WOMEN'S HEALTH

Women's Health
Volume 19: 1–6

DOI: 10.1177/17455057221147382
journals.sagepub.com/home/whe
SAGE

Interruptions in contraception and unintended pregnancy during the COVID-19 pandemic: A protocol for systematic review and meta-analysis

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Abstract

Background: The COVID-19 pandemic has impacted access to and use of maternal, newborn, and child health services. Due to lockdowns and travel restrictions implemented during the first wave of the pandemic, the provision of essential maternal health services such as family planning was critically affected. Unlike most healthcare, contraception-related services are impractical for virtual care provision as women need to attend the clinic in person. Therefore, most women across the world might have been left with an unmet need for contraception during the lockdown period. Interruptions in contraception services have led to an increased number of unintended pregnancies. With the emergence of several pocket studies, it is essential to pool the available evidence reporting the effects of COVID-19 on contraception to inform maternal health policy and practice.

Objective: The aims of this review are (1) to determine the effects of the COVID-19 pandemic on access to contraceptives among sexually active women and (2) to identify the magnitude of unintended pregnancy linked to interruptions of contraceptives due to the COVID-19 pandemic.

Methods: The protocol for this systematic review was registered in PROSPERO (CRD42021267077). Electronic databases such as MEDLINE, EMBASE, Cumulative Index to Nursing and Allied Health Literature, Scopus, Web of Science, and Google Scholar will be searched for articles using appropriate key terms. The identified articles will be assessed against the eligibility criteria. Two reviewers (A.B. and T.B.) will independently screen titles and abstracts of all retrieved articles followed by a full-text review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses checklist. The quality of the papers will be assessed by using the Risk of Bias Assessment tool for Non-Randomized Studies. Quantitative findings will be pooled using a random-effects model meta-analysis, while qualitative findings will be presented using a narrative synthesis.

Ethics and dissemination: Ethical approval is not required. The findings will be disseminated through conference presentations and peer-reviewed publications.

Discussion: This systematic review will present current data needed to design evidence-based programmes for improving access to contraception and preventing unintended pregnancy during the COVID-19 pandemic and future emergencies.

Systematic review registration: PROSPERO CRD42021267077.

Keywords

access, contraception, COVID-19, lockdown, unintended pregnancy

Date received: 18 June 2022; revised: 16 November 2022; accepted: 8 December 2022

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Background

The COVID-19 pandemic has posed an overwhelming impact on the provision of maternal, newborn, and child health (MNCH) services across the globe.[1] A study of low- and middle-income countries revealed that the COVID-19 pandemic has negatively affected access to basic essential MNCH services such as antenatal care, immunization, and family planning.[2] These impacts are in part due to a shift in focus towards the prevention of the COVID-19 pandemic and the use of lockdowns and travel restrictions as first-line responses to the COVID-19 pandemic. Strategic shifts towards pandemic preparedness and prevention have resulted in a shortage of contraceptive medications.[1,3] Most women either rescheduled or cancelled their appointments for contraceptive services mostly due to fear of contracting the COVID-19 infection in the health facility.[3]

During the early stages of the pandemic, visits to health facilities for maternity services were severely affected as the healthcare facilities were overwhelmed by cases of the virus.[3] Therefore, access to contraception has been seriously impacted in several countries and has resulted in an increased rate of unintended pregnancies. This has led to an increased chance of high-risk pregnancy and potentially adverse birth outcomes,[3,4] with grave consequences such as maternal and newborn deaths.[5]

Planned pregnancy is very important for the health of mothers and newborns; thus, monitoring and preventing unintended pregnancy is an important public health intervention.[6] Unintended pregnancy is a pregnancy that is either unwanted (occurs when no children or no more children were desired) or the pregnancy is mistimed (occurs earlier than the desired time frame).[7] Unintended pregnancy occurs whenever there is an unmet need for contraception.[8]

Ending the unmet need for family planning is one of the three United Nations Population Fund's (UNFPA) transformative results towards Sustainable Development Goals (SDGs). However, the health crisis caused by the COVID-19 pandemic has impacted the progress towards this global goal. Emerging evidence indicates that a greater number of women discontinued family planning services during the COVID-19 pandemic than initially projected under normal situations.[9] During the COVID-19 pandemic, access to contraceptives was hit by travel restrictions, interrupted supply chains, and health facilities overwhelmed by the pandemic. According to new estimates released by the UNFPA and Avenir Health, in low- and middle-income countries, an estimated 12 million women have been unable to access family planning services due to the COVID-19-related burden on the health system.[9] Available evidence shows that there could be nearly 60 million fewer users of modern contraception worldwide than the projected number due to the COVID-19-related contraception disruption.[10] Lack of access to contraception is reported to have resulted in an estimated 1.4 million unintended pregnancies.[9]

