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Citation for final published version:

Martin, Faith , Dahmash, Dania, Wicker, Sarah, Glover, Sarah-Lou, Duncan, Charlie, Anastassiou, Andrea, Docherty, Lucy and Halligan, Sarah 2024. Psychological wellbeing and needs of parents and carers of children and young people with mental health difficulties: a quantitative systematic review with meta-analyses. *BMJ Mental Health*

Publishers page:

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Supplementary Materials 1 Study Characteristics and main findings

First Author	Year	Country	Study design	Control Sample	CYP Age in years	CYP mental health difficulty	Sample size	% fathers	Measurement tool used	Main Findings including mean (s.d.) where relevant
Acri <sup>40</sup>	2016	USA	Controlled trial	No	7 to 11	ODD	320	9.4%	PSI-SF	Mean 98.6 (22.49)
Aggarwal <sup>41</sup>	2018	India	Cross-sectional	No	Mean 15	CD	32	unclear	PSS, HAMA, WSAS	PSS: mothers 62.63 (16.00), fathers 52.75 (13.9), p=0.01, d=0.66. HAMA: mothers 19.4 (7.29), fathers 10.9 (5.79). p<0.001. d=1.29. WSAS: mothers 21.59 (8.33), fathers 13.78 (7.52), p<0.001, d=0.98.
Algorta <sup>42</sup>	2018	UK	Case-control	Yes	Mean 9.4 (s.d. 1.9)	Bipolar	621 (case:149,	unclear	GBI, Parent Stress Survey	Means - GBI case 36.14 (30.57), control 31.40 (27.27), p=0.07. Parent Stress Survey: Case

							control: 491)		(Sisson & Fristad, 2001)	24.34 (14.10), control 18.31 (12.64), p<0.01.
CONAlqaht ani <sup>43</sup>	2020	Saudi Arabia	Cross- sectional	No	Up to 18	Anxiety	220	39.5%	MCS-12	Mean 46.8 (8.9)
Carroll <sup>44</sup>	2022	USA	Correlational	No	6 to 17	Psychoses	56	16%	ZBI	27% above cut-off for stress. Mean 38.7 (16.39)
Cooper <sup>45</sup>	2006	UK	Case-control	Yes	6 to 16	Anxiety	215 (case:13 6, control: 79)	53.7% (case:60 %, control: 43.0%)	SCID	Major depression: case 12.9% mothers, 3.9% fathers, control 2.2% mothers, 0% fathers. OR 3.64 (95% CI 1.05-64.2). Any anxiety diagnosis: case 68.2% mothers, 27.5% fathers, control 26.7% mothers, 14.7% fathers. OR 5.9 (95% CI 1.68- 10.43)
Costin <sup>46</sup>	2004	Australia	Comparison two	No	4 to 16	ODD	66	unclear	GHQ-28	Mean 29.1 (18.80)

interventions										
Derisley <sup>47</sup>	2005	UK	Case-control	Yes	11 to 18	Anxiety and OCD	118 (case 1: 28, case2: 28, control: 62 )	unclear	BSI	OCD group 58.1 (10.18), clinical anxiety group 57.17 (9.69), control group 51.73 (9.41). OCD and clinical anxiety significantly higher than control (d=0.65 and d=0.57 respectively).
Duclos <sup>48</sup>	2023	France	Cross-sectional	No	13 to 21	Anorexia Nervosa	135	40.7%	HADS (anxiety), BDI-II	HADS Fathers= 6.94 (3.63); mothers= 9.63 (4.79) p<0.0001, d=0.63. BDI-II: Fathers 8.76 (6.02), Mothers 14.88 (9.71), p=0.08, d=0.76
Farley <sup>49</sup>	2023	Australia	Pilot intervention (pre-post)	No	3 to 7	Anxiety Disorders	21	4.8%	PSI-SF, BSI	57.2 % above cut-off for clinical anxiety

											BSI mean 2.91 (1.99). PSI-SF total 95.2 (17.36)
Fields <sup>50</sup>	2012	USA	RCT	No	Mean 9.9	Depressive or bipolar disorders	165	6.1%	HAMD, PDI	Mean HAMD 8.1 (7.5). PDI reveals rate 18% clinical level.	
Gerken Meyer <sup>51</sup>	2008	USA	Cross-sectional	No	2 to 19	Internalizing and externalizing child behaviour problems	155	1%	CES-D	Mean 20 (12.62)	
Halldorsson <sup>52</sup>	2018	UK	Cross-sectional, two CYP diagnosis groups	No	7 to 12	Anxiety (Social anxiety = SA and other anxiety = OA)	647	42.1%	DASS	Depression means SA 8.39 (7.75), OA 6.06 (7.16); Anxiety means SA 5.31 (6.15), OA 3.66 (5.11); general stress means SA 13.19 (8.33), OA 11.12 (8.45).	
Hamovitch <sup>10</sup>	2019	USA	Cross-sectional	No	7 to 10	ODD	213	38%	CES-D-SF	Mean 7.68 (5.64)	

He <sup>53</sup>	2020	China	Case-control, longitudinal	Yes	4 to 11	ODD	521 (case control 256, 265)	unclear	PSI-SF, CES-D	PSI: Parent distress - Case 33.56 (7.41); control 31.70 (7.22) p=0.0039, d=0.36. Parent-child - Case 28.01 (7.65); control 24.76 (6.97), p=0.0001, d=0.66. Difficult child – Case 33.90 (8.69); control 28.81 (8.32), p=0.0001, d=0.87. CES-D: Case: 10.07 (7.61) Control 8.00 (6.41). p=0.0008 , d=0.33
He <sup>54</sup>	2021	China	longitudinal	No	6 to 13	ODD	370	41.9% (155/370 reported fathers, 28 of sample	CES-D	Mean 13.30 (8.28)

									did not report)		
Johnco <sup>11</sup>	2021	Australia	Cross-sectional	No	Mean 11.2	Depression and anxiety	531 families	4.14%	DASS	Mean 2.33 (3.66)	
Lebowitz <sup>55</sup>	2020	USA	Randomized Noninferiority	No	7 to 14	Anxiety	124 families	unclear	PSI	Mean 133.6 (20.6)	
Lim <sup>56</sup>	2021	Korea	Cross-sectional	No	5 to 7	Internalizing and externalizing problems	1358	50%	K6	Mean fathers 10.96 (3.94), mothers 11.54 (4.35). p=0.0003, d=0.14	
Ozyurt <sup>57</sup>	2016	Turkey	RCT	No	8 to 12	Anxiety	50	unclear	GHQ-28, STAI	Mean STAI-State 36.08 (7.00), STAI-Trait 43.23 (9.28), GHQ28 Total: 4.62 (5.39)	
Poole <sup>58</sup>	2018	Australia	RCT	No	12 to 17	Depressive disorder	64 families	16.6%	DASS-21	Mean 6.47 (7.40)	

Racey <sup>59</sup>	2018	UK	Mixed method, feasibility	No	14 to 18	Depression	29	0%	BDI-II	Mean 8.6 (7.7)
Schwarte <sup>60</sup>	2017	Germany	Cross-sectional	No	11 to 18	Anorexia nervosa	296	82.9%	BDI-II	Mean 6.15 (3.99)
Sengupta <sup>61</sup>	2017	India	Cross-sectional	No	Not reported	Psychiatric	100	50%	HDRS	Above cut-off for mild depression 88% mothers, 56% fathers. OR 5.76 (95% CI 2.08-15.97), p=0.0008.
Settipani <sup>62</sup>	2013	USA	Cross-sectional	No	7 to 14	Anxiety	111	focused only on mothers	STAI	STAI-State: 29.53 (10.18). (Trait not measured)
Stewart <sup>63</sup>	2019	UK	Pilot	No	Mean 15.6	Bulimia nervosa	study 1: 34	unclear	HADS	Mean: 6.15 (3.99)
Sung <sup>64</sup>	2019	Singapore	Cross-sectional	No	6 to 19	Depression/ anxiety	58	32.8%	ASR	Above clinical level for anxiety – 4.5% mothers, 0% fathers.





