



BMJ Open Suicidal behaviour in adults during the COVID-19 pandemic: protocol for systematic review of observational studies

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ABSTRACT

Introduction COVID-19 pandemic has an impact on mortality indicators worldwide. Mitigation and repression actions to reduce the morbidity and mortality associated with the disease are necessary. However, they are criticised in the economic, social and psychological spheres. This social isolation, increased unemployment, routine changes, news of health complications and deaths related to COVID-19 can cause psychological repercussions that will certainly intensify in the coming months, and suicidal behaviour presents itself as a fatal outcome. It is necessary to know factors associated with suicidal behaviour in adults during the pandemic. Although there are studies, there is no systematic review to assess these factors, specifically in adults. The objective is to critically synthesise the scientific evidence on the factors associated with suicidal behaviour in adults in the COVID-19 pandemic.

Methods and analyses A systematic review will be carried out, recommended by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) protocol, in seven databases: Medical Literature Analysis and Retrieval System Online (MEDLINE), ISI of Knowledge, Excerpta Medica Database (EMBASE), SCOPUS, Latin American and Caribbean Health Sciences Literature (LILACS), Chinese National Knowledge Infrastructure (PsycINFO), Chinese National Knowledge Infrastructure (CNKI) and ScienceDirect. Preliminary search was carried out on 30 July 2020 and will be updated in March 2021. No restrictions on publication date, study location or languages will be considered in this review. The preliminary research strategies were carried out on 30 July 2020 and will be updated in February 2021. To measure the agreement between reviewers at each screening stage, Cohen's Kappa will be calculated. Primary outcome will be factors related to suicidal behaviour in adults during COVID-19 pandemic. Grouped standardised mean differences and 95% CIs will be calculated. The risk of bias in observational studies will be assessed using the Methodological Index for Non-Randomised Studies (MINORS). Statistical heterogeneity will be assessed with the I² statistic.

Strengths and limitations of this study

- This systematic review protocol aims to reduce duplication of studies, strengthen the transparency of the method and process adopted in conducting it, in addition to enabling peer review and reducing bias.
- This protocol is an initial step to provide scientific evidence to support decision-making in the context of health services and policy management to face the impact of this global problem and its impacts, including on suicidal behaviour in adults.
- As limitations, the following stand out: possible underreporting of suicidal behaviour records, as it is an outcome involving stigmas; the heterogeneity of the studies as well as the methodological assessment and probably the small number of studies, considering that the COVID-19 pandemic is recent, and its implications are still being investigated.

Ethics and disclosure Ethical approval is not required, as primary data will not be collected. The findings will be disseminated through peer-reviewed publications.

PROSPERO registration number CRD42020208816.

INTRODUCTION

A new virus of the Coronaviridae family (SARS-CoV-2) was identified in Wuhan, China, at the end of 2019 and is responsible for the onset of the COVID-19. This infection can present from asymptomatic to severe clinical conditions. Its symptoms can vary from cold, influenza syndrome or viral pneumonia. Due to its high pathogenicity, people around the world were infected and died from the disease.¹ According to the WHO, it is estimated that 97 464 094 people worldwide were infected and 2 112 689 died due to COVID-19, until 24 January 2021, which shows the

severity of the pandemic, considered a public calamity by several nations.²

In this perspective, countless countries have sought to take actions to mitigate the emergence of new cases, to reduce the morbidity and mortality associated with the disease, and avoid their side effects on health systems around the world.³

These actions are part of the pandemic response plan divided into containment, mitigation, suppression and recovery. In containment, cases are observed and recorded in an information system. In mitigation, vertical isolation is carried out through the closure of agglomeration sites. In suppression, there is horizontal isolation, in which any contact is avoided, and all people stay in their homes, leaving only in cases of emergency until the vaccine is obtained. Finally, recovery is the involution of the pandemic until it is residual.⁴

In this sense, the nations adopted the mitigation and suppression phases, with vertical and horizontal isolations. These measures, although necessary, present criticisms in the areas: economic, social and psychological. People have been afraid of getting sick, they feel insecure about the future, but they need to isolate themselves since social contact must be minimal. This attitude has led to the emergence of psychological distress and suicidal behaviour in adults worldwide.^{4,5}

