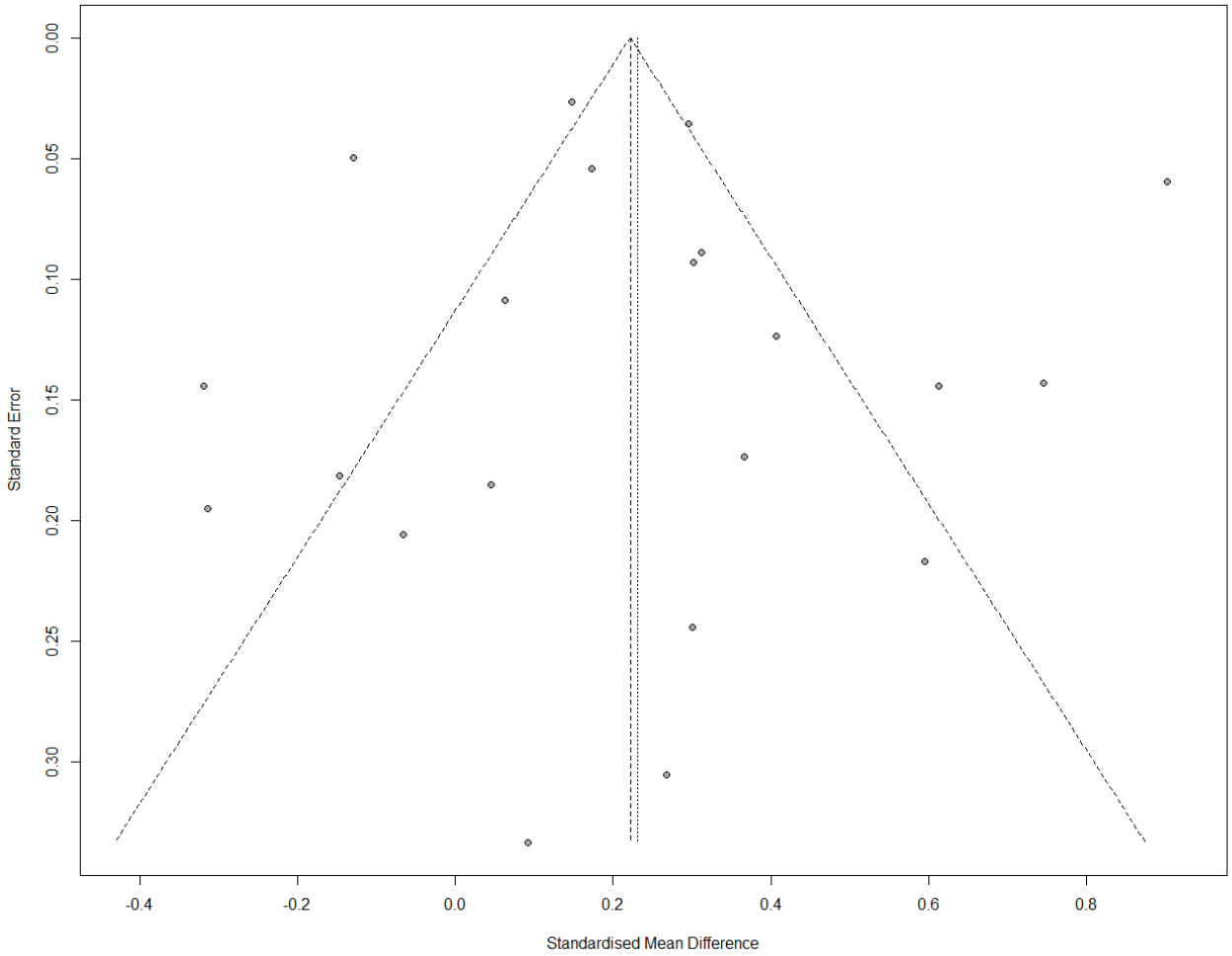
eFigure 11: Funnel plot for visual inspection of publication bias in studies assessing depressive symptom score



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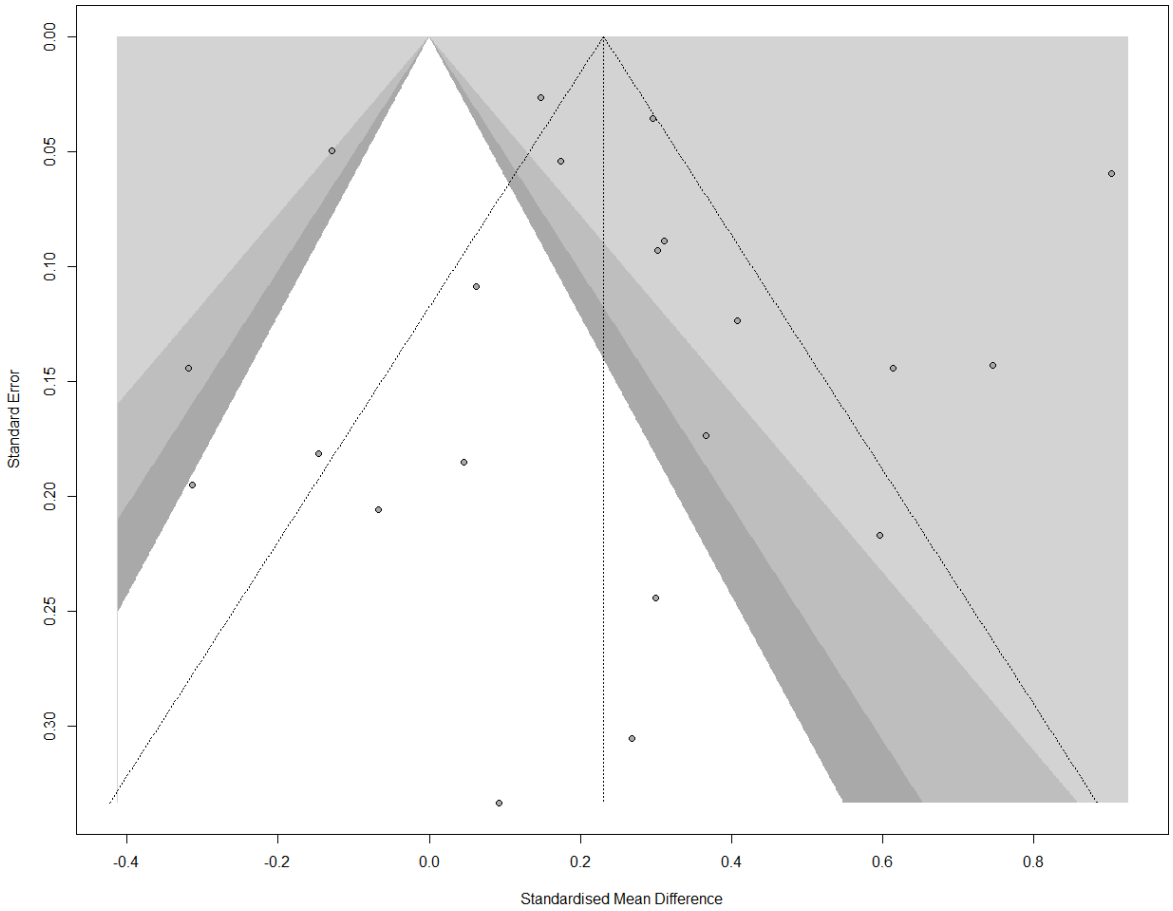
eFigure 12: Trim-and-fill plot for publication bias in studies assessing depressive symptom score



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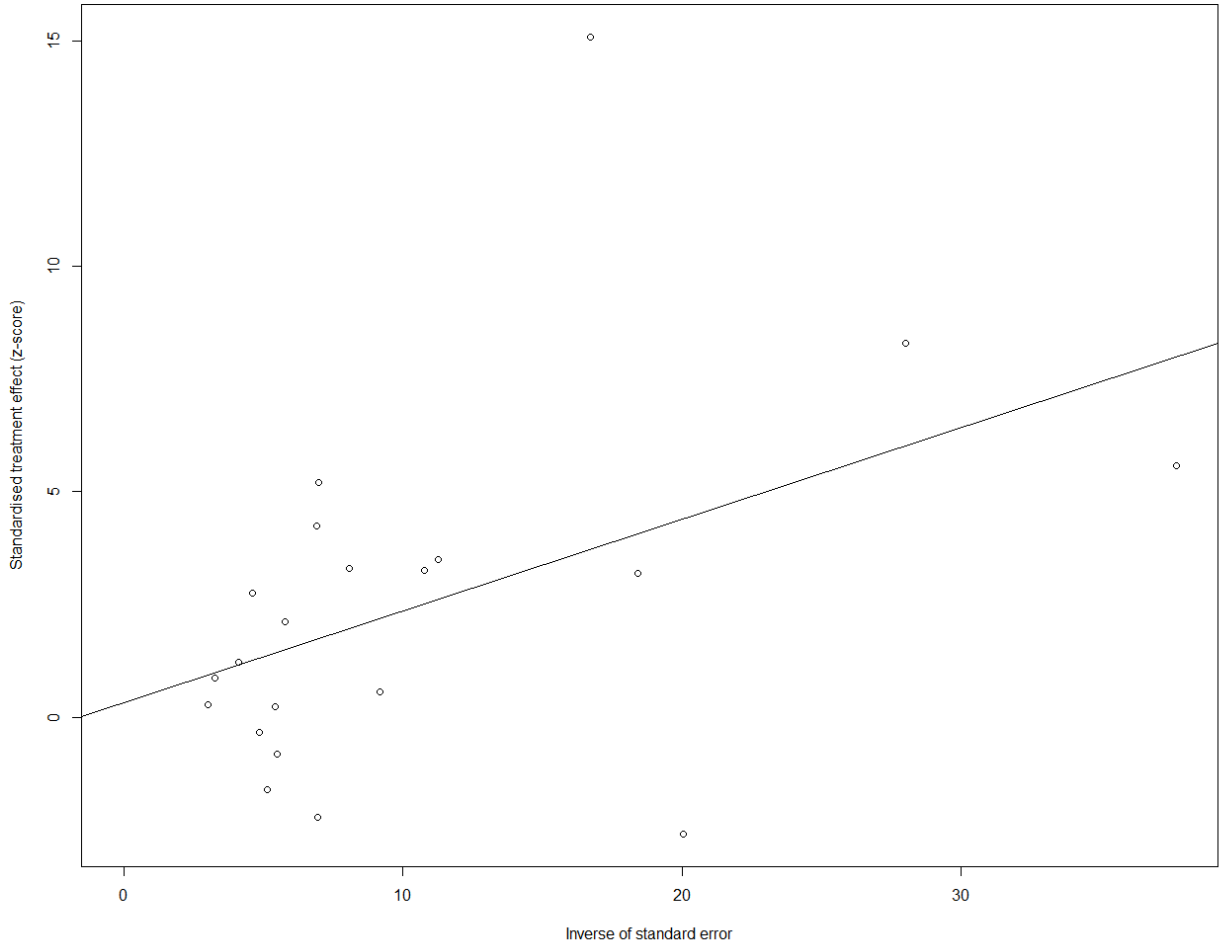