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Mothers: Case (n=46) 99.2  
(21.3), Control (n=35) 90.8  
(14.2)

Fathers: Case (n=36) 92.8  
(21.3), control (n=24) 90.8  
(17.2)

Case: mothers compared  
fathers  $p=0.1807$ ,  $d=0.30$ .

BDI: Case: Mothers  $n=46$ , 10.02  
(8.52). Fathers  $n=36$  7.33  
(8.17).  $p=0.15$ ,  $d=0.32$ . Control:  
Mothers  $n=36$  6.89 (5.35),  
Fathers  $n=24$  7.50 (7.52). Case  
mothers significantly worse  
than control mother scores,  
case fathers n.s. to control  
fathers.

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Timmer <sup>66</sup>	2019	USA	RCT	No	1 to 10	Externalizing behaviour	59	unclear	PSI	Mean Parent distress 56.2 (26.7) – normal range Parent-child dysfunction 61.1 (26.7) – normal Difficult Child 76.5 (25.1) – normal
Truttmann <sup>67</sup>	2020	Austria	Quasi- randomised feasibility trial	No	Mean 14.7	Anorexia Nervosa	102	14% (gender)	GHQ12, SCL-90, BDI-II, STAI	Means GHQ-12 4.7 (3.47), SCL-90 = 0.43 (0.39), BDI-II 10.86 (7.02), STAI state 47.71 (10.66), STAI trait 41.49 (9.41)
Wilksch <sup>68</sup>	2023	Australia	Repeated measures	No	<18	Eating disorder	372	unclear	DASS-21	34.3% above clinical cut-off. Mean 16.41 (10.30)
Zeiler <sup>69</sup>	2023	Austria	Cross- sectional	No	10 to 23	anorexia nervosa	248 (across 3 cohorts)	59%-69% across 3 cohorts	GHQ12, BDI-II, STAI	Means STAI state 45.4 (11.83), STAI trait 40.4 (10.37), BDI-II 11.1 (8.01), GHQ12: 4.8 (3.63)

Abbreviations: ASR – Adult Self Report; BDI – Beck Depression Inventory; BDI-II – Beck Depression Inventory version 2; BSI – Beck Symptoms Inventory; CES-D: Centre for Epidemiological Studies Depression Scale ; CES-D-SF: Centre for epidemiological Studies Depression short form; DASS: Depression Anxiety Stress Scale; DASS-21: Depression Anxiety Stress Scale 21 items; GBI: ; GHQ28: General Health Questionnaire 28 items;

GHQ12: General Health Questionnaire 12 items; HADS: Hospital Anxiety and Depression Scale ;HAMA: Hamilton Anxiety Rating Scale; HAMD: Hamilton Depression Rating Scale; HDRS: Hamilton Depression Rating Scale; K6: Kessler Psychological Distress Scale; MCS-12: Mental health component scale of the 12-item Short Form ; PDI: Psychiatric Diagnostic Interview ;PSI: Parenting Stress Index; PSI-SF: Parenting Stress Index Short Form; PSS: Parental Stress Scale; SCID: Structured Clinical Interview for DSM Disorder ; SCL-90: Symptom Checklist 90; STAI: State Trait Anxiety Inventory ; WSAS: the Work and Social Adjustment Scale; ZBI: Zarit Burden Inventory

## Appendix 1: Full searches for Research question 1

### Medline

S1	TI ((parent or parents or parental or mother or father or care*giver or guardian* or carer* or paternal or maternal) ) OR AB ( ( parent or parents or parental or mother or father or care*giver or guardian* or carer* or paternal or maternal ) ) OR MM ("Parents+")
S2	TI ( (children or adolescent* or adolescence or youth* or child or teenager* or pediatric* or paediatric* or kid* or teen* or young person or young people or boy* or girl* or juvenile* ) ) OR AB ( ( children or adolescent* or adolescence or youth* or child or teenager* or pediatric* or paediatric* or kid* or teen* or young person or young people or boy* or girl* or juvenile* ) ) OR MH ("Child+") OR MM ("Adolescent")
S3	( TI ( ( attention deficit disorder* or “attention deficit hyperactive disorder* “or “ADHD”) OR AB (attention deficit disorder* or “attention deficit hyperactive disorder* “or “ADHD”) OR MH (“Attention Deficit Disorder with Hyperactivity”) OR ( TI ( (Eating disorder* or anorexia or bulimia or eating problem*) ) OR AB ( (Eating disorder* or anorexia or bulimia or eating problem*) OR MH(“Feeding and Eating Disorders+”) OR ( TI ( (Emerging personality disorder* or emerging personality problem*) ) OR AB ( (Emerging personality disorder* or emerging personality problem*) ) OR MH (“Personality Disorder+”) ) OR ( TI ( (Externalising disorder* or externalising problem* or externalizing disorder* or externalizing problem*) OR AB (Externalising disorder* or externalising problem* or externalizing disorder* or externalizing problem*) OR TX (“Externalising disorder”) ) OR ( TI ( (Oppositional defiant disorder* or oppositional defiant problem*) ) OR AB ( (Oppositional defiant disorder* or oppositional defiant problem*) OR (MH“Attention Deficit and Disruptive Behavior Disorders+”) ) OR ( TI ( (Psychos* or psychotic disorder* or psychotic problem*) ) OR AB ( (Psychos* or psychotic disorder* or psychotic problem*) ) OR MH (“Psychotic Disorders+”) ) OR ( TI ( ( Anxiety or depression or depressive or “obsessive compulsive disorder” or “OCD” or phobia or phobic or mood disorder or anxiety disorder or panic disorder or agoraphobia or internalising problem* or internalising problem* or internalizing problem* or internalizing disorder* ) ) OR AB ( ( Anxiety or depression or depressive or “obsessive compulsive disorder” or “OCD” or phobia or phobic or mood disorder or anxiety disorder or panic disorder or agoraphobia or internalising problem* or internalising problem* or internalizing problem* or internalizing disorder* ) OR (MH "Depressive Disorder") OR (MH "Depressive Disorder, Major") OR (MH "Depressive Disorder, Treatment-Resistant") OR (MH "Dysthymic Disorder") OR (MM "Anxiety Disorders+”) )
S4	TI (“Information need*” or “knowledge need*” or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy”) OR AB (“Information need*” or “knowledge need*” or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy”))
S5	S1 N8 S4
S6	S2 N8 S3
S7	S5 AND S6 (English date limitation applied)

