

COVID-19 pandemic and suicidal behavior in adults: systematic review of observational studies

Pandemia de COVID-19 e comportamento suicida de pessoas adultas: revisão sistemática de estudos observacionais

Pandemia de COVID-19 y comportamiento suicida en adultos: revisión sistemática de estudios observacionales


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ABSTRACT

Objective: To analyze the scientific evidence on the impact of the COVID-19 pandemic on suicidal behavior in adults.

Method: Systematic review, conducted from June to October 2022, in the following databases: MEDLINE/PubMed, Virtual Health Library, Excerpta Medica database, Cumulative Index to Nursing and Allied Health Literature, Latin American and Caribbean Health Sciences Literature, PsycINFO, Web of Science, Scopus, Science Direct and Google Scholar. The selection, data extraction and assessment of methodological quality were carried out using the Methodological Index for Non-randomized Studies tool. Considering that most of the studies evaluated had significant methodological differences, it was decided to carry out a qualitative synthesis of the data.

Results: A total of 2112 articles were found, from which eight articles were selected that analyzed the impact of the COVID-19 pandemic on suicidal behavior in adults.

Conclusion: The COVID-19 pandemic has influenced the suicidal behavior in adults worldwide, especially when related to race, gender, age, religion, socioeconomic, family and legal issues, and pre-existing mental disorders, leading to a greater propensity for suicidal act.

Descriptors: Adult. Coronavirus infections. Suicide. Suicidal ideation. Pandemics. Mental health.

RESUMO

Objetivo: Analisar as evidências científicas sobre impacto da pandemia da COVID-19 no comportamento suicida de pessoas adultas.

Método: Revisão sistemática, realizada de junho a outubro de 2022, nas bases de dados: MEDLINE/PubMed, Biblioteca Virtual em Saúde, Excerpta Medica database, Cumulative Index to Nursing and Allied Health Literature, Literatura Latino-Americana e do Caribe em Ciências da Saúde, PsycINFO, Web of Science, Scopus, Science Direct e Google Scholar. A seleção, a extração dos dados e a avaliação da qualidade metodológica, por meio da ferramenta Methodological Index for Non-randomized Studies, foram realizadas. Considerando que a maioria dos estudos avaliados apresentaram diferenças metodológicas significativas, optou-se por realizar síntese qualitativa dos dados.

Resultados: Foram encontrados 2112 artigos, dos quais foram selecionados oito artigos que analisaram o impacto da pandemia da COVID-19 no comportamento suicida de pessoas adultas.

Conclusão: A pandemia da COVID-19 influenciou no comportamento suicida de pessoas adultas no mundo, em especial, quando relacionada a raça, gênero, idade, religião, problemas socioeconômicos, familiares, legais e a transtornos mentais pré-existentes, o que ocasionava maior propensão ao ato.

Descritores: Adulto. Infecções por coronavírus. Suicídio. Ideação suicida. Pandemias. Saúde mental.

RESUMEN

Objetivo: Analizar la evidencia científica sobre el impacto de la pandemia de COVID-19 en la conducta suicida en adultos.

Método: Revisión sistemática, realizada de junio a octubre de 2022, en las siguientes bases de datos: MEDLINE/PubMed, Virtual Health Library, Excerpta Medica database, Cumulative Index to Nursing and Allied Health Literature, Latin American and Caribbean Health Sciences Literature, PsycINFO, Web of Science, Scopus, Science Direct y Google Scholar. Los datos fueron seleccionados, extraídos y la calidad metodológica evaluada utilizando la herramienta Methodological Index for Non-randomised Studies. Teniendo en cuenta que la mayoría de los estudios evaluados presentaban diferencias metodológicas significativas, se decidió realizar una síntesis cualitativa de los datos.

Resultados: Se encontraron 2112 artículos, de los cuales se seleccionaron 8 artículos que analizaban el impacto de la pandemia COVID-19 sobre el comportamiento suicida en adultos.

Conclusión: La pandemia del COVID-19 ha influido en el comportamiento suicida de adultos de todo el mundo, especialmente cuando se relaciona con la raza, el sexo, la edad, la religión, los problemas socioeconómicos, familiares y legales y los trastornos mentales preexistentes, lo que ha provocado una mayor propensión al suicidio.

Descritores: Adulto. Infecciones por coronavirus. Suicidio. Ideación suicida. Pandemias. Salud mental.

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■ INTRODUCTION

At the end of 2019, the world was abruptly and inexplicably confronted with the emergence, in the city of Wuhan, China, of the new virus from the *Coronaviridae* family – SARS-CoV-2, responsible for causing a clinical picture of viral pneumonia that can progress to severe respiratory failure and death. Given its high pathogenicity, people worldwide have been infected and died as a result of the disease⁽¹⁾. In March 2020, upon verifying the severity of the outbreak, the World Health Organization (WHO) encouraged governments, researchers and the health sector to develop rapid diagnosis, treatment, vaccines and invited the community to carry out social, health and of social distancing to prevent the emergence of new cases, collapse of the healthcare system and reduction in mortality⁽²⁾.

The WHO Coronavirus Disease (COVID-19) Panel, until May 2023, showed that there were 688,380,240 confirmed cases of COVID-19, including 6,874,907 deaths reported to the WHO, which demonstrates the extent of the severity of the pandemic, considered global public calamity. During this period, Brazil registered 37,553,337 confirmed cases and 702,421 deaths, being considered the fourth country with the highest number of cases worldwide⁽³⁾.

