

# **Prevalence of mental health symptoms in children and adolescents during the COVID-19 pandemic: A meta-analysis**

**Supplementary Tables S2-S8:** Database search strategies

**Table S2: MEDLINE search strategy**

Database: Ovid MEDLINE(R) and Epub Ahead of Print, In-Process, In-Data-Review & Other Non-Indexed Citations, Daily and Versions 1946 to 2022		
Line Number	Search Statement	Results
1	((("Corona virinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) adj4 ("19" or "2019" or novel or new)) or (("Coronavirinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) and (wuhan or china or chinese or hubei)) or "COVID-19" or "Corona virinae19" or "Corona virinae2019" or "corona virus19" or "corona virus2019" or Coronavirinae19 or Coronavirinae2019 or coronavirus19 or coronavirus2019 or COVID19 or COVID2019 or nCoV19 or nCoV2019 or "SARS Corona virus 2" or "SARS Coronavirus 2" or "SARS-COV-2" or "Severe Acute Respiratory Syndrome Corona virus 2" or "Severe Acute Respiratory Syndrome Coronavirus 2" or sarscov*).ti,ab,hw,kw,mp. or (Severe Acute Respiratory Syndrome Coronavirus 2 or COVID-19 or COVID-19 drug treatment or COVID-19 serotherapy or COVID-19 diagnostic testing or COVID-19 vaccine or spike glycoprotein, COVID-19 virus).os,ps,rs,ox,px,rx,nm.	301,092
2	depress*.ti,ab,kf. or exp Depression/	563,292
3	anxiety.ti,ab,kf. or exp Anxiety/ or exp Anxiety Disorders/	316,159
4	sleep.ti,ab,kf. or exp Sleep/ or exp "Sleep Initiation and Maintenance Disorders"/ or insomnia.ti,ab,kf.	234,604
5	exp Mental Disorders/ or exp Mental Health/ or exp Mood Disorders/ or affective disorder?.ti,ab,kf. or mood disorder?.ti,ab,kf. or mental health.ti,ab,kf.	1,541,818
6	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric* or PICU).ti,ab. or exp child/	3,147,978
7	(teen* or youth* or adolescen* or juvenile* or (young adj2 (adult* or person* or individual* or people* or population* or man or men or wom#n)) or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or high school* or college* or ((secondary or high*) adj2 (school* or education))).ti,ab. or adolescent/ or young adult/	3,057,546
8	1 and (2 or 3 or 4 or 5) and (6 or 7)	8,540
9	limit 8 to yr="2020-Current"	8,540

**Table S3: EMBASE search strategy**

Database: Ovid EMBASE 1974 to 2022		
Line Number	Search Statement	Results
1	((("Corona virinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) adj4 ("19" or "2019" or novel or new)) or (("Coronavirinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) and (wuhan or china or chinese or hubei)) or "COVID-19" or "Corona virinae19" or "Corona virinae2019" or "corona virus19" or "corona virus2019" or Coronavirinae19 or Coronavirinae2019 or coronavirus19 or coronavirus2019 or COVID19 or COVID2019 or nCoV19 or nCoV2019 or "SARS Corona virus 2" or "SARS Coronavirus 2" or "SARS-COV-2" or "Severe Acute Respiratory Syndrome Corona virus 2" or "Severe Acute Respiratory Syndrome Coronavirus 2" or sarscov*).ti,ab,hw,kw,mp.	342,593
2	depress*.ti,ab,kf. or exp Depression/ or exp long term depression/ or exp major depression/ or exp minor depression/	903,129
3	anxiety.ti,ab,kf. or exp Anxiety/ or exp Anxiety Disorders/ or exp generalized anxiety disorder/	584,532
4	sleep.ti,ab,kf. or exp Sleep/ or exp sleep disorder/ or insomnia.ti,ab,kf. or exp insomnia/	479,549
5	exp Mental Disorders/ or exp Mental Health/ or exp Mood Disorders/ or affective disorder?.ti,ab,kf. or mood disorder?.ti,ab,kf. or mental health.ti,ab,kf.	2,631,117
6	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric* or PICU).ti,ab. or exp child/	4,093,294
7	(teen* or youth* or adolescen* or juvenile* or (young adj2 (adult* or person* or individual* or people* or population* or man or men or wom#n)) or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or high school* or college* or ((secondary or high*) adj2 (school* or education))).ti,ab. or exp adolescent/ or exp adolescence/ or young adult/	2,682,447
8	exp child psychiatry/ or exp child behavior/ or exp child development/ or exp child health/ or exp child welfare/ or exp preschool child/ or exp child healthcare/ or exp school child/ or exp child care/	1,112,619
9	exp adolescent behavior/ or exp adolescent development/ or exp adolescent depression/ or exp adolescent health/	29,976
10	1 and (2 or 3 or 4 or 5) and (6 or 7 or 8 or 9)	12,589
11	limit 10 to yr="2020-Current"	12,584

