

APPENDICES

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Appendix A. PRISMA 2009 Checklist

Section/topic	#	Checklist item	Reported on page #
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	1
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	2
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	4-5
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	5
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	6
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	6-7, appendix
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	6, appendix
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	appendix
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	6-7, appendix
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	7-8, appendix
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	7-8, appendix

Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	8-9, appendix
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	7-8, appendix
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	7-8, appendix

Appendix B. Medline Search Strategy

Search Set 1	COVID-19 Terms
1	(coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/)
2	(nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARSCOV2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kf,nm,ot,ox,rx,px.
3	((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,ab,kf,ot.
4	((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,ab,kf,ot.
5	((Wuhan or Hubei) adj5 pneumonia).ti,ab,kf,ot.
Search Set 2	Population Terms
6	exp Infant/
7	exp Infant, Newborn/
8	exp Pediatrics/
9	exp Child/
10	exp Child, Preschool/
11	exp Adolescent/
12	exp Young Adult/
13	(infan* or neonat* or child* or adolescen* or juvenile or teen* or girl* or boy* or youth* or toddler* or paediatric* or pediatric* or young adult? or school-age* or youth* or teen* or minor*).mp
Search Set 3	Mental Health Terms
14	Exp Mental Health/ or exp Mental Disorders/ or exp Behavioral Symptoms/ or "Quality of life"/ or exp Mental Health Services/
15	Depressive disorders/ or Depression/
16	Anxiety Disorders/ or exp Panic/
17	Exp Substance-related disorders/ or exp "feeding and eating disorders"/
18	Exp Obsessive-compulsive disorder/ or Trichotillomania/ or Obsessive behaviour/ or Compulsive behaviour/

19	Exp suicide/ or Exp Elimination disorders/ or Exp Sleep Wake Disorders/ or Exp Somatoform Disorders/
20	Exp “Disruptive, Impulse Control, and Conduct Disorders”/ or Conduct Disorder/ or Antisocial personality disorder/
21	Exp Trauma and Stressor Related Disorders/ or Psychological distress/ or psychological trauma/ or exp stress disorders, post-traumatic/ or Stress, psychological/
22	Exp Neurodevelopmental Disorders/
23	(Depress* or depressive symptoms or anxiety or anxi* or anxiety symptoms or insomnia or hypersomnolence or narcolepsy or “oppositional defiant disorder” or “Intermittent explosive disorder” or toxic stress or internalizing symptoms or internalizing disorders or externalizing symptoms or externalizing disorders).mp
24	Cognitive dysfunction/
25	(“post-COVID condition” or “chronic COVID syndrome” or “late sequelae of COVID-19” or “long COVID” or “long haul COVID” or “long-term COVID-19” or “post COVID syndrome” or “post-acute COVID-19” or “post-acute sequelae of SARS-CoV-2 infection”).mp
Search Set 4	Review Terms
26	Exp “systematic review”/
27	Exp “review”/
28	(“systematic review” or meta-analysis or “literature review” or “scoping review”).mp.
	Joint Terms
29	1 or 2 or 3 or 4 or 5
30	6 or 7 or 8 or 9 or 10 or 11 or 12 or 13
31	14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25
32	26 or 27 or 28
33	29 and 30 and 31 and 32
34	Limit 33=“2019-Current”

Appendix C. Grey Literature Search Sources

- Google Scholar
- UNESCO
- UNDP
- UNFPA
- UNICEF
- UNICEF INNOCENTI (Children & COVID-19 Research Library)
- UN Women
- UN Research Institute for Social Development

- UN Human Development Reports
- World Bank
- World Bank Open Repository
- WHO IRIS (Institutional Repository for Information Sharing)
- International Initiative for Impact Evaluation (3ie)
- African Development Bank Group
- Asian Development Bank
- Centre for Global Development
- Evidence Consortium on Women's Groups
- Gender & Adolescence Global Evidence (GAGE)
- Gender and COVID-19
- Joanna Briggs Institute
- MedRxiv
- PeerJ
- OSF Pre-Prints