With the spread of the COVID-19 infection, wealthy countries are struggling with an influx of patients requiring screening, testing, and intensive care. In addition to the national calls for social distancing, most service providers have shifted to virtual care wherever possible. Virtual health service delivery has been unable to meet the contraceptive needs of women during the lockdown as women need to attend the clinic in person.[11] Disruptions in contraception for women in need have resulted in millions of unintended pregnancies[9] and subsequent poor maternal and child health outcomes.[10] Unintended pregnancy is a key challenge for the health sector, imposing a considerable socioeconomic cost on society and government. An unwanted pregnancy negatively affects reproductive health, decreases a women's quality of life, and diminishes workforce productivity.[12] Findings of a study showed that 36.6% of unintended pregnancies in women were linked to the COVID-19 pandemic,[13] with a higher magnitude (47.17%) of unintended pregnancies in women who were not autonomous to decide on the use of family planning.[14]

With the emergence of a few pocket studies,[5,8,10,15,16] there is a need to systematically pool together the current knowledge to generate reliable evidence for informed maternal health strategies and practice. The magnitude of disruption in the access to contraception and the resulting unintended pregnancy and associated birth outcome during the COVID-19 pandemic have not been well-studied. This systematic review aims to determine the effects of the COVID-19 pandemic on access to contraceptives among sexually active women. We also aim to identify the magnitude of unintended pregnancies which are linked to interruptions in contraceptives due to the COVID-19 pandemic. The findings of this study are very important for informed maternal health policy and practice in mitigating the COVID-19-related contraceptive disruption and associated unwanted pregnancy.

Methods

Search strategy

Articles will be searched for from online databases including MEDLINE, EMBASE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Scopus, Web of Science, and Maternity & Infant Care. Additional articles will be manually searched in Google Scholar. The search for articles will be undertaken till end of December 2022 to include recently published relevant papers. The search terms will include keywords such as 'contraception' or 'contraceptive' or 'family planning' and 'access' or 'use' or 'utilization' and 'unintended pregnancy' or 'unplanned pregnancy' or 'unwanted pregnancy' or 'untimed pregnancy' and 'COVID-19' or 'coronavirus' or 'pandemic' or 'lockdown'. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) checklist will be used throughout all steps of the systematic review

process.[17] The review protocol has been registered in PROSPERO prospective register of systematic reviews after conducting the study selection process (registration number PROSPERO 2021: CRD42021267077).

Eligibility criteria

Studies will be included in this systematic review if they meet the following eligibility criteria: (1) observational studies, (2) studies that assessed and presented the proportions of unintended pregnancy during the COVID-19 pandemic, (3) studies that reported on access to contraceptives during the COVID-19 pandemic, and (4) English language and a full-text publication without restrictions to geographical location and year of publication.

Population, exposure, comparators, and outcomes (PECO) description

Population (P) of the current study will be all sexually active women of reproductive age (15–49 years) who have a sexual partner. Exposure (E) is sexually active women of reproductive age who have a sexual partner and were unable to access contraception during the COVID-19 pandemic. Comparators (C) are women of reproductive age (15–49 years) who have a sexual partner and were able to access contraception during the COVID-19 pandemic. Outcomes (O) to be assessed are contraception access and unintended pregnancy during the COVID-19 pandemic.

Patient and public involvement. No patient was involved.

Study selection

All reviewers will screen titles and abstracts returned from the database searches after the removal of duplicates. Studies that meet the inclusion criteria will progress to a full-text review and follow the same procedure to identify studies for inclusion. The reference lists of selected studies will be assessed to identify further potential studies of interest. In the review, we will only include those studies approved by the reviewers. The authors will resolve disagreements, if any, through discussion or consultation with a third reviewer. We will provide a reason for exclusion for all excluded studies and report this in a PRISMA diagram.

Screening for studies

All retrieved articles will be exported to the EndNote X9 version library and duplicates will be removed prior to screening. The EndNote library will then be shared between two reviewers (A.B. and T.B.) who will independently screen all retrieved articles titles and abstracts against the eligibility criteria. Then, a full-text review of potentially relevant articles will be performed by the two reviewers independently.