**Table S4: APA PsycInfo search strategy**

Database: Ovid APA PsycInfo 1806 to 2022		
Line Number	Search Statement	Results
1	((("Corona virinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) adj4 ("19" or "2019" or novel or new)) or (("Coronavirinae" or "corona virus" or Coronavirinae or coronavirus or COVID or nCoV or hCoV) and (wuhan or china or chinese or hubei)) or "COVID-19" or "Corona virinae19" or "Corona virinae2019" or "corona virus19" or "corona virus2019" or Coronavirinae19 or Coronavirinae2019 or coronavirus19 or coronavirus2019 or COVID19 or COVID2019 or nCoV19 or nCoV2019 or "SARS Corona virus 2" or "SARS Coronavirus 2" or "SARS-COV-2" or "Severe Acute Respiratory Syndrome Corona virus 2" or "Severe Acute Respiratory Syndrome Coronavirus 2" or sarscov*).mp. or exp COVID-19/	22,855
2	depress*.mp. or exp "Depression (Emotion)"/ or exp "Long-term Depression (Neuronal)"/ or exp Major Depression/	416,242
3	anxiety.mp. or exp Anxiety/ or exp Anxiety Disorders/ or exp Generalized Anxiety Disorder/ or exp Health Anxiety/	292,819
4	sleep.mp. or exp Sleep/ or exp Sleep Wake Disorders/ or insomnia.mp. or exp Insomnia/	102,496
5	exp Mental Disorders/ or exp Mental Health/ or exp Mood Disorders/ or affective disorder?.mp. or mood disorder?.mp. or mental health.mp.	1,129,967
6	(child* or stepchild* or step-child* or kid or kids or girl or girls or boy or boys or teen* or youth* or youngster* or adolescent* or adolescence or preschool* or pre-school* or kindergarten* or school* or juvenile* or minors or p?ediatric* or PICU).ti,ab.	1,225,072
7	(teen* or youth* or adolescen* or juvenile* or (young adj2 (adult* or person* or individual* or people* or population* or man or men or wom#n)) or youngster* or first-grader* or second-grader* or third-grader* or fourth-grader* or fifth-grader* or sixth-grader* or seventh-grader* or high school* or college* or ((secondary or high*) adj2 (school* or education))).ti,ab.	658,795
8	exp Child Psychopathology/ or exp Child Care/ or exp Child Welfare/ or exp Child Psychology/ or exp Child Psychotherapy/ or exp Child Attitudes/ or exp Child Health/ or exp Child Self Care/ or exp Child Psychiatry/ or exp Child Behavior/	55,076
9	exp Adolescent Psychotherapy/ or exp Adolescent Development/ or exp Adolescent Psychology/ or exp Adolescent Psychiatry/ or exp Adolescent Behavior/ or exp Adolescent Attitudes/ or exp Adolescent Psychopathology/ or exp Adolescent Health/	100,044
10	1 and (2 or 3 or 4 or 5) and (6 or 7 or 8 or 9)	2,739
11	limit 10 to yr="2020-Current"	2,739

**Table S5: PubMed search strategy**

Database: PubMed Clinical Queries (COVID-19 General Filter) with date restriction (2020-2022)		
Line Number	Search Statement	Results
1	("Depress*" OR "Depression"[MeSH Terms] OR "Anxiety" OR "Anxiety"[MeSH Terms] OR "Anxiety Disorders"[MeSH Terms] OR "sleep" OR "Sleep"[MeSH Terms] OR "Sleep Initiation and Maintenance Disorders"[MeSH Terms] OR "insomnia" OR "Mental Disorders"[MeSH Terms] OR "Mental Health"[MeSH Terms] OR "Mood Disorders"[MeSH Terms] OR "affective disorder*" OR "mood disorder*" OR "mental health") AND ("child" OR "child*" OR "schoolchild*" OR "schoolchild" OR "school child" OR "school child*" OR "kid" OR "kids" OR "toddler*" OR "adolescent" OR "adoles*" OR "teen*" OR "boy*" OR "girl*" OR "minors" OR "minors*" OR "underag*" OR "under ag*" OR "juvenil*" OR "youth*" OR "kindergar*" OR "puberty" OR "puber*" OR "pubescen*" OR "prepubescen*" OR "prepuberty*" OR "pediatrics" OR "pediatric*" OR "paediatric*" OR "peadiatric*" OR "schools" OR "nursery school*" OR "preschool*" OR "pre school*" OR "primary school*" OR "secondary school*" OR "elementary school*" OR "elementary school" OR "high school*" OR "highschool*" OR "school age" OR "schoolage" OR "school age*" OR "schoolage*")	8,801