Appendix D. Eligibility criteria

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none"> • Participants aged 0-4 years, 5-9 years (school-age children), 10-19 years (adolescents) • Children and adolescents who are in school and out-of-school. <p>*Studies including age range broader than included age range must report disaggregated data.</p>	<ul style="list-style-type: none"> • Participants aged outside of the included age ranges • Health care workers/student groups • Chronic conditions • Previous mental health conditions • COVID positive cases and neurological symptoms
<ul style="list-style-type: none"> • Studies that examine the impact of COVID-19 related lockdown and stay-at-home measures • Examples include, but are not limited to: movement restrictions, school closures, social distancing, etc. 	<ul style="list-style-type: none"> • Studies examining previous pandemics
<p>Assessment of one or more of the following outcomes through clinical diagnosis (DSM or ICD criteria) or self-reported measures, disaggregated by gender where possible:</p>	<ul style="list-style-type: none"> • No assessment of at least one of the described primary outcomes

<ol style="list-style-type: none"> 1. Anxiety disorders or symptoms 2. Depressive disorders or symptoms 3. Substance abuse/dependence and addictive disorders 4. Eating disorders 5. Obsessive-compulsive and related disorders 6. Suicide ideation and/or rates 7. Elimination disorders 8. Sleep wake disorders 9. Somatic symptom disorders 10. Disruptive, impulse control, and conduct disorders 11. Trauma and stressor related disorders 12. Neurodevelopmental disorders 13. Internalizing disorders or symptoms 14. Externalizing disorders or symptoms <p>*Please see table below for examples of outcomes of interest</p>	
<ul style="list-style-type: none"> • Systematics reviews 	<ul style="list-style-type: none"> • All other study designs

Outcomes

Anxiety Disorders or symptoms	<ul style="list-style-type: none"> • Separation anxiety disorder • Selective mutism • Specific phobia • Social anxiety disorder • Panic disorder • Panic attack • Agoraphobia • Generalized anxiety disorder • Anxiety disorder due to another medical condition • Other specified anxiety disorder • Symptoms may include but are not limited to restlessness, fatigue, difficulty concentrating, irritability, worry, etc.
Depressive Disorders or symptoms	<ul style="list-style-type: none"> • Disruptive mood dysregulation disorder • Major depressive disorder, single and recurrent episodes

	<ul style="list-style-type: none"> • Persistent depressive disorder (dysthymia) • Premenstrual dysphoric disorder • Depressive disorder due to another medical condition • Other specified depressive disorder • Symptoms may include but are not limited to sadness, hopelessness, irritability, loss of interest/pleasure, tiredness, etc.
Substance Abuse or Dependence and Addictive Disorders	<ul style="list-style-type: none"> • Substance use disorder • Substance-induced disorders • Substance dependence • Alcohol; caffeine; cannabis; hallucinogen; inhalant; opioid; sedative, hypnotic, or anxiolytic; stimulant; or tobacco-related disorders
Eating disorders	<ul style="list-style-type: none"> • Avoidant/restrictive food intake disorder • Anorexia nervosa • Bulimia nervosa • Binge-eating disorder • Other specified feeding or eating disorder
Obsessive-Compulsive and Related Disorders	<ul style="list-style-type: none"> • Obsessive-Compulsive Disorder • Trichotillomania • Hoarding Disorder • Excoriation (Skin-Picking) Disorder • Other specified obsessive-compulsive and related disorder
Suicide Ideation and Rates	<ul style="list-style-type: none"> • Suicide deaths: Total number of deaths from self-inflicted injuries with the intention of taking one's life per 100 000 population, disaggregated by gender where possible • Suicide cases: Number of cases resulting from self-inflicted injuries with the intention of taking one's life, disaggregated by gender where possible • Suicide rate: Number of suicides in a country in a year, divided by the WHO