Data extraction

Two reviewers (A.B. and T.B.) will extract the data independently using the standard Cochrane Data Extraction Form.[18] Discrepancies between data extractors, if any, will be discussed to reach a consensus. When agreement could not be reached, a third reviewer (J.T.) will conduct the data extraction and resolve conflicts through discussion. For each included article, we will record the first author's last name, year of publication, study setting, study design, study period, sample size, response rate, population, the outcome of interest and definition, comparison groups, and the effect estimate. Quantitative and qualitative data such as the number/percentage of women whose contraceptive access was affected due to the COVID-19 pandemic and other factors that affected women's access to contraception with its respective effect size such as odds ratio and relative risk will be collected. The corresponding authors of the studies will be contacted if we experience any missing information of the article.

Study quality assessment

Two reviewers (A.B. and T.B.) will independently assess the quality of studies included in the review. The quality of each included study will be appraised using the Risk of Bias Assessment tool for Non-Randomized Studies (RoBANS).[19] The RoBANS tool comprises six domains: selection bias, confounding bias, performance bias, detection bias, attrition bias, and reporting bias. The studies will be reported by assigning low risk, high risk, and unclear risk to each domain. The reviewers will rank each included study and will consider subgroup analysis if there is a significant difference in the quality of papers.

Data analysis and synthesis

Contraceptive interruption is the primary outcome variable, and its effect size will be measured as a reported missing of at least one appointment due to COVID-19-related challenges. Unintended pregnancy is the secondary outcome variable and will be measured as the percentage of unplanned pregnancy attributed to COVID-19-related contraceptive interruptions. A random-effects meta-analysis will be used to obtain a pooled estimate of the missed contraception (primary effect size) using R version 4.0.3 (2020-10-10) – 'Bunny-Wunnies Freak Out' copyright (C), The R Foundation for Statistical Computing. A random-effects model is prespecified as the primary analysis since we expect variability in the population and study design of the included studies. Meta-regression will be conducted to assess the pooled effects of factors associated with contraceptive interruptions and unintended pregnancy. Results for the fixed-effects model will be shown as a sensitivity analysis. Heterogeneity between studies will be assessed using Cochran's Q test and quantitatively assessed by the index of heterogeneity squared (I^2) statistics with 95% confidence