eFigure 13: Quantitative assessment publication bias in studies assessing depressive symptom score



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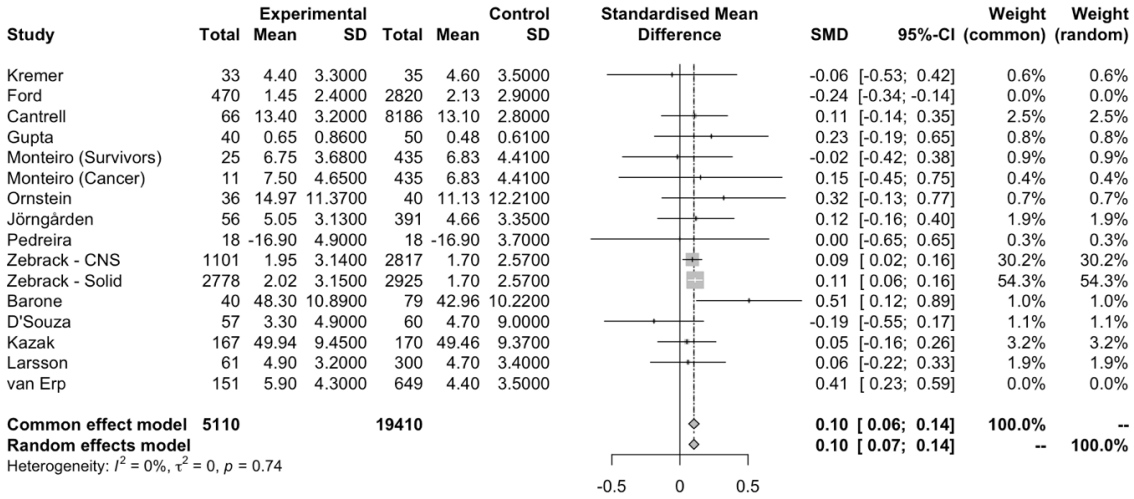
eFigure 14: Outlier assessment of studies assessing the depressive symptom score of CYACs, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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