**Table S6: China National Knowledge Infrastructure (CNKI) search strategy**

Database: CNKI with synonym expansion and date restriction (2020-2022)		
Line Number	Search Statement	Results
1	((SU='疫情'+ '病毒'+ 'COVID-19' + '2019-nCoV' + 'coronavirus' + '2019nCoV' + 'SARS-CoV-2' + '新冠' + '冠状病毒') OR (TI='疫情'+ '病毒'+ 'COVID-19' + '2019-nCoV' + 'coronavirus' + '2019nCoV' + 'SARS-CoV-2' + '新冠' + '冠状病毒') OR (KY='疫情'+ '病毒'+ 'COVID-19' + '2019-nCoV' + 'coronavirus' + '2019nCoV' + 'SARS-CoV-2' + '新冠' + '冠状病毒')) AND ((SU='儿童' + '少年' + '小儿' + '青年' + '孩童' + '小孩' + '少女' + '童子' + '孩子' + '子女' + '学生' + '未成年' + '幼儿') OR (TI='儿童' + '少年' + '小儿' + '青年' + '孩童' + '小孩' + '少女' + '童子' + '孩子' + '子女' + '学生' + '未成年' + '幼儿')) AND ((SU='睡眠' + '心理' + '情绪' + '焦虑' + '抑郁' + '忧郁' + '沮丧' + '精神') OR (TI='睡眠' + '心理' + '情绪' + '焦虑' + '抑郁' + '忧郁' + '沮丧' + '精神') OR (KY='睡眠' + '心理' + '情绪' + '焦虑' + '抑郁' + '忧郁' + '沮丧' + '精神'))	793

**Table S7:** Web of Science Core Collection search strategy

Database: Web of Science Core Collection (Advanced Search Query Builder), all editions		
Line Number	Search Statement	Results
#1	TS=("Wuhan coronavirus" OR "COVID19*" OR "COVID-19*" OR "COVID-2019*" OR "coronavirus disease 2019" OR "SARS-CoV-2" OR "2019-nCoV" OR "2019 novel coronavirus" OR "SARSCoV2" OR "SARSCoV-2" OR "coronavirus" OR "coronavirus*" OR "COVID" OR "nCov 2019")	376,745
#2	TI=("Wuhan coronavirus" OR "COVID19*" OR "COVID-19*" OR "COVID-2019*" OR "coronavirus disease 2019" OR "SARS-CoV-2" OR "2019-nCoV" OR "2019 novel coronavirus" OR "SARSCoV2" OR "SARSCoV-2" OR "coronavirus" OR "coronavirus*" OR "COVID" OR "nCov 2019")	305,241
#3	TS=("depress*" OR "anxiety" OR "post\$traumatic" OR "ptsd" OR "sleep" OR "insomnia" OR "affective disorder*" OR "mood disorder*" OR "mental disorder*" OR "mental health")	1,419,527
#4	TI=("depress*" OR "anxiety" OR "post\$traumatic" OR "ptsd" OR "sleep" OR "insomnia" OR "affective disorder*" OR "mood disorder*" OR "mental disorder*" OR "mental health")	586,016
#5	TS=("child*" OR "stepchild*" OR "step-child*" OR "kid" OR "kids" OR "girl" OR "girls" OR "boy" OR "boys" OR "teen*" OR "youth*" OR "youngster*" OR "adolescent*" OR "adolescence" OR "preschool*" OR "pre-school*" OR "kindergarten*" OR "school*" OR "juvenile*" OR "minors" OR "p?ediatric")	3,192,181
#6	TI=("child*" OR "stepchild*" OR "step-child*" OR "kid" OR "kids" OR "girl" OR "girls" OR "boy" OR "boys" OR "teen*" OR "youth*" OR "youngster*" OR "adolescent*" OR "adolescence" OR "preschool*" OR "pre-school*" OR "kindergarten*" OR "school*" OR "juvenile*" OR "minors" OR "p?ediatric")	1,678,097
#7	TS=("teen*" OR "youth*" OR "adolescen*" OR "juvenile*" OR ("young" NEAR/2 ("adult*" OR "person*" OR "individual*" OR "people*" OR "population*" OR "man" OR "men" OR "wom?n")) OR "youngster*" OR "first-grader*" OR "second-grader*" OR "third-grader*" OR "fourthgrader*" OR "fifth-grader*" OR "sixth-grader*" OR "seventh-grader*" OR "high school*" OR "college*" OR (("secondary" OR "high") NEAR/2 ("school*" OR "education")))	1,615,536
#8	TI=("teen*" OR "youth*" OR "adolescen*" OR "juvenile*" OR ("young" NEAR/2 ("adult*" OR "person*" OR "individual*" OR "people*" OR "population*" OR "man" OR "men" OR "wom?n")) OR "youngster*" OR "first-grader*" OR "second-grader*" OR "third-grader*" OR "fourthgrader*" OR "fifth-grader*" OR "sixth-grader*" OR "seventh-grader*" OR "high school*" OR "college*" OR (("secondary" OR "high") NEAR/2 ("school*" OR "education")))	692,031
#9	(#1 OR #2) AND (#3 OR #4) AND (#5 OR #6 OR #7 OR #8)	8,506
#10	Date limitation to 2020-2022	8,499