### PsycInfo, EMBASE, AMED, CINAHL

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S2	(children or adolescent* or adolescence or youth* or child or teenager* or pediatric* or paediatric* or kid* or teen* or young person or young people or boy* or girl* or juvenile*).ab. or (children or adolescent* or adolescence or youth* or child or teenager* or pediatric* or paediatric* or kid* or teen* or young person or young people or boy* or girl* or juvenile*).ti. or (child or adolescent).kw.
S3	(attention deficit disorder* or attention deficit hyperactive disorder* or ADHD or Eating disorder* or anorexia or bulimia or eating problem* or Emerging personality disorder or emerging personality problem* or Externalising disorder* or externalising problem* or externalizing disorder* or externalizing problem* or Oppositional defiant disorder* or oppositional defiant problem* or Psychos* or psychotic disorder* or psychotic problem* or Anxiety or depression or depressive or obsessive compulsive disorder or OCD or phobia or phobic or mood disorder or anxiety disorder or panic disorder or agoraphobia or internalising problem* or internalising problem* or internalizing problem* or internalizing disorder*).ab. or (attention deficit disorder* or attention deficit hyperactive disorder* or ADHD or Eating disorder* or anorexia or bulimia or eating problem* or Emerging personality disorder or emerging personality problem* or Externalising disorder* or externalising problem* or externalizing disorder* or externalizing problem* or Oppositional defiant disorder* or oppositional defiant problem* or Psychos* or psychotic disorder* or psychotic problem* or Anxiety or depression or depressive or obsessive compulsive disorder or OCD or phobia or phobic or mood disorder or anxiety disorder or panic disorder or agoraphobia or internalising problem* or internalising problem* or internalizing problem* or internalizing disorder*).
S4	(information need* or knowledge need* or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or parent satisfaction or family relationship or parent* self-efficacy).ab. or (information need* or knowledge need* or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or parent satisfaction or family relationship or parent* self-efficacy).ti.
S5	S1 adj8 s4
S6	S2 adj8 s5
S7	S5 and s6

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#3	TS=('attention deficit disorder*' OR 'attention deficit hyperactive disorder*' OR adhd OR 'attention deficit disorder with hyperactivity' OR 'Eating disorder* or anorexia or bulimia' OR 'eating problem*' OR 'feeding and eating disorders' OR 'emerging personality disorder*' OR 'emerging personality problem*' OR 'personality disorder' OR 'externalising disorder*' OR 'externalising problem*' OR 'externalizing disorder*' OR 'externalizing problem*' OR 'oppositional defiant disorder*' OR 'oppositional defiant problem*' OR 'attention deficit and disruptive behavior disorders' OR psychos* OR 'psychotic disorder*' OR 'psychotic problem*' OR anxiety OR depression OR depressive OR 'obsessive compulsive disorder' OR 'ocd' OR phobia OR phobic OR 'mood disorder' OR 'anxiety disorder' OR 'panic disorder' OR agoraphobia OR 'internalising problem*' OR 'internalising disorder*' OR 'internalizing problem*' OR 'internalizing disorder*')

#4	TS=(“Information need*” or “knowledge need*” or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy” )
#5	TS=((parent OR parents OR parental OR mother OR father OR care*giver OR guardian* OR carer* OR paternal OR maternal) NEAR/8 (“Information need*” or “knowledge need*” or support or experience* OR impact* or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy”))
#6	TS=(("attention deficit disorder" or "attention deficit hyperactive disorder" or adhd or "attention deficit disorder with hyperactivity" or "eating disorder" or "eating problem" or "feeding and eating disorder" or "emerging personality disorder" or "emerging personality problem" or "personality disorder" or "externalising disorder" or "externalising problem" or "oppositional defiant disorder" or "oppositional defiant problem" or "attention deficit and disruptive behavior disorders" or psychos* or "psychotic" or anxiety or depression or depressive or anxious or "obsessive compulsive disorder" or OCD or phobia or phobic or "mood disorder" or "anxiety disorder" or "panic disorder" or agoraphobia or "internalising problem" or "internalising disorder" or "internalizing problem" or "internalizing disorder" or "externalizing problem" or "externalizing disorder") NEAR/8 (children or adolescent* or adolescence or youth* or child or teenager* or pediatric* or paediatric* or kid* or teen* or "young person" or "young people" or boy* or girl* or juvenile*))
#7	#5 AND #6
#8	#7 English

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#3	'attention deficit disorder*' OR 'attention deficit hyperactive disorder*' OR adhd OR 'attention deficit disorder with hyperactivity' OR 'Eating disorder* or anorexia or bulimia' OR 'eating problem*' OR 'feeding and eating disorders' OR 'emerging personality disorder*' OR 'emerging personality problem*' OR 'personality disorder' OR 'externalising disorder*' OR 'externalising problem*' OR 'externalizing disorder*' OR 'externalizing problem*' OR 'oppositional defiant disorder*' OR 'oppositional defiant problem*' OR 'attention deficit and disruptive behavior disorders' OR psychos* OR 'psychotic disorder*' OR 'psychotic problem*' OR anxiety OR depression OR depressive OR 'obsessive compulsive disorder' OR 'ocd' OR phobia OR phobic OR 'mood disorder' OR 'anxiety disorder' OR 'panic disorder' OR agoraphobia OR 'internalising problem*' OR 'internalising disorder*' OR 'internalizing problem*' OR 'internalizing disorder*
#4	“Information need*” or “knowledge need*” or need* or support or experience* or impact or wellbeing or concern* or want or perspective* or belief* or attitude* or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy”
#5	#1 and #2 and #3 and #4

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#2	children OR adolescent* OR adolescence OR youth* OR child OR teenager* OR pediatric* OR paediatric* OR kid* OR teen* OR 'young person' OR 'young people' OR boy* OR girl* OR juvenile*
#3	'attention deficit disorder*' OR 'attention deficit hyperactive disorder*' OR adhd OR 'attention deficit disorder with hyperactivity' OR 'Eating disorder*' or anorexia or bulimia' OR 'eating problem*' OR 'feeding and eating disorders' OR 'emerging personality disorder*' OR 'emerging personality problem*' OR 'personality disorder' OR 'externalising disorder*' OR 'externalising problem*' OR 'externalizing disorder*' OR 'externalizing problem*' OR 'oppositional defiant disorder*' OR 'oppositional defiant problem*' OR 'attention deficit and disruptive behavior disorders' OR psychos* OR 'psychotic disorder*' OR 'psychotic problem*' OR anxiety OR depression OR depressive OR 'obsessive compulsive disorder' OR 'ocd' OR phobia OR phobic OR 'mood disorder' OR 'anxiety disorder' OR 'panic disorder' OR agoraphobia OR 'internalising problem*' OR 'internalising disorder*' OR 'internalizing problem*' OR 'internalizing disorder'
#4	“Information need*” or “knowledge need*” or need* or support or experience*or impact or wellbeing or concern* or want or perspective* or belief* or attitude*or prefer* or anxiety or anxious or depressed or depression or strain or stress or burden or “parent satisfaction” or “family relationship” or “parent* self-efficacy”
#5	#1 and #2 and #3 and #4