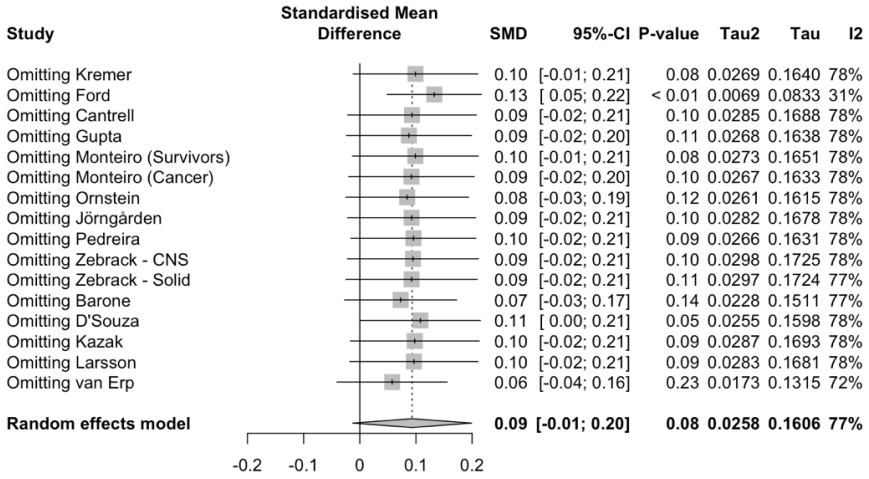
eFigure 15: Leave-one-out analysis of studies assessing the depressive symptom score, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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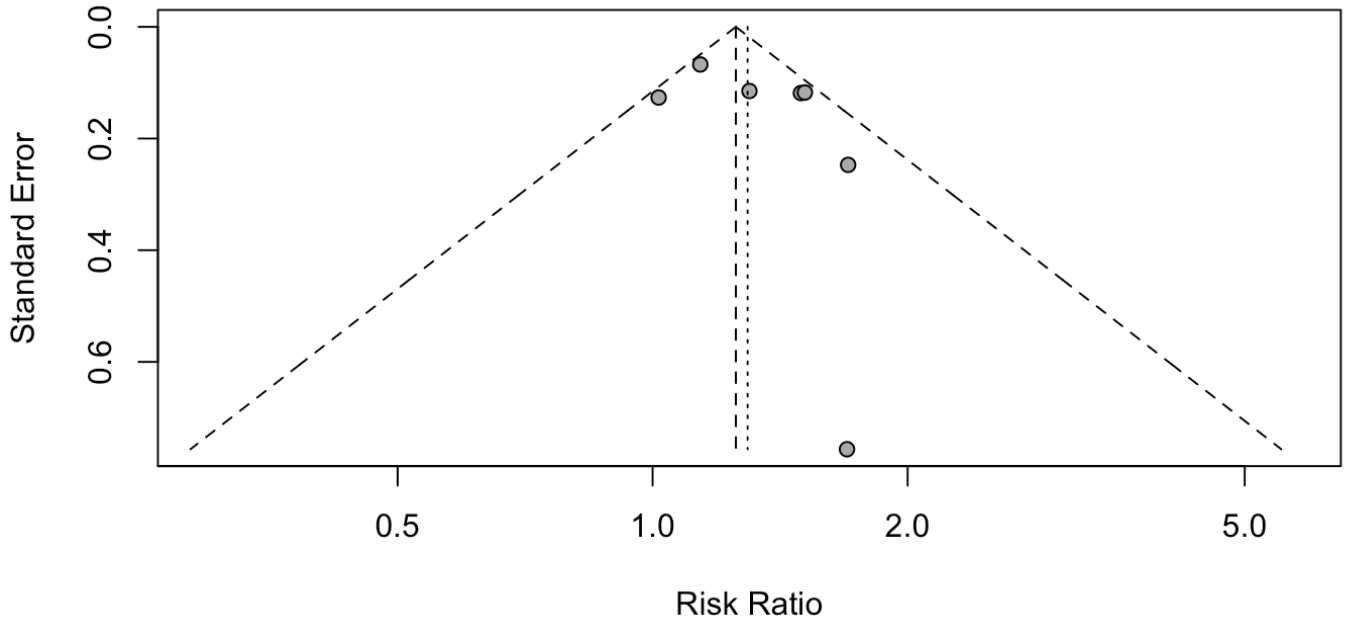
eFigure 16: Funnel plot for visual inspection of publication bias in studies assessing risk of severe anxiety