	standard population and multiplied with 10000, disaggregated by gender where possible
Elimination Disorders	<ul style="list-style-type: none"> • Enuresis • Encopresis • Other specified elimination disorder
Sleep Wake Disorders	<ul style="list-style-type: none"> • Insomnia • Hypersomnolence • Parasomnias • Narcolepsy
Somatic Symptom Disorders	<ul style="list-style-type: none"> • Illness Anxiety Disorder (e.g., Hypochondriasis) • Neurasthenia • Other Specified Somatic Symptom and Related Disorder • Unspecified Somatic Symptom and Related Disorder
Disruptive, Impulse Control, and Conduct Disorders	<ul style="list-style-type: none"> • Conduct disorder • Antisocial personality disorder • Oppositional defiant disorder • Intermittent Explosive Disorder
Trauma and Stressor Related Disorders	<ul style="list-style-type: none"> • Symptoms of psychological distress • Reactive attachment disorder • Disinhibited social engagement disorder • PTSD • Acute stress disorder • Adjustment disorders
Neurodevelopmental Disorders	<ul style="list-style-type: none"> • Intellectual disabilities • Communication disorders • Delayed speech • Autism spectrum disorder • ADHD • Motor disorders
Internalizing Disorders or symptoms	<ul style="list-style-type: none"> • Depressive, anxiety, obsessive-compulsive and related, trauma and stressor-related disorders (see above for example), etc. • Symptoms include but are not limited to sadness, anxiety, loneliness, etc.
Externalizing Disorders or symptoms	<ul style="list-style-type: none"> • Disruptive behavior disorders, conduct problems, etc.

	<ul style="list-style-type: none">• Symptoms include but are not limited to aggression, hyperactivity, etc.
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Appendix E. AMSTAR 2 ratings of included systematic reviews

Citations	Final rating	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
Panda 2020	Critically low	Yes	partial yes	yes	yes	yes	yes	no	yes	yes	no	yes	yes	yes	no	no	no
Chawla 2021	Critically low	yes	no	yes	yes	yes	yes	no	unclear	unclear	yes	no meta-analysis	no meta-analysis	unclear	yes	no meta-analysis	yes
Ma 2021	Low	yes	yes	yes	yes	yes	yes	no	yes	yes	yes	yes	yes (sensitivity analyses)	yes	yes	yes	yes
Stavridou 2020	Critically low	yes	no	yes	yes	yes	yes	no	yes	yes	no	no meta-analysis	no meta-analysis	yes	yes	no meta-analysis	yes
Jones 2021	Critically low	yes	no	yes	yes	yes	yes	no	yes	yes	yes	no meta-analysis	no meta-analysis	yes	yes	no meta-analysis	yes
Chaabane 2021	Critically low	yes	yes	no	yes	yes	yes	no	yes	yes	yes	no meta-analysis	no meta-analysis	no	yes	no meta-analysis	yes
Racine 2021	Low	yes	yes	no	yes	yes	yes	no	yes	yes	no	yes	yes	yes	yes	yes	yes
Octavius 2020	Low	yes	yes	yes	yes	unclear	unclear	no	yes	yes	yes	no meta-analysis	no meta-analysis	yes	yes	no meta-analysis	yes
Cachon-Zagalaz 2020	Critically low	yes	yes	no	yes	unclear	yes	no	no	no	yes	no meta-analysis	no meta-analysis	no	yes	no meta-analysis	no
Viner 2022	Low	yes	yes	no	yes	yes	yes	no	yes	yes	no	yes	yes	yes	yes	no meta-analysis	yes
de Miranda 2020	Critically low	yes	no	no	yes	yes	not reported	no	no	no	no	no meta-analysis	no meta-analysis	no	yes	no meta-analysis	yes
Sajid 2020	Critically low	yes	no	no	yes	yes	not reported	no	yes	yes	no	yes	yes	no	yes	no	yes
Sharma 2021	Critically low	yes	no	no	yes	yes	not reported	no	yes	yes	no	yes	yes	yes	yes	yes	yes
Nearchou 2020	Low	yes	yes	no	yes	yes	not reported	no	yes	yes	no	no meta-analysis	no meta-analysis	yes	yes	no meta-analysis	yes