**Table 1: Cut-off points to indicate normal, elevated, or clinical ranges of outcome measures used in included studies**

Measure Abbreviation	Measure Name	Variable measured	Score Range	Cut-off point	Reference
ASR	Adult Self-Report from the Achenbach System of Empirically Based Assessments	Anxiety, depression, and personality problems – somatic, avoidant and antisocial.	0-240 for total score	The thresholds for clinical and subclinical scores for the ABCL and ASR correspond to the 97th and 93rd percentiles.	Achenbach T.M., Rescorla L.A. Manual for the ASEBA Adult Forms & Profiles. University of Vermont, Research Center for Children, Youth, & Families; Burlington, VT, USA: 2003
BDI	Beck Depression Inventory (original 1961 measure)	Depression	1 to 42	1-10:Normal 11-16:Mild 17-20 :Borderline clinical depression 21-30: Moderate 31-40 :Severe 40+: Extreme  The cut-off also used in the Turkish version, seen in Karacan, F. A., Yilmaz, S., & Kara, T. (2022). The Mental Health and Marital Adjustment of Mothers of Children with Attention Deficit Hyperactivity Disorder. 60(3), pp. 220-227.	Beck At, Ward Ch, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. Arch Gen Psychiatry 1961;4:561-71.
BDI-II	BDI-II	Depression	0 to 63	0-13 – minimal 14-19 – mild 20-28 – moderate 29 – 63 - severe	Beck, A. T., Steer, R. A., Ball, R., & Ranieri, W. (1996). Comparison of Beck Depression Inventories -IA and -II in psychiatric outpatients. Journal of Personality Assessment, 67, 588–597. 10.1207/s15327752jpa6703.

BSI	Brief Symptom Inventory	Distress	Each subscale (T-score): 0 to 100	<p><b>T[two scales] or GSI (Global severity index) t-scores:</b>          &lt; 60: "no distress"          ≥ 60 and &lt; 63: "mild distress"          ≥ 63 and &lt; 70: "remarkable distress"          ≥ 70: "severe distress"</p> <p><b>PSDI (Positive symptom distress index) t-scores:</b>          &lt; 49: "no distress"          ≥ 49 and &lt; 60: "mild distress"          ≥ 60 and &lt; 70: "remarkable distress"          ≥ 70: "severe distress"</p> <p><b>PST (Positive symptom total) t-scores:</b>          &lt; 47: "no distress"          ≥ 47 and &lt; 57: "mild distress"          ≥ 57 and &lt; 69: "remarkable distress"          ≥ 69: "severe distress"</p>			(Derogatis & Melisaratos, 1983) (Derogatis, 1993) (Helga et al., 2021)
CES-D	Centre for Epidemiological Studies Depression Scale	Depression	0 to 60	16+: Clinically significant depressive symptoms			(Hann D. et al., 1999) (Radloff, 1977)
DASS-42	Depression Anxiety Stress Scale	Depression, anxiety, stress	Each subscale: 0 to 42	Depression: 0-9: Normal 10-13: Mild 14-20: Moderate 21-27: Severe + 28: Extremely severe	Anxiety 0-7: Normal 8-9: Mild 10-14: Moderate 15-19: Severe 20+: Extremely Severe	Stress 0-14: Normal 15-18: Mild 19-25: Moderate 26-33: Severe 34+ :Extremely Severe	(Lovibond & Lovibond, 1995)

DASS-21	Depression Anxiety Stress Scale – 21 items (Short version)	Depression, anxiety, stress	Each subscale: 0 to 21	Depression: 0-4: Normal 5-6: Mild 7-10: Moderate 11-13: Severe + 14: Extremely severe	Anxiety 0-3: Normal 4-5: Mild 6-7: Moderate 8-9: Severe 10+: Extremely Severe	Stress 0-7 Normal 8-9 Mild 10-12 Moderate 13-16: Severe 17+: Extremely Severe	(Henry JD & JR, 2005)
GBI	General Behavior Inventory (Depue et al., 1982)			Depression – 22+ Hypomania – 13+			(RL et al., 2002)
GHQ-12	GHQ (short version 12 items)	Psychological disorder	0 to 36	<b>Cut-off threshold to identify “caseness” (ratio between experiment group scores and control group scores)</b> $< 2/3 = 0.666$ : case of psychological disorder  <b>Raw scores:</b> Women: $< 3$ Non-cases Men $< 3$ Non-cases			(Anjara et al., 2020; Goldberg D. P. et al., 1998)
GHQ-28	GHQ (short version 28 items)	Psychological disorder	0 to 84	<b>Total scores:</b> - 23: Non-psychiatric + 24: Psychiatric  <b>Threshold for subscales:</b> Low: 1/2 Mid: 2/3 High : 3/4 - 6/7  Alternatively - “sten scores” 6 or more indicative of clinical difficulties.			(Hjelle Ellen G. et al., 2019; Willmott Sasi A. et al., 2004) (Pisula et al., 2019)
HADS	Hospital and Anxiety and Depression Scale	Anxiety and depression	0 to 21	0-7: Normal 8-10: Mild			(A.S Zigmond & Snaith, 1983)

				11-14 Moderate 15-21 Severe	
HAMA / HARS	The Hamilton Anxiety Scale	Anxiety	0 to 56	<17: Mild 18-24: Mild to moderate 25-30: Moderate to severe	(W Maier et al., 1988)
HAMD / HDRS	The Hamilton Depression Scale	Depression	0 to 29	0-7: Normal 8-13: Mild 14-18: Moderate 19-22: Severe >23: Very severe	(E Frank et al., 1991)
HRSD-24 / HAMD24	Hamilton Depression Scale - 24	Depression	0 to 72	< 8: no depression 8-19: mild depression 20-34: moderate depression ≥ 35: severe depression	(Li et al., 2020)
K6	Kessler 6	Depression	0 to 24	5 +: Moderate 13 +: Clinical	(Ronald C. Kessler et al., 2003)
MCS-12	Mental health component of the SF-12	Mental wellbeing	0 to 100	< 42: Clinical depression	(Ware et al., 1995)
PSI-SF (36 item versions)	Short version of the PSI	Stress	36 to 180 <sup>1</sup>	<b>Using percentile scores</b> Parental distress: Typical 15-80; high stress 81-89; clinically significant stress 90-100 Parent-Child Dysfunctional interaction: Typical 5-80; high 81-84; clinically significant 85-100 Difficult child: 15-80; 81-89; 90-100 Total stress: 15-80; 81-89; 90-100  <b>Raw scores (clinical cutoff)</b> Parental distress: > 33 Parent-Child Dysfunctional interaction: > 27 Difficult child: > 33 Total stress: > 90	(Abidin, R. R., 1990) (Dardas & Ahmad, 2014)
PSI4-SF	Parenting Stress Index Short Form version 4	Stress	T-scores: 20 to 100	T-scores: < 62 within normal limits > 66 clinically significant	<a href="https://www.tricare-west.com/content/dam/hnfs/tw/prov/resource">https://www.tricare-west.com/content/dam/hnfs/tw/prov/resource</a>