Suicidal behaviour includes suicidal ideation, attempted suicide and death by suicide.⁶ It is considered a public health problem, and with the COVID-19 pandemic, it is in evidence. Social isolation, increased unemployment, routine changes, news from close people hospitalised in intensive care beds and deaths have generated emotional stress and reflected increased ideas and attempts to end their own lives.⁷ This reality is shared even by people without serious mental disorders, which demonstrates that the risk of suicide is considered high due to the high levels of anguish commonly experienced in times of pandemic.⁸

It is necessary to pay attention to this problem with care aimed not only at contagion by SARS-Cov-2 but also with the consequences associated with the infection. Suicidal behaviour is often debilitating for those who fail to reach the end of the action, but it also affects families. Thus, measures must be taken at various healthcare levels to identify people at risk for this behaviour earlier. However, studies on its impact on suicidal behaviour in adults are still scarce. In this perspective, given the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P), we intend to carry out a systematic and reproducible search strategy to consult the impact of the COVID-19 pandemic on suicidal behaviour in adults in the literature.

RESEARCH OBJECTIVES

This systematic review aims to critically synthesise the scientific evidence on the factors associated with suicidal behaviour in adults in the COVID-19 pandemic.

METHODS AND ANALYSES

Search strategy

A systematic and reproducible search strategy will be carried out to optimise methodological transparency, using the PRISMA-P checklist.⁹ The acronym PICOS (Population/Intervention/Comparison/Outcomes/Study Design)¹⁰ was used to support the elaboration of the research question in this review, in order to ensure the systematic search in the scientific literature: 'What are the factors associated with suicidal behaviour in adults in the COVID-19 pandemic?'

Studies will be retrieved from the seven electronic bibliographic databases: Medical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, ISI of Knowledge via Web of Science, Excerpta Medica Database (EMBASE), SCOPUS, Latin American and Caribbean Health Sciences Literature (LILACS), ScienceDirect and Chinese National Knowledge Infrastructure (CNKI) and Psychology Information (PsycINFO). No restrictions on publication date, study location or languages will be considered in this review. Additionally, a secondary search will be conducted on Google Scholar. The reference section of the included studies will be searched manually to identify additional studies.

For search, only the key terms will be used according to the PICOS acronym. The bibliographic software EndNote (<https://www.myendnoteweb.com/>) will be used to store, organise and manage all references and ensure a systematic and comprehensive search.

Initially, the strategy to search for the studies will consist of the combination of controlled descriptors (indexed in the respective databases) and uncontrolled descriptors, according to the indication of each base through the combination of controlled and uncontrolled descriptors, through Boolean operators 'AND' and 'OR'.¹¹ (table 1).

The preliminary search strategies were carried out on 30 July 2020 and will be updated in March 2021. Besides, this systematic review is expected to be completed in June 2021.

Study selection

A summary of the PICOS acronym is shown in table 2.

Only observational studies investigating the factors associated with suicidal behaviour in adults (≥ 18 years old) in the COVID-19 pandemic will be included in this review. Studies carried out with children, adolescents, pregnant women, older people, health professionals and students will be excluded. Those who reported factors associated with suicidal behaviour in other pandemics, RCNs (non-randomized clinical trials), randomised controlled trials, systematic reviews, qualitative studies and grey literature will also be excluded. In this systematic review, there are no restrictions on languages.

Screening and data extraction

The initial screening of studies will be carried out based on the information in their titles and abstracts by two independent researchers (FJGdS and JCeSS). When the

Table 1 Concepts and search items

Databases	Search items
MEDLINE	#1 (((("adult"(MeSH Terms)) OR "adult" (All fields) OR "adults"(All Fields) OR "adults age"(All Fields)))
ISI of Knowledge	#2 (("Coronavirus"(MeSH Terms) OR "Coronavirus"(All Fields)) OR ("COVID-19"(All Fields) OR "Severe
EMBASE	Acute Respiratory Syndrome Coronavirus 2"(Supplementary Concept)OR "Severe Acute Respiratory
SCOPUS	Syndrome Coronavirus 2"(All Fields) OR "2019-nCoV"(All Fields) OR "SARS-CoV-2"(All Fields)) OR
LILACS	"Pandemics"(MeSH Terms))
PsycINFO	#3 (((("suicide"(MeSH Terms)) OR "suicide" (All Fields)) OR "suicides" (All Fields)) OR "suicidal
CNKI	ideation" (All Fields)
Science Direct	#4 #1 AND #2 AND #3