In this scenario, pandemic response actions can be performed in stages in a schematic and simplified manner: containment, mitigation, suppression and recovery. In containment, cases are observed and recorded in information systems. In mitigation, vertical isolation is carried out by closing crowded places. In suppression, any contact is avoided, and all people are kept in their homes, leaving only in cases of emergency, until a vaccine is obtained – this phase is also known as horizontal isolation. Finally, recovery, which is the downturn of the pandemic until it is residual⁽⁴⁾.

In this sense, nations mainly adopted the mitigation and suppression phases, with vertical and horizontal isolation. These measures, although necessary, intensified the stress, anxiety and depression of the world population. These mental disorders also increased the risk of emotional instability and suicide, as people needed to isolate themselves and were removed from family and friends, due to the emergence of new cases, which generated intense mental distress⁽⁵⁾.

Suicide is the final consequence of multiple actions that put life at risk. These actions are considered suicidal behaviors. Suicidal behavior is defined as concern, desire or act that intentionally aims to cause harm to oneself. In this sense, ideation (thoughts and planning to end one's own life) and behavior and/or conduct (suicide attempt and completed suicide) characterize it⁽⁶⁻⁸⁾.

Suicidal behavior is a public health problem, and with the COVID-19 pandemic, it has come to the forefront. Although it is a secondary event resulting from the health crisis, it is a psychic manifestation that presents different levels of severity. This makes it a complex and multidimensional phenomenon, mainly due to the increase in psychosocial vulnerability and familiarization with death and the dying process, resulting from the countless cases of death caused by COVID-19⁽⁹⁻¹¹⁾.

Allied to this, social isolation generated a major economic shock that directly affected the job market and labor relations. This caused social weaknesses in the scope of social security, which triggered the approval of a series of regulations to face the consequences of the health crisis that required the Unified Health System (*Sistema Único de Saúde* – SUS) to adequately plan assistance to citizens. The crisis generated by the COVID-19 pandemic has shown, in recent years, social inequalities in the country, as well as the fragility of the social security, exposing the financial needs of millions of Brazilians in the face of the new social reality experienced. Precarious financial conditions affect mental health, as they cause concern and generate anxious and depressive symptoms that are related to the emergence of suicidal behavior⁽⁸⁾.

Scientific evidence shows that the existence of effective public policies aimed at mental health care and the government's socioeconomic support during the pandemic allowed people to feel less distressed regarding the situation they were in and, as a result, less suicidal behavior^(8,9).

It is necessary to pay attention to this problem with care aimed not only at SARS-Cov-2 contagion, but also at secondary events associated with the pandemic. Suicidal behavior is a serious condition, and strategies for welcoming, early recognition, screening, monitoring vulnerable populations and implementation of measures to prevent suicidal behavior must be taken at various levels of health care, by teams of qualified health professionals, such as nursing^(10,11).

Nursing as part of the multiprofessional health team, through qualified listening at consultation, creates bonds that help prevent suicidal behavior. Nurses, by being in constant contact with patients, are able to visualize feelings, conditions and behaviors that may be harmful to the health of people in mental distress and can direct their assistance on comprehensive care, combining body and mind⁽¹²⁾.

The nursing team in mental health is extremely important, as it welcomes and promotes the user's autonomy in the health care process, which promotes personal growth and development in the face of health problems, the search for rights, as well as responsibilities aimed at self-care. The nurse must create a relationship of trust with the user through an

environment where they feel safe⁽¹³⁾. In this sense, nursing must continually qualify and seek knowledge about health issues, such as suicidal behavior, as well as humanized practices. The evidence on the impacts of the pandemic on suicidal behavior implies the importance of quality care, especially nursing, and strategies that promote health and prevent suicide.

Thus, the objective of this review was to analyze the scientific evidence on the impact of the COVID-19 pandemic on the suicidal behavior of adults.

METHOD

This is a Systematic Literature Review, registered in the International Prospective Register of Ongoing Systematic Reviews (PROSPERO), under registration CRD42020208816, which followed recommendations from the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) protocol and followed the following steps to its production: 1) formulation of the research question; 2) literature search; 3) study selection; 4) data extraction; 5) assessment

of methodological quality; 6) data synthesis; 7) assessment of evidence quality; 8) writing and publication of results^(14,15).

To formulate the research question, the PICOS (Population or Patients/ Intervention/ Comparison/ Outcomes/ Study design) strategy was used⁽¹⁶⁾. Thus, the following research question was obtained: What is the impact of the COVID-19 pandemic on the suicidal behavior of adults?

The inclusion criteria established for this study were: observational studies that addressed the impacts of the COVID-19 pandemic on suicidal ideation and suicidal behavior in adults and published in any language. The exclusion criteria were: studies whose population did not correspond to the adult age group; conducted with healthcare professionals and students; that related the impact of other pandemics on suicidal behavior among adults; non-randomized clinical trials (NRCT); randomized clinical trials (RCT) as it is not possible to test an intervention in the face of a psychiatric emergency – a condition that puts the user’s life at risk, especially during a pandemic, whose mental health has been extremely affected, and qualitative studies. Chart 1 shows study eligibility criteria.

Chart 1 – Eligibility criteria for systematic review. Teresina, Piauí, Brazil, 2023

Acronym PICOS ⁽¹⁴⁾	Inclusion Criteria	Exclusion Criteria
P – Population	Adults of both sexes, age > 18 years and of any ethnicity	Children, adolescents, pregnant women, elderly people, healthcare professionals and students of both sexes
I – Intervention/Exposure	The impact of the COVID-19 pandemic on suicidal behavior	Other previous pandemics
C – Comparison	Not applicable	Not applicable
O – Outcome	Primary outcomes are prevalence of suicidal ideation, attempt, suicide mortality, and related factors	Studies reporting the prevalence of suicidal behavior among adults for causes other than the current COVID-19 pandemic
S – Study design	Observational studies	NRCT*; RCT†; qualitative studies
Language	Any languages	None
Settings	Any settings	None

Source: Authors, 2023.
 Legend: *NRCT = Non-Randomized Clinical Trials; †RCT = Randomized Clinical Trials.