<sup>1</sup> Range of scores is taken from sum of the 3 subscales

					s/pdf/ACD%20PSI%20Provider%20education.pdf
PSS	Parental Stress Scale	Stress	0 to 40	Men cut-off: 24.0 Women cut-off: 25.6  Aggarwal paper has “severity of stress is rated as: Mild – 18 to 42; Moderate– 43 to 66; Severe – 67 to 90” with the scale going from 18-90 – see <a href="#">A Comparative Study of Stress, Anxiety &amp; Work Impairment in Parents of Children with Conduct Disorder (sagepub.com)</a>	(Judy O. Berry & Jones, 1995)
SCL-90-R	Symptom Check-List-90-R (SCL-90-R)	Overall mental health	Mean of item scores 0-4.	German version used in included study. Cut-off for Global scale 0.5 indicates clinical difficulties	Schmitz, N., N. Hartkamp, J. Kiuse, G. H. Franke, G. Reister, & W. Tress. (2000). The Symptom Check-List-90-R (SCL-90-R): A German Validation Study. <i>Quality of Life Research</i> , 9(2), 185–193. <a href="http://www.istor.org/stable/4036992">http://www.istor.org/stable/4036992</a>
STAI	State-trait anxiety inventory	Anxiety (syndrome and trait)	20 to 80	Trait scale: > 40 high anxiety traits State scale: > 40 high anxiety symptoms	(Addolorato et al., 1999)
WSAS	The Work and Social Adjustment Scale	Impairment in functioning	0 to 40	0-9: Low impairment 10-19: Moderate impairment 20-40 Severe impairment	(James C Mundt et al., 2002)
ZBI	Zarit Burden Inventory	Burden	<b>22 item:</b> 0 to 88  <b>Short:</b>	<b>Revised version:</b> 0-21: No to mild burden 21-40: Mild to moderate Burden 41-60: Moderate to severe burden	(S. H Zarit et al., 1980) (Naser Al-Balushi et al., 2019)

**Commented [SW1]:** Website with information on scoring and results interpretation

			0 to 48	61+: Severe burden	
			<b>Screen:</b> 0 to 16	<b>Short version:</b> 0-10: No to mild burden 10-20: Mild to moderate burden 20+: High burden	
				<b>Screen version:</b> 8+: High burden	

- A.S Zigmond , & Snaith, R. P. (1983). The hospital anxiety and depression scale. *67*, 361-370. <https://pubmed.ncbi.nlm.nih.gov/6880820/>
- Addolorato, G., Ancona, C., Capristo, E., Graziosetto, R., Di Rienzo, L., Maurizi, M., & Gasbarrini, G. (1999). State and trait anxiety in women affected by allergic and vasomotor rhinitis. *Journal of psychosomatic research*, *46*(3), 283-289. [https://doi.org/10.1016/S0022-3999\(98\)00109-3](https://doi.org/10.1016/S0022-3999(98)00109-3)
- Anjara, S. G., Bonetto, C., Van Bortel, T., & Brayne, C. (2020). Using the GHQ-12 to screen for mental health problems among primary care patients: psychometrics and practical considerations [OriginalPaper]. *International Journal of Mental Health Systems*, *14*(1), 1-13. <https://doi.org/doi:10.1186/s13033-020-00397-0>
- Beck, A. T., Epstein, N., Brown, G., Steer, A., R., & (1988). An Inventory for Measuring Clinical Anxiety: Psychometric Properties. *56*, 893-897.
- Dardas, L. A., & Ahmad, M. M. (2014). Psychometric properties of the Parenting Stress Index with parents of children with autistic disorder. *Journal of Intellectual disability Research*, *58*(6). <https://doi.org/10.1111/jir.12053>
- Depue, R. A., Slater, J. F., Wolfstetter-Kausch, H. K., Goplerud, D., & Eric Farr, D. (1982). A behavioral paradigm for identifying persons at risk for bipolar depressive disorder: A conceptual framework and five validation studies. *Journal of Abnormal Psychology*, *90*(5). <https://doi.org/10.1037/0021-843X.90.5.381>
- Derogatis, L. R. (1993). *BSI Brief Symptom Inventory. Administration, Scoring, and Procedures Manual* (4th ed. ed.).
- Derogatis, L. R., & Melisaratos, N. (1983). The Brief Symptom Inventory: An introductory report. (13(3)), 595-605.
- Diener, E. Emmons, R. A., Randy J Larsem, & Sharon Griffin. (1985). The Satisfaction With Life Scale. *49*, 71-75. Retrieved 2, from
- E Frank, R. F Prien, R. B Jarrett, M. B Keller, D. J Kupfer, P. W Lavori, . . . Weissman, M. M. (1991). Conceptualization and rationale for consensus definitions of terms in major depressive disorder: Remission, recovery, relapse, and recurrence. *48*, 851-855.
- Goldberg D. P., Oldehinkel T., J., O., & (1998). Why GHQ threshold varies from one place to another. *28*, 915-921. Retrieved 7, from <https://pubmed.ncbi.nlm.nih.gov/9723146/>
- Hann D., Winter K., P., J., & (1999). Measurement of depressive symptoms in cancer patients: Evaluation of the center for epidemiological studies depression scale (CES-D). *46*, 437-443. Retrieved 5, from
- Helga, F. G., Melanie, J.-F., Dieter, K., & Katja, P. (2021). Frontiers | A New Routine for Analyzing Brief Symptom Inventory Profiles in Chronic Pain Patients to Evaluate Psychological Comorbidity. <https://doi.org/doi:10.3389/fpsyg.2021.692545>
- Henry JD, & JR, C. (2005). The short-form version of the Depression Anxiety Stress Scales (DASS-21): construct validity and normative data in a large non-clinical sample. *Br J Clin Psychol.*, *227*-239. <https://doi.org/10.1348/014466505X29657>.
- Hjelle Ellen G., Bragstad Line Kildal, Zucknick Manuela, Kirkevold Marit, Thommessen Bente, & Unni, S. (2019). The General Health Questionnaire-28 (GHQ-28) as an outcome measurement in a randomized controlled trial in a Norwegian stroke population. *7*. Retrieved 3, from <https://pubmed.ncbi.nlm.nih.gov/30902115/>