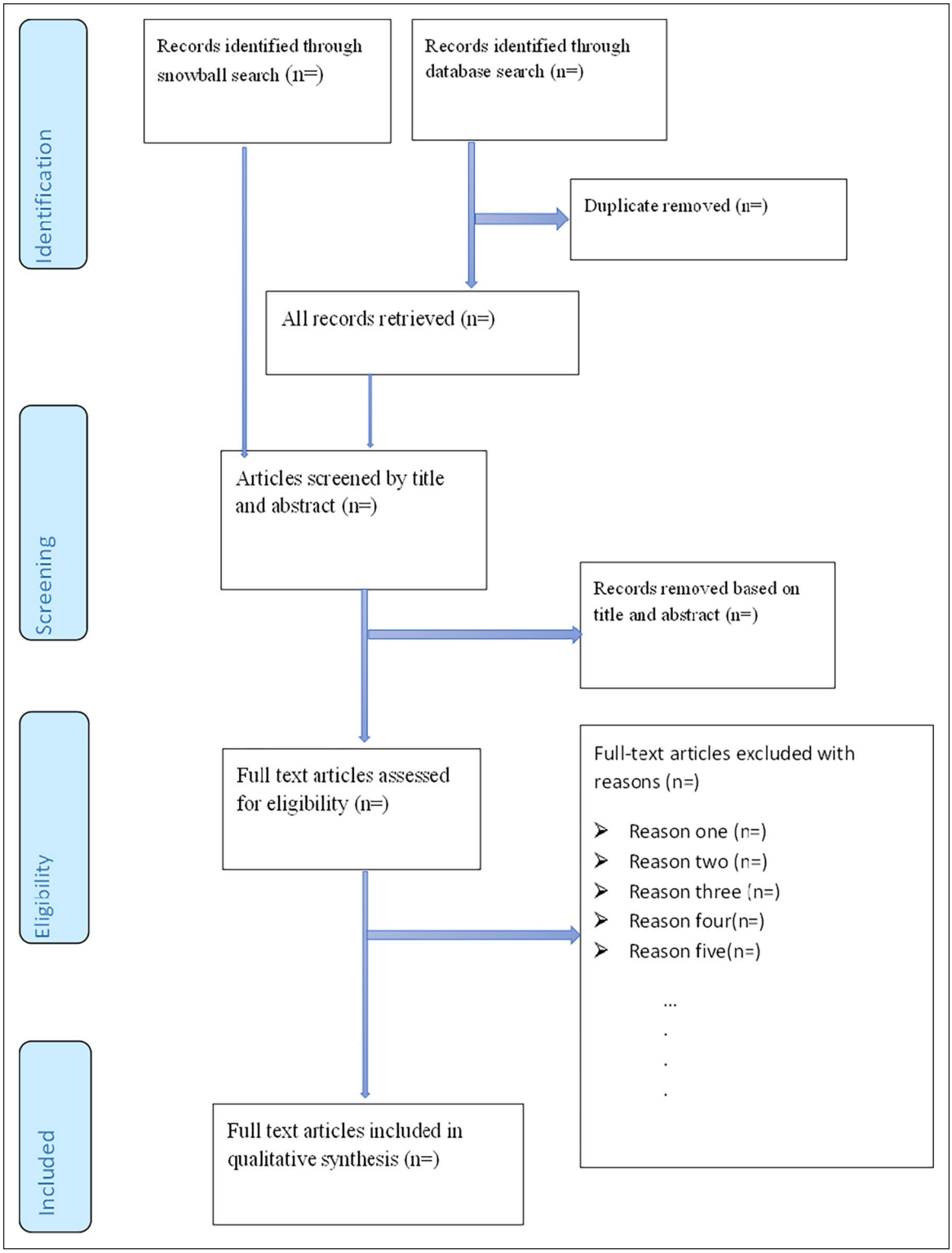

Figure 1. PRISMA flowchart for search result, screening, included papers, and reasons for exclusion.

intervals (CIs). If a meta-analysis is not possible, we will conduct a narrative synthesis. A systematic synthesis of all included studies will be presented in the texts and tables, using the SWiM (Synthesis Without Meta-analysis) guidelines.[20] At all stages of the review process, including screening for studies, data extraction, and inclusion and exclusion of the studies, the PRISMA flowchart will be strictly applied (Figure 1).

Subgroup analysis

Subgroup analysis will be carried out based on the region of the world where the study is conducted, as defined by the World Health Organization – high-income and low-middle-income countries. In addition, subgroup analysis will be considered based on the study design, the year in which the data were collected, and age group of the study participants. We will conduct a subgroup analysis if the heterogeneity among the study is significant ($I^2 > 50\%$) and if there is a significant difference in the quality of the articles.

Ethics and dissemination

This is a systematic analysis of existing literature that ethical approval is not required. The findings of this systematic review and meta-analysis will be published in a peer-reviewed open-access journal to inform maternal health policy and practice. The results of this study will also be presented at scientific conferences related to the field.

Discussion

Access to contraception including emergency contraception and long-acting reversible contraception (LARC) is an essential maternal health service to prevent unintended pregnancy. However, the COVID-19 pandemic has made significant disruptions to access to contraception in approximately one-quarter of the users.[21] The United Nations sexual and reproductive health agency (UNFPA) estimated that globally, more than 47 million women could lose access to contraception, leading to 7 million unintended pregnancies as a result of the COVID-19 crisis.[12] Unintended pregnancy potentially leads to devastating effects such as increased maternal and neonatal morbidity and mortality.[14] Disruption to access to contraception may lead to unsafe abortions, miscarriage, pregnancy complications, transmission of HIV and other sexually transmitted infections, and intimate partner violence.[11,12] A systematic review of the existing evidence of disruptions in access to contraception due to the COVID-19 pandemic and unintended pregnancy is essential for designing appropriate interventions for women of reproductive age. This systematic review will report findings that may inform the design of evidence-based reproductive health programmes for improving access to contraception and preventing the burdens of unintended pregnancy during the COVID-19 pandemic and future emergencies.

Declarations

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

Author contribution(s)

Ayele Geleto: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Project administration; Resources; Validation; Visualization; Writing – original draft; Writing – review & editing.
Jo Taylor: Data curation; Formal analysis; Investigation; Methodology; Writing – review & editing.
Tesfalidet Beyene: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Software; Visualization; Writing – review & editing.

Acknowledgements

The authors would like to extend thanks to library workers in the University of Newcastle for supplying us with necessary references without which this review could not be completed. We also extend our gratitude to our colleagues who encouraged and supported us while we developed this systematic review and meta-analysis protocol.

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Competing interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Availability of data and materials

The data that will be generated as part of this review will be included in the paper as additional files.

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