The study selection was carried out from June to August 2022, in the Medical Literature Analysis and Retrieval System Online via PubMed, Virtual Health Library (VHL), Excerpta Medica database (Embase), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Latin American Caribbean Literature in Health Sciences (LILACS), Psychology Information (PsycINFO), Web of Science and Scopus.

Initially, the strategy for searching for studies consisted of a combination of controlled descriptors (indexed in the respective databases) and uncontrolled descriptors, as indicated by each database, within each set of terms of the PICOS strategy, using the Boolean connector OR and, then crossed with the Boolean operator AND.

Thus, controlled descriptors were selected using the Health Sciences Descriptors (DeCS) for VHL; Medical Subject Headings (MeSH Terms), for MEDLINE via PubMed; PsycINFO Thesaurus was consulted for PsycINFO; Emtree terms, for Embase, and CINAHL headings, for CINAHL database. The

search was conducted based on the identified descriptors and with an expanded meaning, without using filters, in order to preserve significant samples and ensure minimal risk of losses. The search expressions in the databases are described in Chart 2.

In addition to the mentioned databases, a secondary search was made on Google Scholar. Reference lists of included primary studies were also analyzed to identify other relevant studies that could be retrieved. EndNote bibliographic software was used to store, organize, and manage all references and ensure systematic and comprehensive search.

The first screening of studies was carried out based on the information in their titles and abstracts by two independent researchers. When there was disagreement between the reviewers, the study was submitted for evaluation by a third reviewer. After this screening, the texts were read by the same independent researchers. Once consensus was

Chart 2 – Controlled and uncontrolled descriptors and search expressions used in databases, according to the PICOS strategy. Teresina, Piauí, Brazil, 2023

Databases	Search expressions
MEDLINE	((((((((((((((((((((((((((Adult[MeSH Terms]) OR (Adult[Title/Abstract])) OR (Adult[Text Word])) OR (Adult) OR (Adults[Text Word])) OR (Adults[Title/Abstract])) OR (Adults)) AND ("COVID-19"[MeSH Terms]) OR ("COVID-19"[Text Word])) OR ("COVID-19"[Title/Abstract])) OR ("COVID-19") OR ("SARS CoV 2 Infection") OR ("SARS CoV 2 Infection"[Text Word])) OR ("SARS CoV 2 Infection"[Title/Abstract])) OR ("COVID 19 Pandemic"[Title/Abstract])) OR ("COVID 19 Pandemic") OR ("COVID 19 Pandemic"[Text Word])) AND (Suicide[MeSH Terms])) OR (Suicide) OR (Suicide[Title/Abstract])) OR (Suicide[Text Word])) OR (Suicides[Text Word])) OR (Suicides) OR (Suicides[Title/Abstract])) OR (Suicidal Ideation[MeSH Terms])) OR (Suicidal Ideation) OR (Suicidal Ideation[Text Word])) OR (Suicidal Ideation[Title/Abstract]))
EMBASE	('adult'/exp OR adult OR 'adults'/exp OR adults) AND ('covid-19'/exp OR 'covid-19' OR 'sarscov 2 infection'/exp OR 'sarscov 2 infection' OR 'covid 19 pandemic') AND ('suicide'/exp OR suicide OR suicides OR 'suicidal ideation'/exp OR 'suicidal ideation')
PsycINFO SCOPUS CINAHL Web of Science	('adult' OR adult OR 'adults' OR adults) AND ('covid-19' OR 'sarscov 2 infection' OR 'covid 19 pandemic') AND (suicide OR suicides OR 'suicidal ideation')
LILACS VHL	(mh:(Adulto)) OR (Adulto) OR (Adultos) AND (mh:("COVID-19")) OR ("COVID-19") OR ("Pandemia COVID-19") OR ("Infecção por SARS-CoV-2") AND (mh:(Suicídio)) OR (Suicídio) OR (Suicídios) OR (Ideação suicida)

Source: Authors, 2023.

reached regarding the selected studies, a standardized form was used for data extraction^(17,18).

The information extracted was: bibliometric characteristics (study title; journal title; impact factor; authors; country; language; year of publication; host institution of the study; conflicts of interest and funding); methodological characteristics (study design; objective or research question or hypothesis; sample characteristics; recruitment methods and study completion rates; stated duration of follow-up; statistical analyses); main findings and implications for clinical practice; conclusions^(17,18).

To assess the methodological quality of the included studies, the Methodological Index for Non-randomized Studies (MINORS) was used – an instrument composed of eight items, recommended for observational studies and which evaluate: clarity of objective; inclusion of consecutive patients; prospective data collection; outcome appropriate to the objective of the study; unbiased assessment of the study outcome; follow-up period appropriate to the objective of the study; loss to follow-up less than 5%; prospective calculation of the study. It can be added by four more items, if it is a comparative study. Scores range from 0 to 2 points: 0 is assigned when the information was not reported, 1 when the information was inadequately reported and 2 when the information was adequately reported. For non-comparative studies, the appropriate total score is 16 points⁽¹⁹⁾.

The data in the form was organized in a synoptic table using Microsoft Word®, by two researchers, independently. Considering that the majority of studies evaluated presented significant methodological differences, it was decided to carry out a qualitative synthesis of the data. It is worth noting that, as this is a systematic literature review, submission to the Research Ethics Committee (REC) was waived. However, all ethical and authorship aspects were respected.