- James C Mundt, Isaac M Marks, M. Katherine Shear, & Greist, J. H. (2002). The Work and Social Adjustment Scale: a simple measure of impairment in functioning. *180*, 461-464. <https://pubmed.ncbi.nlm.nih.gov/11983645/>
- Janssen Bas, & Agota, S. (2014). Population norms for the EQ-5D. 19-30. Retrieved 1, from [https://link.springer.com/chapter/10.1007/978-94-007-7596-1\\_3](https://link.springer.com/chapter/10.1007/978-94-007-7596-1_3)
- Judy O. Berry, & Jones, W. H. (1995). The parental stress scale: Initial psychometric evidence. *12*, 463-472.
- Kurt Kroenke, Robert L. Spitzer, & Williams, J. B. W. (2001). The PHQ-9: validity of a brief depression severity measure. *16*, 606-613. <https://pubmed.ncbi.nlm.nih.gov/11556941/>
- Levine, S. Z. (2013). Evaluating the seven-item Center for Epidemiologic Studies depression scale short-form: a longitudinal U.S. community study. *48*, 1519-1526. Retrieved 9, from <https://pubmed.ncbi.nlm.nih.gov/23299927/>
- LI, J., OAKLEY, L. D., BROWN, R. L., LI, Y., & LUO, Y. (2020). Properties of the Early Symptom Measurement of Post-Stroke D... : *Journal of Nursing Research. Journal of Nursing Research*, 28(4). <https://doi.org/10.1097/jnr.0000000000000380>
- Linn, M. (1985). A Global Assessment of Recent Stress (GARS) Scale. . *Int J Psychiatry Med*. <https://doi.org/10.2190/xp8n-rp1w-ye2b-9q7v>
- Lovibond, S. H., & Lovibond, P. F. (1995). *Depression Anxiety and Stress Scales (DASS-42)*. <https://doi.org/https://doi.org/10.1037/t39835-000>
- Naser Al-Balushi, Mohammed Al-Alawi, Muna Al Shekaili, Manal Al-Balushi, Hassan Mirza, Salim Al-Huseini, . . . Al-Adawi, S. (2019). Predictors of Burden of Care Among Caregivers of Drug-Naive Children and Adolescents With ADHD: A Cross-Sectional Correlative Study From Muscat, Oman. *23*, 517-526. Retrieved 3, from <https://pubmed.ncbi.nlm.nih.gov/30371135/>
- Neha Shah, Mizaya Cader, Bill Andrews, Rose McCabe, & Stewart-Brown, S. L. (2021). Short Warwick-Edinburgh Mental Well-being Scale (SWEMWBS): performance in a clinical sample in relation to PHQ-9 and GAD-7. *19*, 1-9. Retrieved 12, from <https://hqlo.biomedcentral.com/articles/10.1186/s12955-021-01882-x>
- Ocansey Patience M.E., Kretchy Irene A., Aryeetey Genevieve C., Agyabeng Kofi, & Justice, N. (2021). Anxiety, depression, and stress in caregivers of children and adolescents with mental disorders in Ghana and implications for medication adherence. *55*, 173. Retrieved 9, from /pmc/articles/PMC9334939/ /pmc/articles/PMC9334939/?report=abstract <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9334939/>
- Pisula, A., Bryńska, A., Wójtowicz, S., Srebnicki, T., & Wolańczyk, T. (2019). General health, sense of coherence and coping styles in parents participating in Workshops for Parents of Hyperactive Children. *Psychiatria polska*, 53(2), 419-432. <https://doi.org/doi:10.12740/PP/94382>
- Radloff, L. S. (1977). The CES-D Scale: A Self-Report Depression Scale for Research in the General Population. *1*, 385-401.
- RL, F., EA, Y., CK, D., D, D.-B., R, P.-D., L, T., & JR, C. (2002). Clinical decision-making using the General Behavior Inventory in juvenile bipolarity. *Bipolar disorders*, 4(1). <https://doi.org/10.1034/j.1399-5618.2002.40102.x>
- Ronald C. Kessler, Peggy R. Barker, Lisa J Colpe, Joan F Epstein, Joseph C Gfroerer, Eva Howes Hiripi, . . . Zaslavsky, A. M. (2003). Screening for Serious Mental Illness in the General Population. *60*, 184-189. Retrieved 2, from <https://jamanetwork.com/journals/jamapsychiatry/fullarticle/207204>
- S. H Zarit, K. E Reeve, & Bach-Peterson, J. (1980). Relatives of the impaired elderly: Correlates of feelings of burden. *20*, 649-655.
- Skapinakis, P. (2014). Spielberger State-Trait Anxiety Inventory. 6261-6264. [https://link.springer.com/referenceworkentry/10.1007/978-94-007-0753-5\\_2825](https://link.springer.com/referenceworkentry/10.1007/978-94-007-0753-5_2825)
- Skevington, S. M., Lotfy, M., & O'Connell, K. A. (2004). The World Health Organization's WHOQOL-BREF quality of life assessment: Psychometric properties and results of the international field trial. A Report from the WHOQOL Group. *Quality of Life Research*, 13(2), 299-310. <https://doi.org/10.1023/B:QURE.0000018486.91360.00>
- Spitzer Robert L., Kroenke Kurt, Williams Janet B.W., & Bernd, L. (2006). A brief measure for assessing generalized anxiety disorder: the GAD-7. *166*, 1092-1097. Retrieved 5, from <https://pubmed.ncbi.nlm.nih.gov/16717171/>
- Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., Stewart-Brown, S. (2007). Warwick-Edinburgh Mental Well-Being Scale. <https://psycnet.apa.org/doiLanding?doi=10.1037%2F01628-000>

- W Maier, R Buller, M Philipp, & Heuser, I. (1988). The Hamilton Anxiety Scale: reliability, validity and sensitivity to change in anxiety and depressive disorders. *J Affect Disord.* [https://doi.org/10.1016/0165-0327\(88\)90072-9](https://doi.org/10.1016/0165-0327(88)90072-9)
- Ware, J., Kosinski, M., & Keller, S. D. (1995). How to score the SF-12 physical and mental health summary scales Boston. MA: *The Health Institute*, 2.
- Ware Jr, J. (2000). SF-36 health survey update. *Spine*, 25(24). <https://doi.org/10.1097/00007632-200012150-00008>
- Willmott Sasi A., Boardman Jed A.P., Henshaw Carol A., & W., J. P. (2004). Understanding General Health Questionnaire (GHQ-28) score and its threshold. 39, 613-617. Retrieved 8, from <https://pubmed.ncbi.nlm.nih.gov/15300371/>



### Supplementary Materials 3: Approach to study quality appraisal and results

The approach to study quality appraisal is set out below, with the criteria detailed in Table S3.1 and the appraisal results in Table S3.2.