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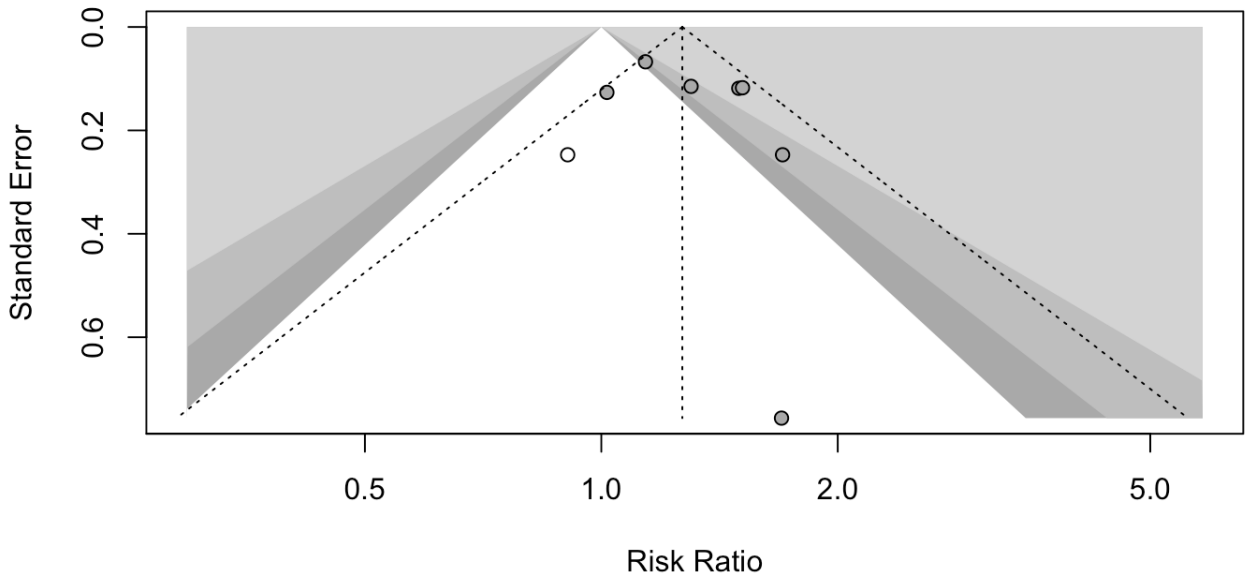
eFigure 17: Trim-and-fill plot for publication bias in studies assessing risk of severe anxiety



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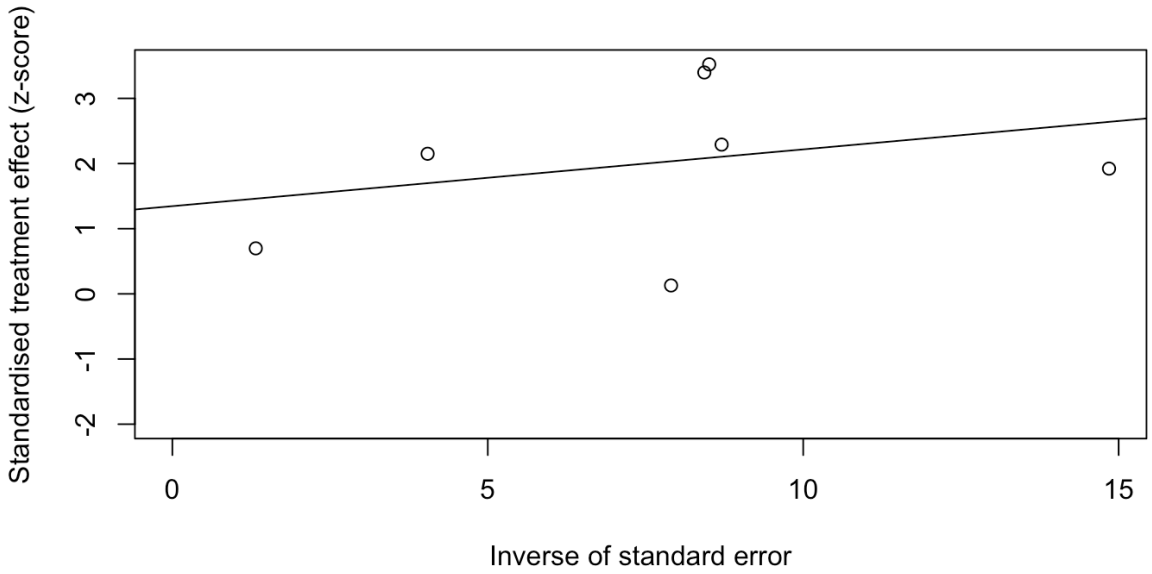
eFigure 18: Quantitative assessment publication bias in studies assessing risk of severe anxiety