■ RESULTS

The search in databases and repositories resulted in 2112 studies. Additionally, 34 were also found in a secondary search on Google Scholar. The search revealed 714 duplicates, resulting in 1432 records after removing the duplications. In the first screening, based on the exclusion criteria and reading of titles and abstracts, 1365 studies were excluded. After eligibility of the 67 texts and critical analysis, eight studies met all inclusion criteria and proceeded to the final phase, with exhaustive reading and qualitative synthesis. Figure 1 shows the flowchart of the search process, according to PRISMA⁽¹⁵⁾.

The descriptive synthesis of the primary studies was presented in Chart 3 using the following information: authors and year of publication of the research; sample; objective(s), outcome, and methodological quality.

The eight studies included were conducted in four countries, three (30%) in the United States, one (10%) in Peru, one in Colombia, one (10%) in Cuba, one (10%) in Nepal and one (30%) in Argentina. They were also published between 2020 to 2022, with sample variability of individuals ranging from 197 to 24,350 adults, and the objectives were aimed at analyzing, identifying, determining, estimating, examining and evaluating the determining factors of suicidal behavior in adults in the context of COVID-19 pandemic^(20–27).

In the selected studies, suicidal behavior was assessed using the following instruments: Self-developed form by the authors to assess suicide cases in Nepal⁽²⁰⁾; Depression Scale of the Center for Epidemiological Studies (CES-D), a self-report tool consisting of 20 items, to describe depressive and anxious symptoms^(21,24); Suicide Behavior Questionnaire (SBQ), a self-report psychological questionnaire with 19 items developed to identify risk factors for suicide⁽²¹⁾.

Self-Injurious Thoughts and Behaviors Interview (SITBI), a structured instrument with 169 items, divided into 5 modules, that assess the presence, frequency and characteristics of suicidal thoughts and behaviors⁽²²⁾; The Depression Symptom Index-Suicide Subscale (DSI-SS) consists of a 4-item instrument that assesses the frequency and intensity of suicidal ideation, the formulation of plans for suicide, the ability to control suicidal thoughts and impulses related to suicide during the last 2 weeks⁽²³⁾.

Measures the perception or belief of possible situations after COVID-19 infection (MPBS – COVID-19), a questionnaire that contains 7 items that assess the perception of life of the individual infected by COVID-19⁽²⁵⁾; Beck Suicidal Ideas Scale (SSI) is a 19-item instrument that assesses the presence and intensity of suicidal thoughts in the week prior to the assessment⁽²⁶⁾; Beck Depression Inventory (BDI-II) is a 21-item self-report rating inventory that measures attitudes and symptoms characteristic of depression, and the State-Trait Anxiety Inventory (STAI) is a 40-item self-report scale that assesses dimensions of “state” and “trait” anxiety⁽²⁷⁾. The MINORS scores of the studies regarding the assessment of methodological quality ranged from 5 to 9 points^(20–27).

Studies have shown that the pandemic impacted the suicidal behavior of adult individuals during the pandemic^(20–27). It was also observed the existence of factors that increased suicidal behavior during the COVID-19 pandemic, including: gender^(20,23,27), race, immigrant status⁽²¹⁾, being single with children^(21,22,27), marital and legal problems⁽²²⁾ fear of contamination/social isolation⁽²²⁾, socioeconomic problems^(23,27), age^(24,25,27), evangelical religion⁽²⁵⁾, mental distress (depression, stress, insomnia, frustration and loneliness)^(21–24,26,27) and pre-existing factors (gender, age, economic income, presence of a history of mental disorder and history of suicide attempts) associated with mental health status⁽²⁷⁾.

Chart 3 – Description of studies included in the Systematic Review. Teresina, Piauí, Brazil, 2023

Authors/Year/Country	Objective	Sample	Instruments used	Outcomes	MINORS
Acharya B, Subedi K, Acharya P, Ghimire S. (2021) Nepal ⁽²⁰⁾	Identify the impacts of the pandemic on suicides by gender and province.	24,350 adults	Self-developed form	Between July 2017 and June 2021, 24,350 people committed suicide in Nepal, among which approximately 58% were male and 42% were female. The average annual suicide rate over the four-year study window was 21.3 per 100,000. Men had a higher suicide rate (26.9 per 100,000) than women (16.5 per 100,000). The number of suicides showed substantial seasonal variation with monthly suicide numbers ranging from 368 to 569, 413 to 604, and 394 to 838 in 2018, 2019, and 2020, respectively. There was an annual increase in the suicide rate from 2019 to 2020 (5898 to 6968 suicides – 16% increase), which is three times higher than an annual increase in the suicide rate from 2018 to 2019 (between 5509 to 5898 suicides – increase of 5%). Every pandemic month except April and May 2020 and February and March 2021 had a significantly higher suicide rate compared to the same months in 2019. Compared to the same month in 2019, July 2020 had the highest increase in the suicide rate with an increase of 55% (IRR = 1.55, 95% CI: 1.39 – 1.73), followed by June 2020 (IRR = 1.33, 95% CI: 1.20 – 1.48).	6
Fitzpatrick KM, Harris C, Drawve G. (2020) USA ⁽²¹⁾	Examine the association between social vulnerability, individual and social/psychological resources risk caused by the COVID-19 pandemic with suicide among adults	10,368 adults	SBQ [‡] CES-D [§]	Black, Hispanic, people born outside the United States, being single and with children had higher scores on the SBQ compared to native Americans (p<0.000), which represents a higher suicide risk.	8

Chart 3 – Cont.

