PROSPERO International prospective register of systematic reviews

Review title and timescale

1 **Review title**
Mental health circumstances of university students during the covid-19 pandemic: a systematic review and meta- analysis.

2 **Original language title**
English papers only.

3 **Anticipated or actual start date**
20/10/2020

4 **Anticipated completion date**
15/12/2020

5 **Stage of review at time of this submission**

The review has completed

Review stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Provide any other relevant information about the stage of the review here.

Review team details

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10 **Organisational affiliation of the review**
Biostatistics department, UC Davis

11 **Funding sources/sponsors**
No funding

12 **Conflicts of interest**
None known

Review methods

13 **Review question(s)**
Under covid-19 pandemic, the mental health problem is another challenging thing for general population. This study focuses on mental health of college students and utilizes meta-analysis to analyze this problem.

14 **Searches**
PubMed and MEDLINE is searched from their inception to Dec. 2020. A range of text words and indexed terms related to "Covid-19" and "mental health" will be searched. The reference lists of studies meeting the inclusion criteria will be searched to identify additional relevant studies.

15 **Condition or domain being studied**
This study focuses on college students all over the world. Mental health symptoms which are included in this research are depression, anxiety disorders, schizophrenia, eating disorders and addictive behaviors. Some more detailed mental descriptions are excluded, e.g. difficulty in concentrating, concerns about academic performance, and difficulty adapting to distance learning are too detailed.

16 **Participants/population**
College students.

17 **Intervention(s), exposure(s)**
Covid-19 pandemic and distance online course structures.

18 **Comparator(s)/control**
Compare different study and do a subgroup analysis.

19 **Types of study to be included**

Inclusion criteria: Research on mental health related to COVID-19, including research on the professional diagnosis of mental disorders and any research involving mental health outcomes (e.g. depression, anxiety, stress).

Exclusion criteria: Case studies, review articles and students are not involved in the study.

20   Context
Included studies are all use standard psychological diagnosis methods.

21   Primary outcome(s)
Primary outcome measures will be: 1) percentage of moderate or severe depression. 2) percentage of moderate or severe anxiety. These scores are based on scores on PHQ-9, GAD-7, PSS and etc. which are widely used instrument to measure mental conditions.

22   Secondary outcomes
None.

23   Data extraction (selection and coding)
Screen the titles and abstracts of the studies retrieved during the searches to identify those that may meet the inclusion criteria, and to exclude irrelevant studies. It shall be screened by reading the full text if necessary. The key data to be extracted includes: authors, number of participants of the included studies, outcome of the study and the diagnosis method it used.

24   Risk of bias (quality) assessment
Small study effects will be assessed through graphical illustration and tests. Funnel plot and Radial Plot will be utilized for small study effects illustration. In the test part, Begg's and Egger's test are used. For the p-value criteria, 0.05 is picked for assessing statistically significant publication bias.

25   Strategy for data synthesis

The impact of the COVID-19 pandemic on the mental health of college students will be examined either through a meta-analysis or a systematic review. The studies included different standards that reflect mental health status, and this research will focus on moderate and severe status which classified by the original paper.

Random-effect model will be used concerning we focus on college students from all over the world. Study heterogeneity will be assessed using the I2 statistic. I2 values are considered as: might not be important (below 40%), may represent moderate heterogeneity (30% to 60%), substantial heterogeneity (50% to 90%) or high heterogeneity (over 75%); the corresponding p-values will also be taken into account

26   Analysis of subgroups or subsets
This research will focus on Asia and non-Asia college student to see if it shows some difference between the two groups.

Review general information

27   Type and method of review
Meta-analysis, Systematic review

28   Language
English
Will a summary/abstract be made available in English?
Yes

29   Country
England, China, USA, France, Korea, Japan, Malaysia, Bangladesh, India and Jordan.

30   Keywords
Mental health
Collage students
Systematic review
Meta-analysis
Covid-19

31   Current review status
Completed

32   Details of final report/publication(s)
Dec.15, 2020.