The scale covers three areas: selection of participants; comparability of case-control groups (where relevant); and exposure to the issue of interest.<sup>1</sup> Each area has items that are scored with a star if criteria are met. This tool is commonly used to appraise quality in observational studies, and has versions for case-control and cohort studies, sometimes used for cross-sectional designs.<sup>2,3</sup> The scale is modifiable<sup>3</sup>. Our review includes a range of study designs, including cross-sectional, case-control, and intervention studies. However, our core research question relates to establishing the levels of our variables in our population at baseline”, rather than evaluating any type of intervention or longitudinal changes. As such, based on the originals and a version developed for cross-sectional studies<sup>4</sup>, we made modifications to increase relevance to our review. Modifications were made to specify what constitutes being a representative sample of cases and clarification regarding ascertainment of exposure (here exposure to CYP with a mental health condition). The details of comparability were expanded to allow evaluation not only of case-control designs, but also for cross-sectional designs around whether important confounding variables were considered. Given that our interest is not in repeated measures, follow-up considerations were altered to consider statistical testing and data completion. The criteria are detailed below in Table S3.1 and related to 1) selection of participants as representative, appropriate control group where included, how exposure to CYP mental health difficulties was ascertained, and definition of any control group; 2) comparability both in terms of comparison to any control group but also exploring within a sample the relevance of important factors such as presence of fathers in the sample and ethnic diversity; and 3) outcome assessment, testing and reporting of missing data. If the study provided acceptable evidence of the criteria, it was scored “\*” and allocated a point. Otherwise the study scored “U” for unacceptable or “N/A” where the criteria was not relevant to that study. The maximum points available is nine, as in the original tool.

**Table S3.1: Study quality appraisal criteria and scoring details**

Criteria	Acceptable - scored “*”	Unacceptable – scored “U”
<b>Selection: Representative of the (exposed) sample</b>	Truly or somewhat representative – either statistically representative or drawn from an appropriate pool, e.g., parents of CYP who are attending services.	Intervention sample – whereby the characteristics and distress in parents taking part in an intervention may be different to the general parent population (e.g., worse therefore feeling need to attend intervention). Selected convenience sample No details given
<b>Selection: Selection of non-exposure cohort</b>  <b>N.B. N/A for designs other than case-control</b>	Drawn from same / similar community as the exposed cohort	Drawn from a different cohort (e.g., parents in control group from a different ethnic group). No description given (where a case-control study).
<b>Selection: Ascertainment of exposure</b>	Clinical records revealing diagnosis of CYP mental health condition. And/or	Self-reported symptoms of distress, not in relation to clinical diagnosis

	Researchers used validated method (e.g., structured clinical interview, appropriate screening tool) to confirm diagnosis of CYP mental health condition	No information provided
Selection: Definition of controls	CYP has no clinical records of distress and is not involved in clinical services or seeking support Self-report by parent and/or CYP (e.g., CYPs have completed a screening measure for the mental health condition of interest).	Assumed no clinical diagnosis without recording any attempts to ascertain this No information provided
<b>Comparability:</b> <b>Maximum two stars</b>  <i>N.B. may N/A where study sample is highly focused on e.g., mothers of CYP with specific diagnosis</i>	One star: Study controls for or analyses in relation to main factor: parents' gender.  Additional star: Study controls for additional relevant factor (e.g., parents' ethnicity).	Study does not control for any relevant factors.
<b>Outcome: Assessment of outcome</b>  <b>N.B. this is an eligibility for inclusion criterion</b>	Clear outcomes are reported using validated measure with cut-off, or with comparison to control group.	No validated measures used. No outcome reported.
<b>Outcome: Statistical test</b>	Appropriate statistical test is used to describe the level of the observed variable in the sample, presented with appropriate confidence intervals / p-value.	Statistical test not appropriate. No statistical test described.
<b>Outcome: None responses / incomplete data</b>	Missing data were justified (e.g., reasons for none responses or reasons for participant withdrawal provided).	Missing data was not justified or no clear statement about missing data presented.

## References

1. Wells G, Shea B, O'Connell D, Peterson J, Welch V, Losos M, et al. The Newcastle-Ottawa Scale (NOS) for assessing the quality if nonrandomized studies in meta-analyses. Accessed February 2021 from: [http://www.ohrica.com/programs/clinical\\_epidemiology/oxford.asp.2012](http://www.ohrica.com/programs/clinical_epidemiology/oxford.asp.2012).
2. Luchini C, Stubbs B, Solmi M, Veronese N. Assessing the quality of studies in meta-analyses: Advantages and limitations of the Newcastle Ottawa Scale. World Journal of Meta-Analysis. 2017;5(4):80-4.
3. Ma L-L, Wang Y-Y, Yang Z-H, Huang D, Weng H, Zeng X-T. Methodological quality (risk of bias) assessment tools for primary and secondary medical studies: what are they and which is better? Military Medical Research. 2020;7:1-11.
4. Herzog R, Álvarez-Pasquín MJ, Díaz C, Del Barrio JL, Estrada JM, Gil Á. Are healthcare workers' intentions to vaccinate related to their knowledge, beliefs and attitudes? a systematic review. BMC Public Health. 2013;13(1):154.

**Table S3.2. The results of the study quality appraisal**

Study First Author	Selection: Representative of the (exposed) sample	Selection: Selection of non-exposure cohort	Selection: Ascertainment of exposure	Selection: Definition of controls	Comparability:	Outcome: Assessment of outcome	Outcome: Statistical test	Outcome: None responses incomplete data	Total /9
Acri	*	*	*	NA	U	*	*	*	6
Aggarwal	*	NA	*	NA	*	*	*	NA	5
Algorta	*	*	*	U	U	*	*	NA	5
Alqahtani	*	NA	U	NA	**	*	*	NA	5
Carroll	*	NA	*	NA	U	*	U	NA	3
Cooper	*	U	*	*	*	*	*	*	7
Costin	U	NA	*	NA	U	*	*	*	4
Derisley	*	U	*	NA	U	*	*	NA	4
Duclos	*	NA	*	NA	*	*	*	*	6
Farley	U	NA	*	NA	U	*	*	*	4
Fields	U	NA	*	NA	U	*	*	NA	3
Gerkenmeyer	U	NA	*	NA	**	*	*	*	6
Halldorsson	*	NA	*	NA	*	*	*	*	6
Hamovitch	*	NA	U	NA	U	*	*	*	4
He, 2020	U	U	*	*	**	*	*	*	7
He, 2021	U	NA	*	NA	U	*	*	NA	3
Johnco	*	NA	U	NA	U	*	*	*	4
Lebowitz	*	NA	*	NA	U	*	*	*	5
Lim	*	NA	U	NA	*	*	*	NA	4
Ozyurt	*	NA	*	NA	U	*	*	*	5
Poole	*	NA	*	NA	U	*	*	*	5
Racey	*	NA	*	NA	U	*	*	*	5
Schwarte	*	NA	*	NA	*	*	U	*	5
Sengupta	*	U	*	NA	*	*	*	U	5
Settipani	*	NA	*	NA	U	*	U	*	4
Stewart	*	NA	U	NA	U	*	*	*	4
Sung	*	NA	*	NA	**	*	U	NA	5
Tan	*	*	*	U	*	*	*	NA	6

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Timmer	U	NA	*	NA	U	*	U	*	3
Truttmann	*	NA	*	NA	U	*	*	*	5
Wilksch	*	NA	U	NA	U	*	*	U	3
Zeiler	*	NA	*	NA	U	*	*	U	4