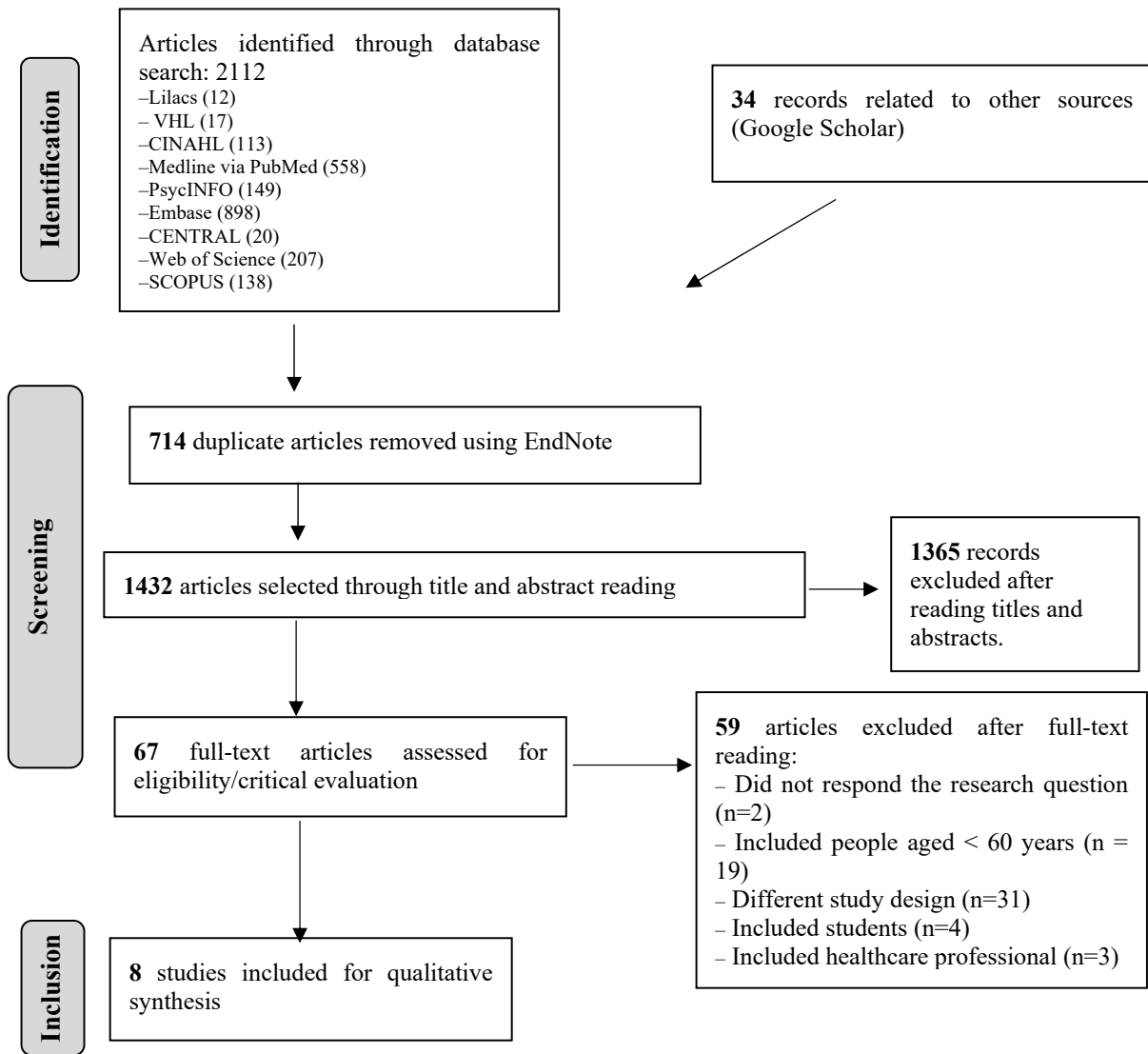
Authors/Year/Country	Objective	Sample	Instruments used	Outcomes	MINORS
Bryan CJ, Bryan AO, Baker JC. (2020) USA ⁽²²⁾	Identify the main sources of stress (depression, emotional distress, and suicidal ideation), describe mental health outcomes rates, and examine their associations among adults in the USA during the early months of the COVID-19 pandemic	10,625 adults	SITBI*	The probability of suicidal ideation at the beginning of the pandemic was significant, especially among those having problems with their spouse or partner (OR = 1.46, 95% CI = 1.16–1.83, p = 0.001) and other, unspecified problems, with the law (OR = 1.85, 95% CI = 1.31–2.62, p < 0.001). Also, the probability of suicide increased significantly among those reporting fear of life-threatening illness in a close friend or family member (OR = 2.26, 95% CI = 1.48–3.46, p < 0.001), who had unexpected bills or expenses that could not be easily paid (OR = 0.41, 95% CI = 0.24–0.70, p = 0.001). In the subset of participants who reported suicidal ideation in the previous month (n = 489), only fear about a life-threatening illness in a close friend or family member was associated with an increased likelihood of suicide attempt (OR = 3.87, 95% CI = 2.14 – 6.99, p < 0.001).	7
Gratz KL, Tull MT, Richmond JR, Edmonds KA, Scamaldo KM, Rose JP, et al. (2020) USA ⁽²³⁾	Analyze the association between social isolation related to COVID-19, job loss, feelings of frustration and loneliness with suicide risk	500 adults	DSI-SS**	Job loss in the pandemic has been associated with suicide risk due to perceived overload. The overall model was significant, accounting for 29% of the variance (OR= 7, 49 95% CI = 28.62, p < 0.001). The indirect relationship between staying at home and suicide risk due to feelings of frustration and loneliness was significant, considering 12% of the variation in suicide risk (OR = 8, 491 95% CI = 8.21, p < 0.001).	7
Caballero-Domínguez CC, Jiménez-Villamizar MP, Campo-Arias A. (2020) Colombia ⁽²⁴⁾	Estimate the presence and some variables associated with the high suicide risk during COVID-19 lockdown in adults from the Colombian population.	545 adults	CES-D [†]	7.6% of the sample demonstrated a high suicide risk during the pandemic. Emerging adulthood (>18 years < 30 years) was significantly related to high suicide risk during the COVID-19 pandemic (OR=2.23, 95% CI = 1.21–4.12). Furthermore, association between suicide risk and people experiencing stress due to COVID-19 (OR=12.69, CI 6.32–25.68; p=0.074), depressive episodes (OR= 8.49 CI 95% = (2.58–27.99 p=0.22) and insomnia (OR = 9.91 95% CI = (3.14–15.21 p=0.93).	5

Chart 3 – Cont.