Samji 2021	Low	yes	yes	no	yes	yes	yes	no	yes	yes	no	no meta-analysis	no meta-analysis	yes	yes	no meta-analysis	yes
Panchal 2021	Critically low	yes	yes	no	yes	yes	yes	no	yes	yes	no	no meta-analysis	no meta-analysis	no	yes	no meta-analysis	yes
Bussièrès 2021	Critically low	yes	no	no	yes	yes	yes	no	yes	yes	no	yes	yes	no	yes	yes	yes
Chai 2021	Low	yes	yes	no	yes	unclear	unclear	no	yes	yes	no	yes	yes	yes	yes	yes	yes

AMSTAR 2 Question Guide:

Number	Question
Q1	Did the research questions and inclusion criteria for the review include the components of PICO?
Q2	Did the report of the review contain an explicit statement that the review methods were established prior to the conduct of the review and did the report justify any significant deviations from the protocol?
Q3	Did the review authors explain their selection of the study designs for inclusion in the review?
Q4	Did the review authors use a comprehensive literature search strategy?
Q5	Did the review authors perform study selection in duplicate?
Q6	Did the review authors perform data extraction in duplicate?
Q7	Did the review authors provide a list of excluded studies and justify the exclusion?
Q8	Did the review authors describe the included studies in adequate detail?
Q9	Did the review authors use a satisfactory technique for assessing the risk of bias (RoB) in individual studies that were included in the review?
Q10	Did the review authors report on the sources of funding for the studies included in the review?
Q11	If meta-analysis was performed did the review authors use appropriate methods for statistical combination of results?
Q12	If meta-analysis was performed, did the review authors assess the potential impact of RoB in individual studies on the results of the meta-analysis or other evidence synthesis?
Q13	Did the review authors account for RoB in individual studies when interpreting/discussing the results of the review?
Q14	Did the review authors provide a satisfactory explanation for, and discussion of, any heterogeneity observed in the results of the review?
Q15	If they performed quantitative synthesis did the review authors carry out an adequate investigation of publication bias (small study bias) and discuss its likely impact on the results of the review?
Q16	Did the review authors report any potential sources of conflict of interest, including any funding they received for conducting the review?

Appendix F. Corrected Covered Area Calculations

$$CCA = \frac{N-r}{rc-r}$$

N=number of included publications
 r= number of index publications
 c=number of reviews