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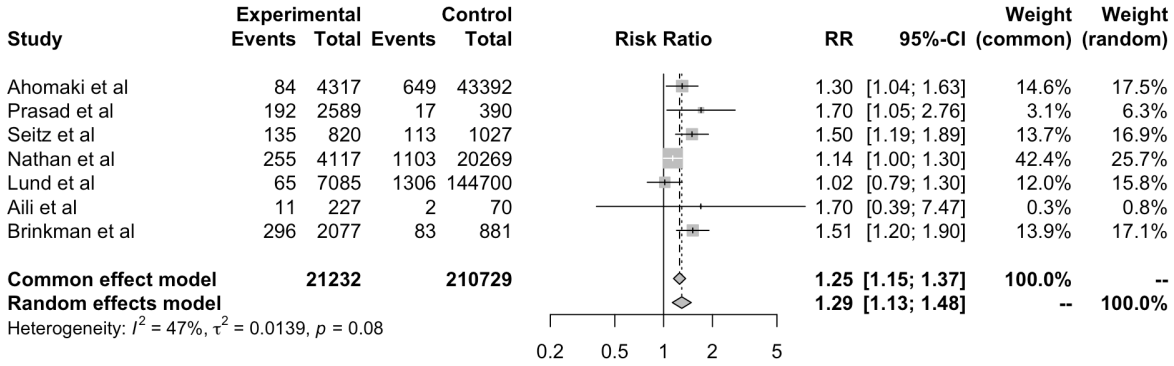
eFigure 19: Outlier assessment of studies assessing the risk of severe anxiety of CYACs, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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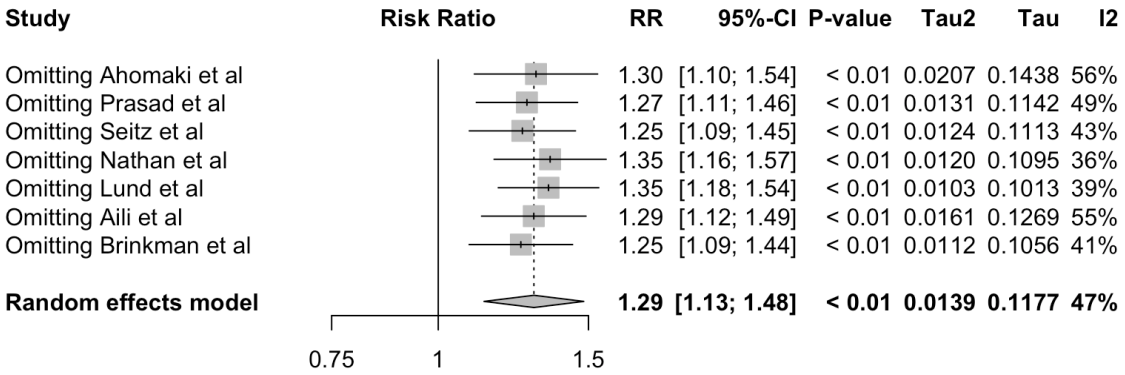
eFigure 20: Leave-one-out analysis of studies assessing the risk of severe