Authors/Year/Country	Objective	Sample	Instruments used	Outcomes	MINORS
Mejia CR, Quispe-Sancho A, Rodriguez-Alarcon JF, Casa-Valero L, Ponce-López VL, Varela-Villanueva ES, et al. (2020) Peru ⁽²⁵⁾	Determine the factors associated with suicide in the face of COVID-19	2,422 adults	MPBS – COVID – 19**	It was found that the older the age, the greater the chances of suicide if infected (OR=1.013 95% CI = 1.002-1.023 p= 0.014). Evangelicals had a higher propensity to commit suicide (OR =1.44 95% CI = 1.00-2.07; p = 0.048) and agnostics were the ones with the lowest rate (OR = 0.47 95% CI = 0.26- 0.84 p = 0.011).	6
Arias Molina Y, Herrero Solano Y, Cabrera Hernández Y, Chibás Guyat D, García Mederos Y, et al. (2020) Cuba ⁽²⁶⁾	Identify psychological manifestations amid the epidemiological situation caused by COVID-19	197 adults	SSI ^{††}	Suicidal ideation was manifested in 1.52% of adults. This study demonstrated that suicidal ideation was not so high among the people surveyed, although their mental health was affected by external factors, whether due to already diagnosed disorders or mental stressors associated with the pandemic.	8
Lópes Steinmetz LC, Dutto Florio MA, Leyes CA, Fong SB, Rigalli A, Godoy JC, et al. (2021) Argentina ⁽²⁷⁾	Analyze differences in mental health status (depression, anxiety state, anxiety traits and suicide risk), during three sub-periods of lockdown (since the first lockdown extension); evaluate various relationships between each indicator of mental health status and potentially affecting factors	1100 adults	BDI-II ^{††} STAI ^{§§}	In depression, factors such as gender (female), age (younger), history of mental disorder, history of attempted suicide (having an inverse effect when absent and a direct effect when present) and longer duration of lockdowns (second/third extension and fourth extension) (F (7 and 1092) = 36.95, p-value < 0.001, Residuals: –42.89 to 39.50; AIC = 5660.25). Regarding anxiety, factors such as gender (female), age (younger), economic income (when available, has an inverse effect), history of mental disorder and history of suicide attempts (having an inverse effect when absent and a direct effect when present) (F (6 and 1093) = 75.83, p-value < 0.001, Residuals: –34.53 to 30.63; AIC = 5123.92). Anxiety traits, the minimum adequate model included the predictors: gender (female), age (younger), economic income (when available, has an inverse effect), presence of a history of mental disorder and history of suicide attempt (having an inverse effect when absent and direct effect when present) (F(6 and 1093) = 75.83, p-value < 0.001, Residuals: –34.53 to 30.63; AIC = 5123.92. Risk of suicide, the minimum adequate model included all the same predictors for anxiety traits F (6 and 1093) = 90.47, p-value < 0.001, Residuals: -38.17 to 49.69.	9

Legend: *SITIB – Self-Injurious Thoughts and Behaviors Interview; †CES-D-15 – Depression Scale of the Center for Epidemiological Studies; †SBQ – Suicide Behavior Questionnaire; §DSI-SS – The Depression Symptom Index-Suicide Subscale; **MPBS – COVID – 19 – Measures the perception or belief of possible situations after COVID-19 infection; ††SSI – Beck Suicidal Ideas Scale; ††BDI- II – Beck Depression Inventory; §§STAI – State-Trait Anxiety Inventory.

Figure 1 – Flowchart of the Identification, Screening, and Inclusion of the studies. Teresina, Piauí, Brazil, 2023



Source: Authors, 2023.

DISCUSSION

This review showed that the new coronavirus pandemic has impacted suicidal behavior in adults⁽²⁰⁻²⁷⁾. During the COVID-19 pandemic, it is important to highlight that there are secondary factors that increase suicidal behavior, such as: gender^(20,23,27), race, being an immigrant⁽²¹⁾, being single with children^(21,22,27), marital and legal problems⁽²²⁾ fear of contamination/social isolation⁽²²⁾, socioeconomic problems^(23,27), age^(24,25,27), evangelical religion⁽²⁵⁾, mental distress (depression, stress, insomnia, frustration and loneliness)^(21-24,26,27) and pre-existing factors (gender, age, economic income, presence of a history of mental disorder and history of suicide attempts) associated with mental health status⁽²⁷⁾.

In this scenario, in a study conducted in Nepal, 58% of adults who had committed suicide between 2017 and 2020 were men⁽²⁰⁾. It is believed that males are more susceptible to COVID-19, as they are often breadwinners in their homes. Exposure to the coronavirus can lead to fear of contracting the disease, which can result in suicidal behavior, as it generates mental distress (anguish, stress, anxiety). Another point to highlight is that men access health services less frequently, due to prejudice and stigma, lack of knowledge about diseases and the functioning of healthcare devices, as well as socioeconomic and cultural inequalities^(28,29).