$$N = 374 \text{ (sum of ticked boxes)} + 243 \text{ unique studies} = 617$$

$$r = 123 \text{ (overlap studies)} + 243 \text{ unique studies} = 366$$

$$c = 18 \text{ reviews}$$

$$CCA = \frac{617-366}{(366 \times 18) - 366}$$

$$= 251/6222$$

$$= 0.0403 \times 100\%$$

$$= 4.03\%$$

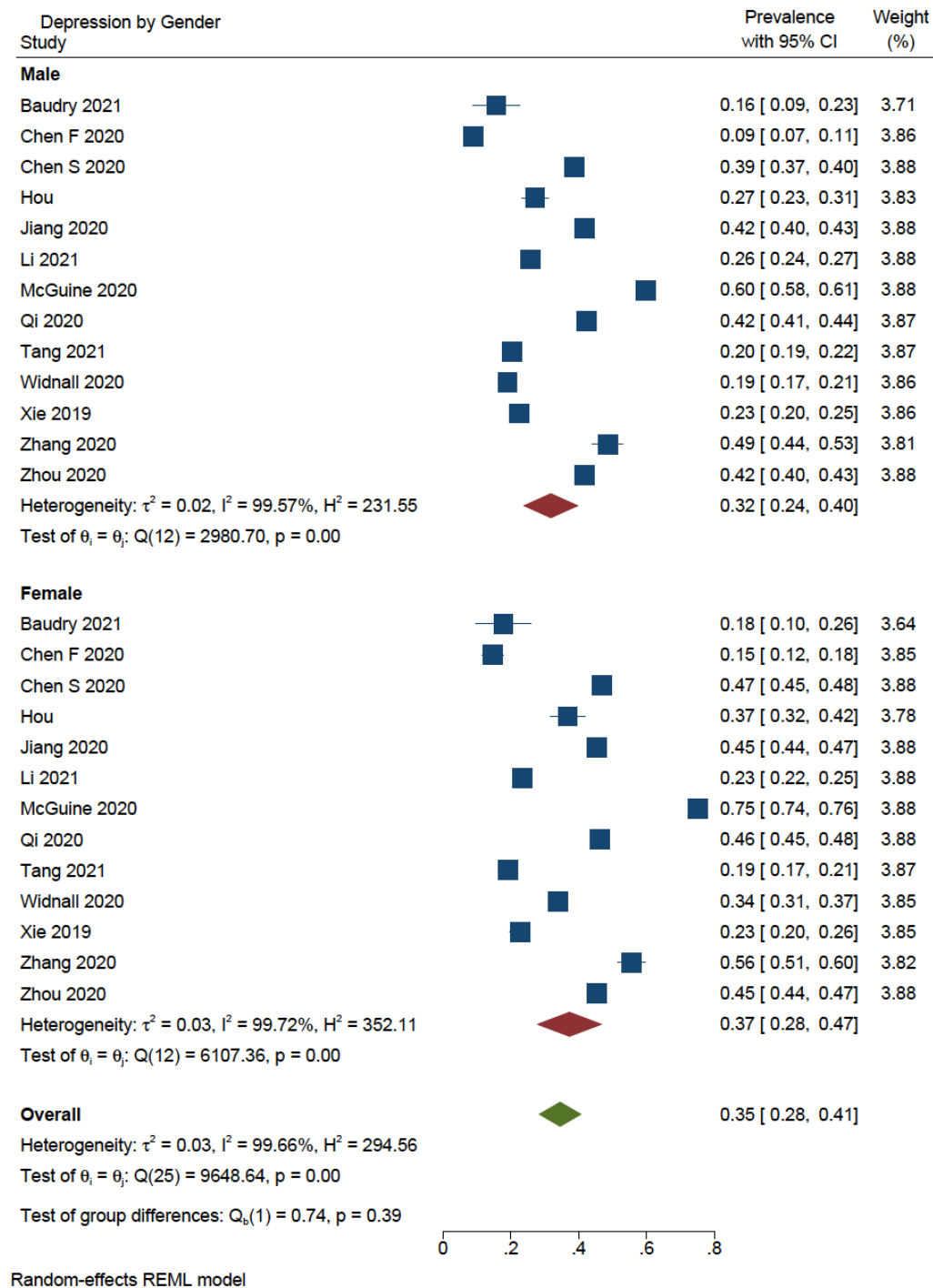
Therefore, slight overlap.