anxiety, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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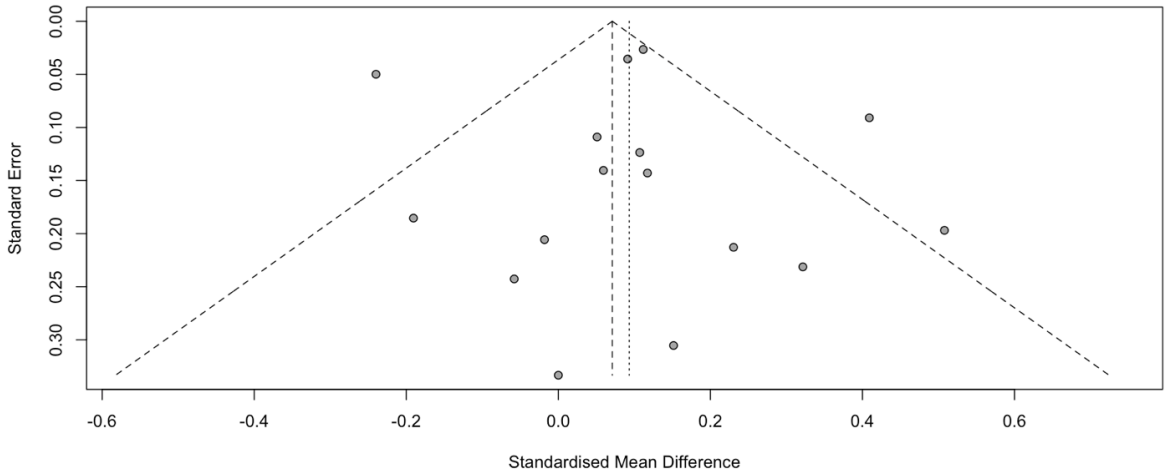
eFigure 21: Funnel plot for visual inspection of publication bias in studies assessing anxiety symptom score



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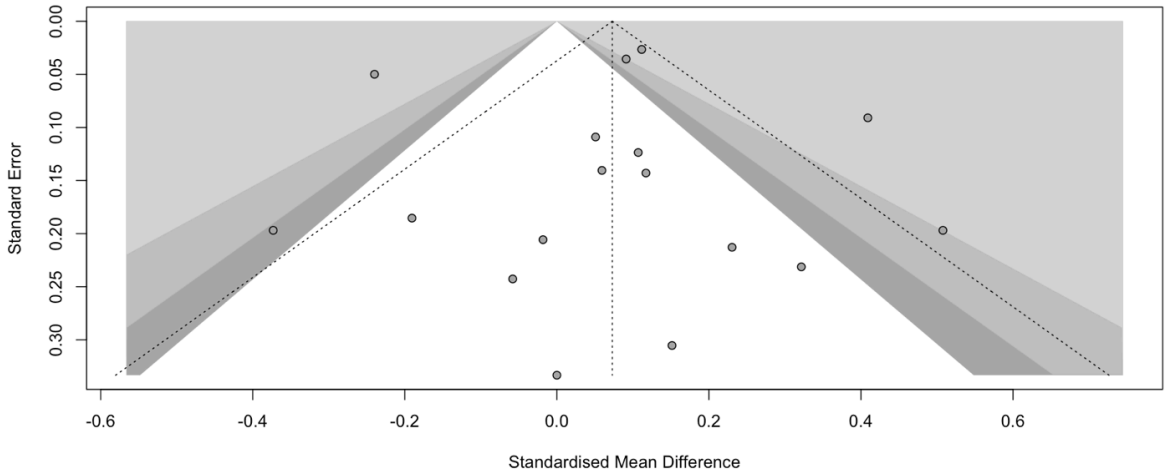
eFigure 22: Trim-and-fill plot for publication bias in studies assessing anxiety symptom score