However, another study, which observed pre-existing factors (gender, age, income, presence of a history of mental disorder and history of suicide attempts) associated with

mental health status, showed that suicidal behavior in women was higher than men, especially, when they were diagnosed with depression ($F(7 \text{ and } 1092) = 36.95$, $p\text{-value} < 0.001$, Residuals: -42.89 to 39.50 ; $AIC = 5660.25$) and anxiety ($F(6 \text{ and } 1093) = 75.83$, $p\text{-value} < 0.001$, Residuals: -34.53 to 30.63 ; $AIC = 5123.92$)⁽²⁷⁾. Women are more often diagnosed with these disorders, as they tend to seek out healthcare services more often. This is due to a more effective concern with health, compared to men. Furthermore, anxiety and depression have a direct relationship with mental distress which, combined with the COVID-19 pandemic, intensified suicidal behavior^(28,29).

Another fact highlighted, in addition to gender, was that skin color influences suicidal behavior, since black and brown people, historically, are more exposed to situations of vulnerability and social exclusion^(21,30). Black and brown people, especially females, are among those most affected by the COVID-19 pandemic and have the highest risk of death. Most of these people, beyond gender issues, suffer from structural and institutional racism, which hinders full access to healthcare services due to their marginalization⁽²⁹⁻³¹⁾.

In a study conducted in the United States, it was also shown that black people, Hispanic immigrants and single people with children had higher SBQ scores during the pandemic, compared to native Americans ($p < 0.000$)⁽²¹⁾, which corroborates the study conducted in Nepal⁽²⁰⁾. This vulnerability is based on the social stigma, common to these people, who often suffer racism due to their physical characteristics and cultural habits different from the American standard. Furthermore, the difficulty in accessing resources and services and the absence of a free and universal healthcare system during the COVID-19 pandemic, combined with the fear of contamination and death among these minorities, led to frustration, anguish and sense of non-belonging, closely related to suicidal behavior⁽²¹⁾.

Furthermore, the suspension of activities, due to social isolation, placed a greater burden on single parents, especially women. These individuals had to readapt their routines and family responsibilities which, combined with family life 24 hours a day, seven days a week, brought up emotionally draining conflicts⁽³²⁾.

These conflicts can lead to marital problems, and scientific evidence has detected that people kept in isolation and social distancing experienced significant suffering expressed in the form of symptoms of anxiety, anger, confusion, fear, and post-traumatic stress. This directly affected family relationships⁽²²⁾. Furthermore, the effects of the pandemic on the quality and stability of the marital relationship varied according to the nature of the stressors related to COVID-19 and the psychosocial, economic, and cultural aspects in

which the couples were inserted. Those who experienced high stress and had less adaptive relationship processes were at greater risk of relationship breakdown, leading to divorce⁽³¹⁾. Also, the fear that spouses, family members and friends would be infected by SARS-Cov-2 resulted in mental distress, as the possibility of severity of symptoms and death can generate anxiety, panic attacks, depressive symptoms, and suicidal behavior⁽²²⁾.

Still regarding social isolation, many issues began to be resolved more slowly and remotely, such as legal processes, which caused anxiety and stress among people. Uncertainties regarding the course of the pandemic led to concerns about carrying out routine activities. That is, people with legal problems were more prone to suicidal behavior, because they did not know whether they would be able to resolve their issues⁽²²⁾.

It is clear from this review that staying at home was a triggering factor for mental distress during the pandemic, since adults were not psychologically prepared for isolation, and many became ill, not only from the virus, but mentally, leading to suicidal ideation^(23,27). Researchers observed that feelings of frustration and loneliness were frequent and are associated with the risk of suicide ($p < 0,001$)⁽²³⁾.

Studies corroborate this, as adults living in the United States declared that they had suicidal ideation at the beginning of the pandemic, especially when social isolation was more effective⁽²¹⁻²⁴⁾. For example, in Nepal, suicide rates increased significantly by 16% between 2019 and 2020, compared to 5% in 2018 and 2019. Also, comparing data between the months of July 2019 and July 2020, this last month showed an increase in the suicide rate with an increase of 55% ($IRR = 1.55$, $95\% \text{ CI: } 1.39 - 1.73$), followed by June 2020 ($IRR = 1.33$, $95\% \text{ IC: } 1.20 - 1.48$)⁽²⁰⁾.

Another point highlighted was that, the older the age, the greater the chances of adults making a fatal decision against their own lives ($OR = 2.23$, $95\% \text{ CI} = 1.21 - 4.12$)⁽²⁷⁾. Age increases the risk of death from COVID-19, due to the weakening of the body that occurs over time, and when associated with other comorbidities, favors the rapid spread of the virus in the body and worsens the severity of signs and symptoms. Additionally, social isolation and distancing from family and friends lead to depression and suicidal behavior in older adults, as there was a decrease in the level of everyday activities (work, leisure, studies) which provided the proper functioning of cognitive functions (memory, attention, reasoning, problem-solving) and a sense of well-being⁽³³⁾.

In this sense, from a psychosocial perspective, one of the means of emotional support and a feeling of well-being during the pandemic is religion. The latter proved to be a protective factor, especially against depressive conditions⁽²⁵⁾.

However, a study conducted with evangelicals showed that they had higher rates of suicidal ideation (OR = 1.44; 95% CI = 1.01-2.07; $p=0.048$) compared to agnostics (OR = 0.47; 95% CI = 0.26-0.84; $p=0.011$)⁽²⁵⁾. This may be due to the association between some evangelical churches and religious denialism (the refusal to close religious temples; unproven use of medications for disease treatment; distrust regarding vaccines; the denial of the effectiveness of wearing face masks; the defense of false therapies; the fallacy that the death count was exaggerated, coinciding with fake news about the pandemic), which exposed many people to the risk of infection, as well as the increase in the number of cases, leading to suicidal behavior, due to fear of death from COVID-19⁽³⁴⁾.