Table 1. Interpretation of CCA

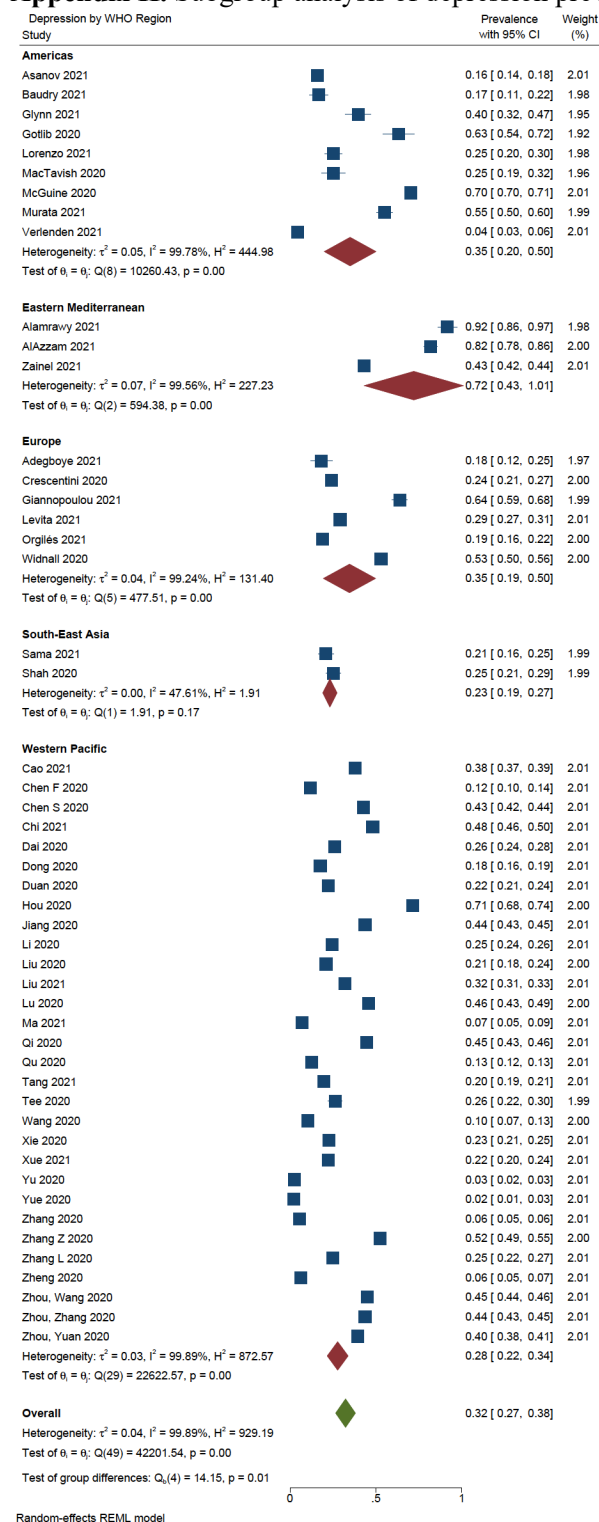
CCA	Overlap
0–5	Slight
6–10	Moderate
11–15	High
>15	Very high

Abbreviation: CCA, corrected covered area.

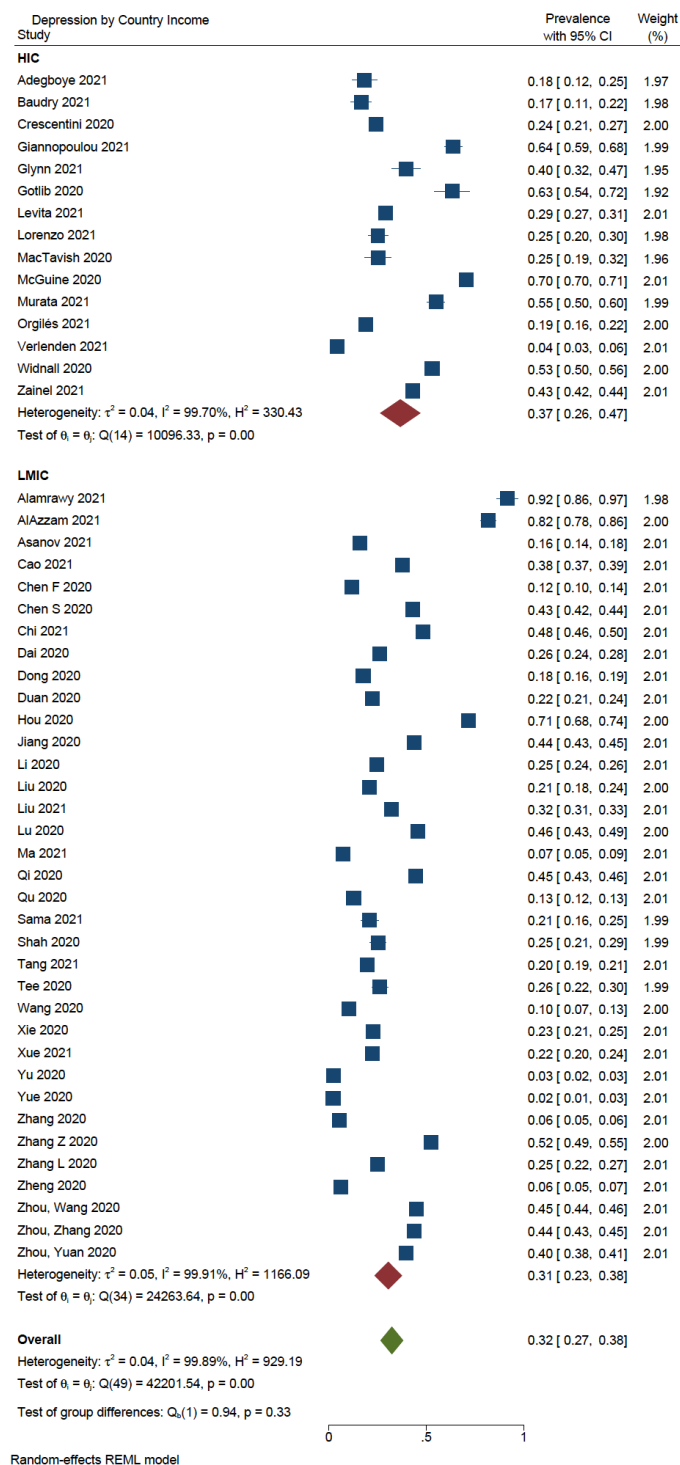
Appendix G. Subgroup analysis of depression prevalence by gender