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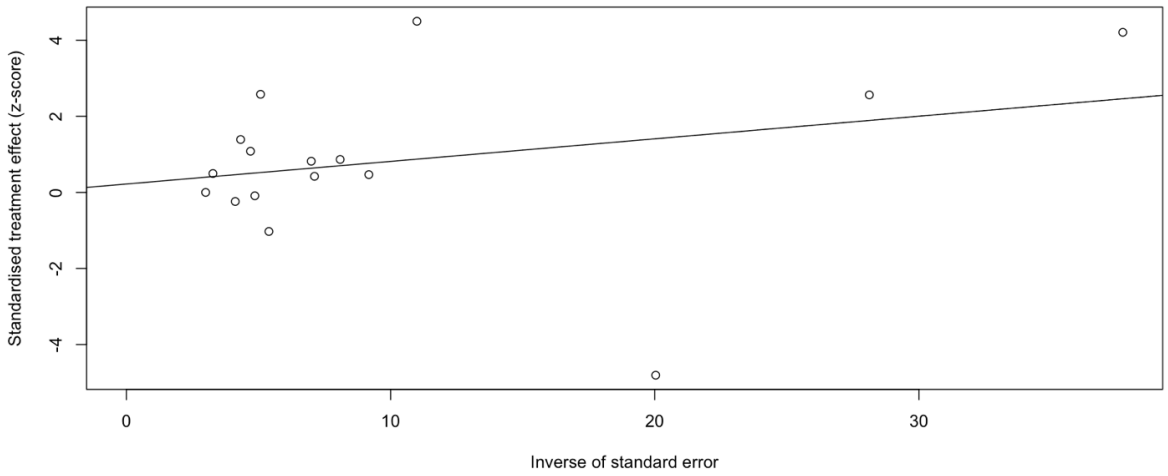
eFigure 23: Quantitative assessment publication bias in studies assessing anxiety symptom score



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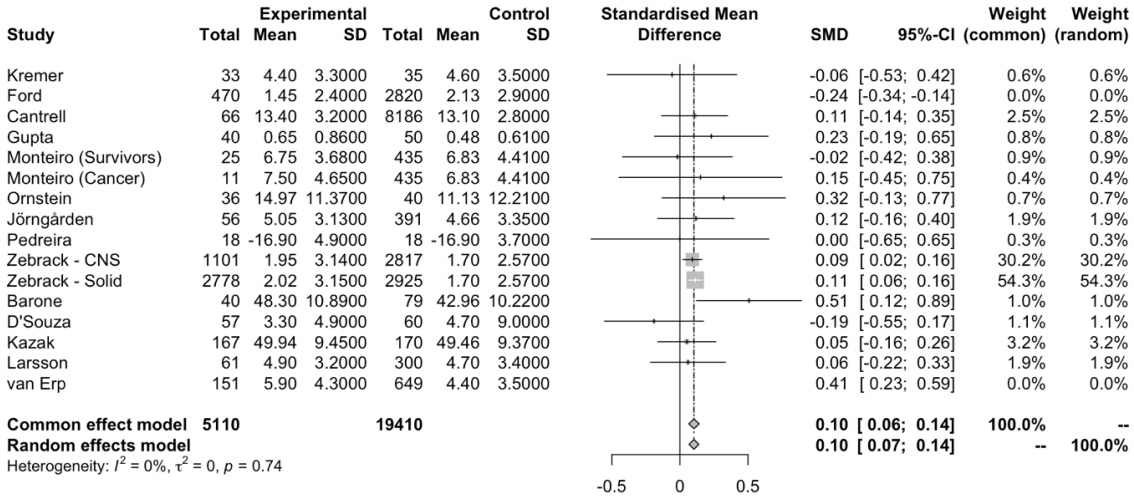
eFigure 24: Outlier assessment of studies assessing the anxiety symptom score of