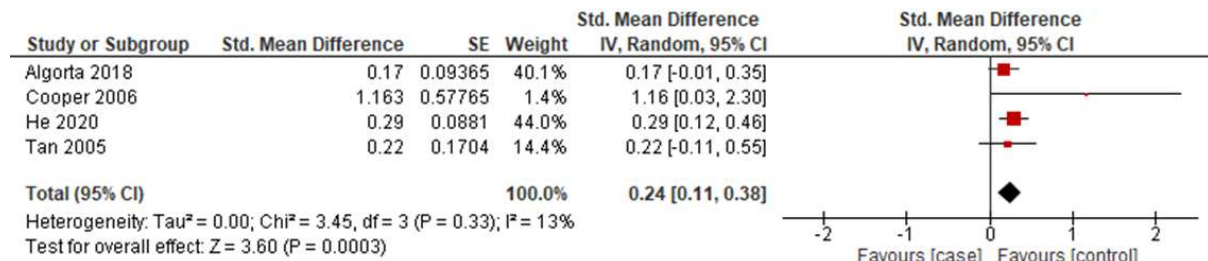
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## Supplementary Materials 4: Forest plots

Figure S4.1 Forest plots comparing case-control data for a) depression and b) parent stress

### A: Forest plot for case-control studies measuring depression



### B: Forest plot for case-control studies measuring parent stress

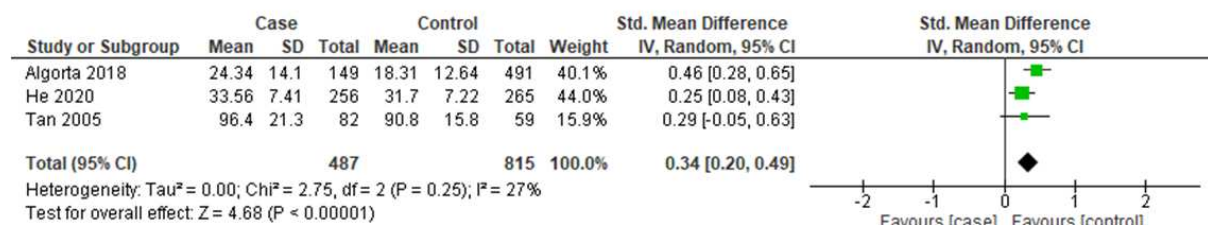
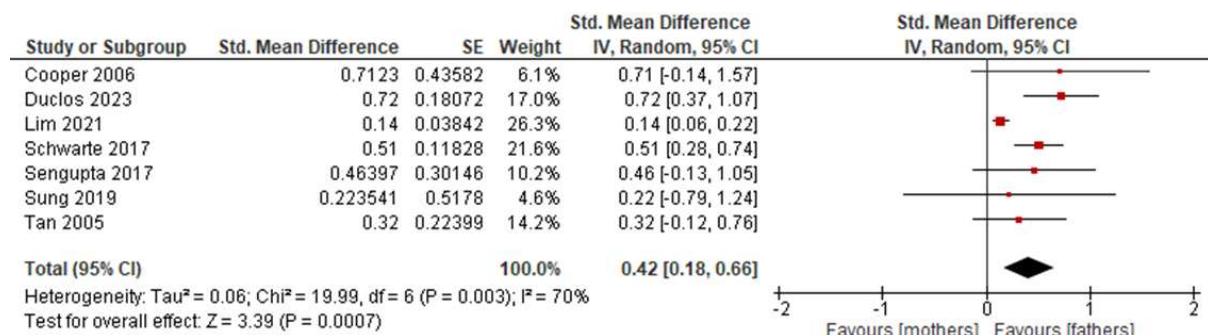
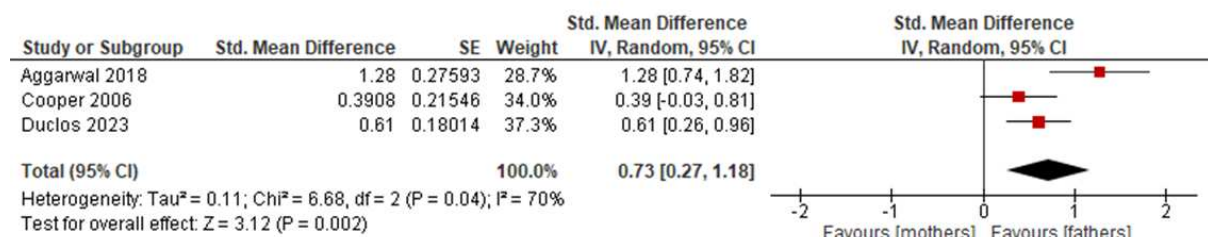


Figure S4.2 Forest plots comparing data from mothers and fathers for a) depression and b) anxiety

### A: Forest plot comparing depression scores between mothers and fathers



### B: Forest plot comparing anxiety scores between mothers and fathers



## Supplementary Materials 5: Sensitivity Analysis

Sensitivity analysis was performed by removing each study in turn from each meta-analysis comparison. Table S5.1 provides the details of the impact of this on the report mean differences and 95% confidence intervals.

Comparison	Outcome	Study deleted	Mean difference (95% CI)
Case-control	Depression	All in	0.24 (0.11-0.38)
		Algorta 2018	0.30 (0.10-0.50)
		Cooper 2006	0.23 (0.11-0.35)
		<u>He 2020</u>	<u>0.23 (-0.01-0.47)*</u>
		Tan 2005	0.22 (0.07-0.4%)
Case-control	Parenting stress	All in	0.34 (0.20-0.49)
		Algorta 2018	0.26 (0.11-0.41)
		He 2020	0.42 (0.26-0.59)
		Tan 2005	0.36 (0.15-0.56)
Mothers-fathers	Depression	All in	0.42 (0.18-0.66)
		Cooper 2006	0.40 (0.15-0.65)
		Duclos 2003	0.34 (0.12-0.56)
		Lim 2021	0.53 (0.36-0.69)
		Schwarte 2017	0.39 (0.12-0.67)
		Sengupta 2017	0.41 (0.15-0.67)
		Sung 2019	0.43 (0.17-0.68)
		Tan 2005	0.44 (0.16-0.71)
		Mothers-fathers	Anxiety
Aggarwal 2018	0.52 (0.25-0.79)		
Cooper 2006	0.91 (0.26-1.57)		
<u>Duclos 2023</u>	<u>0.82 (-0.05-1.69)*</u>		

\*95% CI crosses zero and no longer statistically significant at  $p < 0.05$

For case-control depression, study characteristics are:

Study	n	CYP condition	Country	Measure	Significant difference?
Algorta 2018	612	Bipolar	UK	GBI	No
Cooper 2006	215	Anxiety	UK	SCID	Yes
He 2020	521	ODD	China	CESD	Yes
Tan 2005	141	Depression	Malaysia	BDI	No

For mother-father anxiety, study characteristics are:

Study	n	CYP condition	Country	Measure	Significant difference?
Aggarwal 2018	32	ODD	India	HAMA	Yes
Cooper 2006	215	Anxiety	UK	SCID	No
Duclos 2023	135	Anorexia	France	HADS	Yes