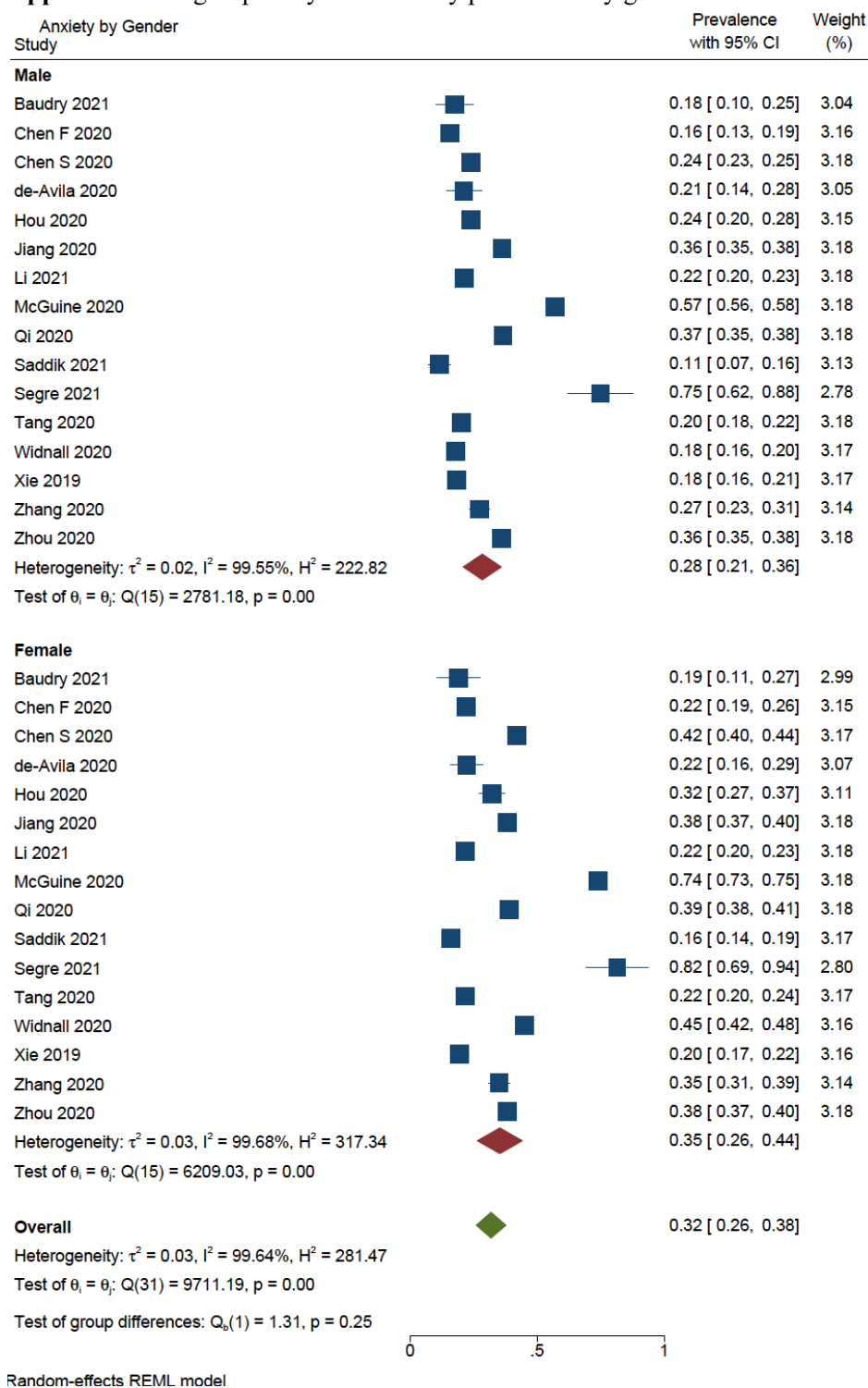
Appendix H. Subgroup analysis of depression prevalence by WHO region