**Table S8: CINAHL search strategy**

Database: EBSCOhost CINAHL, Advanced Search		
Line Number	Search Statement	Results
S1	TI (2019-nCoV OR 2019nCoV OR COVID-19 OR SARS-CoV-2 OR coronavirus*)	84,282
S2	(MH "COVID-19") OR (MH "COVID-19 Pandemic") OR (MH "SARS-CoV-2")	64,916
S3	S1 or S2	105,918
S4	TI (depression or sleep or anxiety or insomnia or anxiety disorders or mental disorders or mental health or sleep disturbances or mood disorders or affective disorders)	178,109
S5	(MH "Depression+") OR (MH "Affective Disorders, Psychotic+")	141,639
S6	(MH "Anxiety+") OR (MH "Anxiety Disorders+") OR (MH "Generalized Anxiety Disorder")	101,967
S7	(MH "Sleep+") OR (MH "Sleep Disorders, Circadian Rhythm+") OR (MH "Sleep-Wake Transition Disorders+") OR (MH "Sleep Disorders, Intrinsic+") OR (MH "Sleep Disorders+")	65,324
S8	(MH "Insomnia+")	8,820
S9	(MH "Mental Health")	51,943
S10	S4 or S5 or S6 or S7 or S8 or S9	362,387
S11	TI (child* OR stepchild* OR step-child* OR kid OR kids OR girl OR girls OR boy OR boys OR teen* OR youth* OR youngster* OR adolescent* OR adolescence OR preschool* OR pre-school* OR kindergarten* OR school* OR juvenile* OR minors OR p?ediatric* OR PICU) OR AB (child* OR stepchild* OR step-child* OR kid OR kids OR girl OR girls OR boy OR boys OR teen* OR youth* OR youngster* OR adolescent* OR adolescence OR preschool* OR pre-school* OR kindergarten* OR school* OR juvenile* OR minors OR p?ediatric*)	872,875
S12	TI (teen* OR youth* OR adolescen* OR juvenile* OR (young N2 (adult* OR person* OR individual* OR people* OR population* OR man OR men OR wom?n)) OR youngster* OR first-grader* OR second-grader* OR third-grader* OR fourth-grader* OR fifth-grader* OR sixth-grader* OR seventh-grader* OR highschool* OR college* OR ((secondary OR high*) N2 (school* OR education))) OR AB (teen* OR youth* OR adolescen* OR juvenile* OR (young N2 (adult* OR person* OR individual* OR people* OR population* OR man OR men OR wom?n)) OR youngster* OR first-grader* OR second-grader* OR third-grader* OR fourth-grader* OR fifth-grader* OR sixth-grader* OR seventh-grader* OR high school* OR college* OR ((secondary OR high*) N2 (school* OR education)))	394,634
S13	(MH "Child+") OR (MH "Child Behavior Disorders+") OR (MH "Child Behavior+")	755,870
S14	(MH "Adolescent Psychiatry") OR (MH "Adolescent Psychology") OR (MH "Adolescent Health")	13,699
S15	(MH "Adolescence+")	590,115
S16	(MH "Young Adult")	282,350
S17	S11 or S12 or S13 or S14 or S15 or S16	1,621,706
S18	S3 and S10 and S17	1,984
S19	Date limitation to 2020-2022	1,794