CYCP, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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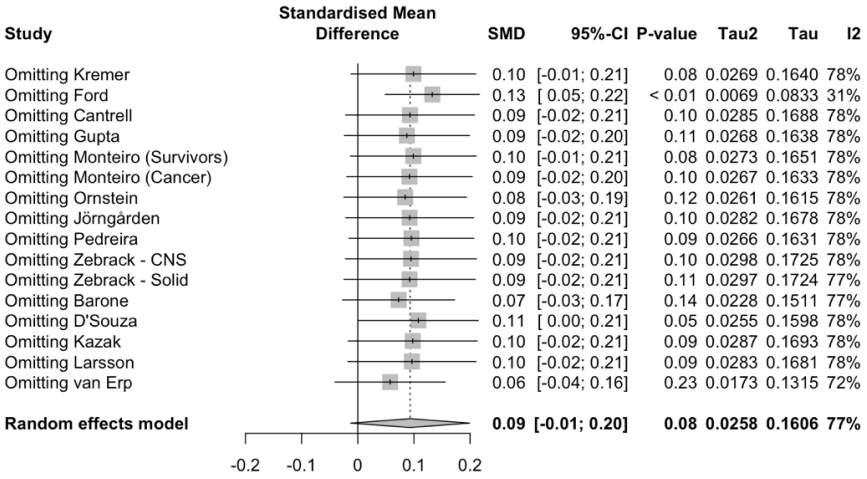
eFigure 25: Leave-one-out analysis of studies assessing the anxiety symptom score, compared to non-cancer controls, using the random effects model (primary analysis) and common effect model (sensitivity analysis)



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