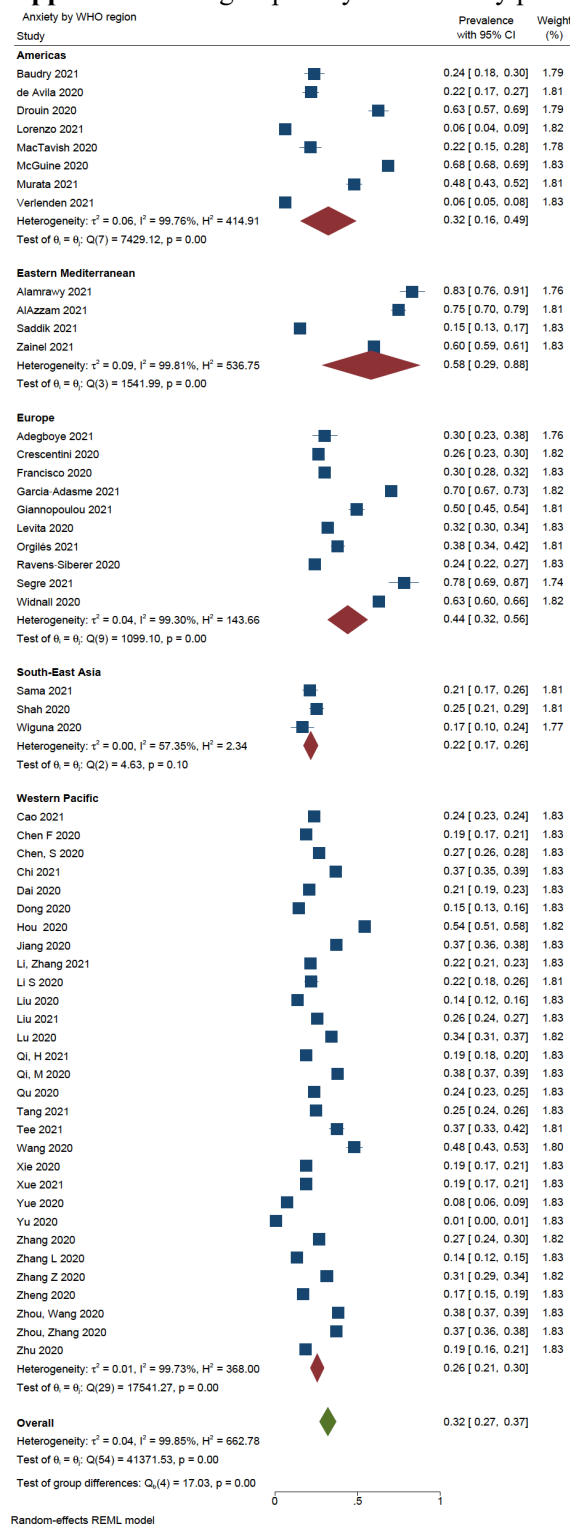
Appendix I. Subgroup analysis of depression prevalence by country income



Appendix J. Subgroup analysis of anxiety prevalence by gender



Appendix K. Subgroup analysis of anxiety prevalence by WHO region



Appendix L. Subgroup analysis of anxiety prevalence by country income