CNKI, Chinese National Knowledge Infrastructure; EMBASE, Excerpta Medica Database; LILACS, Latin American and Caribbean Health Sciences Literature; MEDLINE, Medical Literature Analysis and Retrieval System Online; PsycINFO, Psychology Information.

reviewers disagree, the study will be assessed and, if the disagreement persists, a third reviewer (CFdSM) will make the final decision. Then, the screening will be performed with the reading of the full text, which is also performed by the same independent researchers. To measure the agreement between reviewers at each screening stage, Cohen's Kappa will be calculated.

Once consensus has been reached on the selected studies, a standardised form based on previous studies^{12 13} will be used for data extraction. The information extracted will be bibliometric characteristics (title of the study, the title of the journal, impact factor, authors, country, language, publication year, host institution of the study, conflict of interest and promotion); methodological characteristics (study design, research objective or question or hypothesis, sample characteristics, recruitment methods and study completion rates, declared duration of follow-up, statistical analysis); main findings and implications for clinical practice; and conclusions.^{12 13} The same two reviewers will perform data extraction independently. Discrepancies between reviewers will be resolved by discussion or, in the absence of agreement, by a third reviewer (CFdSM).

Missing data management

The researchers will contact the original author to obtain the missing or incomplete data. We will wait 15 days after sending an email to receive a response. If we are unable to obtain the missing data, incomplete data will be excluded from the analysis.

Methodological appraisal

The internal validity and risk of bias for non-randomised studies, the Methodological Index for Non-Randomised Studies (MINORS),¹⁴ will be used. This MINORS instrument contains eight items for observational studies: (1) a clearly stated aim, (2) inclusion of consecutive patients, (3) prospective collection of data, (4) endpoints appropriate to the study's objective, (5) unbiased assessment of the study endpoint, (6) follow-up period appropriate to the study's objective, (7) loss to follow-up less than 5% and (8) prospective calculation of the study size.¹⁴ All items from the MINORS tool will be rated from 0 to 2, which means the score 0 indicates that the information was not reported, 1 indicates that the information was inadequately reported and 2 that the information was adequately reported.¹⁴ The same two reviewers (FJGdSJ

Table 2 Eligibility criteria for systematic review

PICOS acronym ¹⁰	Inclusion criteria	Exclusion criteria
P—Population	Adults of both genders. Age≥18 years old and of any ethnicity	Children, adolescents, pregnant women, older people, health professionals and students of both genders
I—Intervention/Exposure	The impact of the COVID-19 pandemic on suicidal behaviour	Other previous pandemics
C—Comparison	Not applicable	—
O—Outcome	The primary outcomes are the prevalence of suicidal ideation, attempt, suicide mortality and related factors during the pandemic	Studies reporting the prevalence of suicidal behaviour among adults due to other pandemics
S—Study design	Observational studies	RCT, NRCT, systematic reviews, qualitative studies and grey literature
Language	All languages	None
Setting	All settings	None

NRCT, non-randomised controlled trials; RCT, randomised controlled trials.

and JCeSS) will perform the critical appraisal independently. Disagreements will be resolved by a third reviewer (CFdSM). The inter-rater reliability will be rated using intraclass correlation coefficients.¹⁵ The authors from the original articles will be contacted if additional information is required.

Assessment of publication bias

To assess the publication bias, a funnel plot will be examined. Following the approach proposed by Duval and Tweedie,¹⁶ the number of studies that are missing from the funnel plot will be estimated, if any. The effect size after the imputation of these missing studies will be estimated by the trim-and-fill method.¹⁶ Egger's test will also be performed.¹⁷

Heterogeneity assessment

Statistical heterogeneity will be assessed with the I² statistic.¹⁸ An I² statistic of less than 50% indicates a low level of statistical heterogeneity; 50% or more will be considered substantial statistical heterogeneity. If I² ≥50% is identified, we will explore a possible subgroup analysis.