Given the repercussions caused by the new coronavirus pandemic highlighted here, unemployment was another problem observed, especially during the period of protective measures, as several services/companies were closed down, consequently, were unable to retain their employees, negatively impacting to the socioeconomic situation of many adults and on their psychosocial well-being^(23,27). There was an association between loss of employment during the pandemic period and a high risk of attempted suicide ($p<0.00$)⁽²³⁾. This outcome can be explained by feelings of failure, exacerbated by society's pressure to adhere to social standards: good employment, financial stability and obtaining material goods⁽²⁹⁾.

Additionally, due to the large number of deaths, many individuals considered responsible for supporting the family died and left dependents. These people, in social vulnerability, began to require public policies in times of insecurity, calamity, helplessness and informal work⁽⁹⁾. A review demonstrated that countries that had government support during the pandemic managed to prevent suicide and promote mental health⁽¹¹⁾.

In this context, it can be observed that mental distress was exacerbated during the pandemic, which also implies a worsening of signs and symptoms in people diagnosed with mental disorders. Among the most predominant mental problems that influenced suicidal behavior in adults were depression, anxiety and post-traumatic stress disorder^(21,22,24,26,27). Studies that evaluated these disorders in the adult population during the pandemic period, identified a high risk of suicidal behavior, which ranged from 1.52% to 7.6% among study samples^(24,26).

Also, in another study conducted in Argentina, the influence of the pandemic on the participants' mental health status was highlighted. Depression, anxiety, traits of anxiety and suicidal ideation were assessed. These disorders associated with predictive factors (gender, income, age, presence of mental disorders and history of suicide attempts) worsened

the mental health of these individuals, potentially resulting in the risk of suicide. Suicide risk was evident for these adults during the extension of the lockdown, mainly associated with the previously mentioned predictive factors ($p < 0.001$)⁽²⁷⁾.

All this evidence demonstrates that confronting the COVID-19 pandemic requires strategic actions beyond mitigation⁽²⁰⁻²⁷⁾. Understanding man as a biopsychosocial being demands care actions that take into account his multidimensionality. Thus, it is necessary to prioritize the impact of this pandemic on suicidal behavior in adults from a global perspective. It is important to highlight that public policies, aimed at reducing social vulnerability, guaranteeing the right to life in all its spheres, allow quality of life and ensure the promotion of mental health.

Furthermore, it is necessary for collective health to be focused on activities that maximize community actions, which is fundamental for the implementation of public policies and obtaining health gains. Nursing, as the largest group of health professionals and present in multiple areas, developing care actions, is essential for these public policies to be constructed, as it receives this user and follows their demands constantly, which allows understanding the population's health needs⁽³⁵⁾.

This monitoring and the care process, especially in mental health, are based on theoretical concepts aimed at meeting the biopsychosocial needs of people in psychological distress, as well as the creation of a care plan that provides the stabilization of signs and symptoms at the time of crisis and therapeutic follow-up. This contributes to psychosocial recovery and improvement of mental distress, which is closely related to suicidal behavior^(36,37).

Thus, the nursing team, when monitoring the recovery process and therapeutic procedures that address not only the individual's health demands, recognizes the contexts in which they are inserted, but also welcomes the family and includes actions in the community, with the aim of providing a multidisciplinary collective discussion, an important aspect in mental health. This helps in preventing behaviors harmful to health, such as suicidal behavior. By identifying the multiple and complex factors linked to suicidal behavior, the professional identifies the relevance of welcoming, qualified listening and coordination between healthcare networks for the prevention and control of new cases of suicide⁽¹³⁾.

Given the course of COVID-19 worldwide, this study presents, as a limitation, a reduced number of studies that investigated the impact of this pandemic on suicidal behavior, which hinders the creation of public policies and health actions aimed at suicide prevention, a serious issue. Furthermore, the analyzed outcome involves stigmas, which contributes to the underreporting of cases.

■ CONCLUSION

The COVID-19 pandemic has impacted suicidal behavior of adults. Furthermore, the presence of secondary factors can increase the problem of suicide, such as: race, gender, age, religion, socioeconomic, family and legal problems, and pre-existing mental disorders. It is evident, through this review, that individuals in situations of vulnerability and social exclusion, as well as those diagnosed with mental disorders, are more susceptible to mental distress caused by the pandemic, especially when there are scarce government public policies to prevent suicide and promote mental health.

Different strategies must be applied to reduce the social vulnerability of these individuals, a problem evidenced by the health crisis, and which is directly related to suicidal behavior. Actions must be aimed not only at full access to health care, but at meeting the basic rights of these individuals, such as food, reducing food insecurity, improving housing conditions, hygiene and basic sanitation in households, access to education and income generation. Meeting these basic needs ensures a better quality of life and, consequently, less mental distress.

Research focused on this topic expands the discussion on mental illness and the importance of holistic and humanized care. Furthermore, it brings data that can be used in health, nursing education and in promoting care aimed at the peculiarities and demands of each person, given that mental health care is complex and requires recognition of the contexts in which each individual is inserted. New investigations are essential to obtain more data, which will serve as subsidies for the creation of public policies and actions aimed at preventing suicidal behavior, especially during the pandemic period.

Furthermore, the data can impact mental health nursing care by providing opportunities for humanized health practices and supporting the creation of care models, as well as to favor the recognition of the work of nurses in treating users of mental health service.

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