Data synthesis

After performing the data synthesis and categorising the studies, the final report will be prepared according to the PRISMA. In this step, a description of the pandemic's impact on suicidal behaviour will be made, considering the descriptive variables in the studies.

Quantitative data from each study will be extracted and inserted into an Excel sheet by two independent reviewers. Statistical analyses will be carried out using the Statistical Package for the Social Sciences—SPSS, V.18.0. Standardised mean differences and 95% CI will be used to calculate the effect sizes, as we expect that most of the observational studies¹⁹ included in our review will have reported the differences in suicide behaviour.

Grading the quality of evidence

The online version of the Grading of Recommendations Assessment, Development and Evaluation (GRADE) methodology²⁰ will be used to assess the quality of the evidence and risk of bias, categorised into four levels: high, moderate, low and very low.

Patient and public involvement

Since this is a systematic review protocol, no patients or public are involved.

Ethics and dissemination

Due to the characteristics of observational studies, an ethical assessment was not necessary. The results of this systematic review will be disseminated through publications submitted to peer review. Besides, any changes to this protocol will be documented concerning saved searches and analysis methods, which will be recorded in bibliographic databases for data collection and synthesis.

DISCUSSION

The health crisis experienced worldwide caused by the pandemic of COVID-19 has challenged the world and brought several implications, also for mental health. To cope with such a complex moment, there have been countless demands, ranging from social isolation to the overload of work at home.^{21 22}

Thus, through rigorous screening and synthesis of the literature, it is expected that this systematic review will clarify the existence of possible factors associated with suicidal behaviour in view of the possibilities of the COVID-19 pandemic. It is important to highlight that a similar review has been developed. However, it is different from this one since it includes data from children, has broad inclusion criteria and seeks to summarise data on the incidence and the prevalence of suicidal behaviour; functional effects and effects of interventions in relation to the COVID-19 pandemic, while this proposal seeks to limit itself to know the variables related to suicidal behaviour.²³

This new context has required people, sometimes, far beyond what they can give. Thus, it is believed that psychological distress will intensify in the coming weeks and months and, consequently, suicidal behaviour presents itself as a fatal outcome related to the conflicts implied by this 'new normal'.^{24 25}

Considering the gap in the literature that currently exists, rapid and collaborative research on the impact of the COVID-19 pandemic on suicidal behaviour is necessary and emerging since summarising epidemiological data on the impact of this pandemic on suicidal behaviour is expected to contribute to the global scientific community in the characterisation of this new virus.

It is noteworthy that the potential limitations of this systematic review may include the heterogeneity of the studies, as well as the methodological evaluation and the probably reduced number of studies, which can influence the external validity. Besides, it is expected that this review will contribute to redirecting public actions and policies aimed at tackling suicidal behaviour, especially in the peculiar context of the COVID-19 pandemic.

The realisation of this review can also stimulate other researchers to produce scientific knowledge that can effectively subsidise the clinical practice of professionals who deal with people with ideation and attempted suicide and reinforce the need for new resources aimed at preventing suicidal behaviour in the pandemic context. It is also considered essential to instigate measures to recognise demands in mental health and prevent suicide, especially in the face of a situation involving triggering aspects of psychological suffering, such as the pandemic currently experienced. In general, these strategies require scientific evidence, investments in research and recognition of the serious problem that configures suicidal behaviour.²⁶

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Contributors FJGSJ and JCeSS conceptualised and designed the protocol, drafted the initial manuscript and reviewed the manuscript. FJGSJ, JCeSS, CFdSM, ACMP,

CPBV, FTG and SCP defined the concepts and search items, data extraction process as well as methodological appraisal of the studies. APCC, LRBC, LAAL, PIGM, AMMSG, ARSI, CPBV, FTG and FJGSJ planned the data extraction and statistical analysis. FJGSJ, CFMS and JCSS provided critical insights. All authors have approved and contributed to the final written manuscript.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

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