Draft Comparative Effectiveness Review

Number xx

Effectiveness of Telehealth for Women's Preventive Services

Prepared for:
Agency for Healthcare Research and Quality
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Contract No. To be included in the final report**.**

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AHRQ Publication No. xx-EHCxxx
<Month Year>

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None of the investigators have any affiliations or financial involvement that conflicts with the material presented in this report.

The information in this report is intended to help healthcare decisionmakers—patients and clinicians, health system leaders, and policymakers, among others—make well-informed decisions and thereby improve the quality of healthcare services. This report is not intended to be a substitute for the application of clinical judgment. Anyone who makes decisions concerning the provision of clinical care should consider this report in the same way as any medical reference and in conjunction with all other pertinent information, i.e., in the context of available resources and circumstances presented by individual patients.

AHRQ appreciates appropriate acknowledgment and citation of its work. Suggested language for acknowledgment: This work was based on an evidence report, *Effectiveness of Telehealth for Women's Preventive Services*, by the Evidence-based Practice Center Program at the Agency for Healthcare Research and Quality (AHRQ).

Suggested citation: To be included in the final report.

Preface

The Agency for Healthcare Research and Quality (AHRQ), through its Evidence-based Practice Centers (EPCs), sponsors the development of systematic reviews to assist public- and private-sector organizations in their efforts to improve the quality of healthcare in the United States. These reviews provide comprehensive, science-based information on common, costly medical conditions, and new healthcare technologies and strategies.

Systematic reviews are the building blocks underlying evidence-based practice; they focus attention on the strength and limits of evidence from research studies about the effectiveness and safety of a clinical intervention. In the context of developing recommendations for practice, systematic reviews can help clarify whether assertions about the value of the intervention are based on strong evidence from clinical studies. For more information about AHRQ EPC systematic reviews, see www.effectivehealthcare.ahrq.gov/reference/purpose.cfm

AHRQ expects that these systematic reviews will be helpful to health plans, providers, purchasers, government programs, and the healthcare system as a whole. Transparency and stakeholder input are essential to the Effective Health Care Program. Please visit the website (www.effectivehealthcare.ahrq.gov) to see draft research questions and reports or to join an e-mail list to learn about new program products and opportunities for input.

If you have comments on this systematic review, they may be sent by mail to the Task Order Officer named below at: Agency for Healthcare Research and Quality, 5600 Fishers Lane, Rockville, MD 20857, or by email to epc@ahrq.hhs.gov.

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Acknowledgments

The authors gratefully acknowledge the following individuals for their contributions to this project. To be included in the final report.

Technical Expert Panel

The EPC consulted several technical and content experts for input on designing the study questions, study eligibility criteria, and methodology at the outset of the report. Broad expertise and perspectives were sought. Divergent and conflicted opinions are common and perceived as healthy scientific discourse that results in a thoughtful, relevant systematic review. Therefore, in the end, study questions, design, methodologic approaches, and/or conclusions do not necessarily represent the views of individual technical and content experts.

Technical Experts must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential conflicts of interest identified.

The list of Technical Experts will be provided with the final report.

Peer Reviewers

Prior to publication of the final evidence report, the EPC sought input from independent Peer Reviewers without financial conflicts of interest. However, the conclusions and synthesis of the scientific literature presented in this report does not necessarily represent the views of individual reviewers.

Peer Reviewers must disclose any financial conflicts of interest greater than $5,000 and any other relevant business or professional conflicts of interest. Because of their unique clinical or content expertise, individuals with potential non-financial conflicts may be retained. The TOO and the EPC work to balance, manage, or mitigate any potential non-financial conflicts of interest identified.

The list of Peer Reviewers will be provided with the final report.

Effectiveness of Telehealth for Women's Preventive Services

Structured Abstract

Objectives. To evaluate the effectiveness, use, and implementation of telehealth for women's preventive services for reproductive health care and interpersonal violence (IPV), and to evaluate patient preferences and engagement for telehealth, particularly in the context of the coronavirus (COVID-19) pandemic.

Data sources. Ovid MEDLINE®, CINAHL®, EMBASE, and Cochrane CENTRAL databases (July 1, 2016 to August 12, 2021); manual review of reference lists; suggestions from stakeholders and responses to a Federal Register notice.

Review methods. Eligible abstracts and full-text articles of telehealth interventions were independently dual reviewed for inclusion using predefined criteria. Dual review was used for data abstraction, study-level risk of bias assessment, and strength of evidence (SOE) rating using established methods. Meta-analysis was not conducted due to heterogeneity of studies and limited available data.

Results. We identified 5,282 unique records and included 6 RCTs, one nonrandomized trial, and seven observational studies involving 9,599 participants. Of these, 7 reported on IPV services and 7 on contraceptive care, the only reproductive health service studied. Risk of bias was low in two studies, moderate in 6 trials and 5 observational studies, and high in one study. Telehealth interventions were intended to replace usual care in 12 studies and enhance or supplement care in two studies. Delivery modes included telephone (5 studies), online modules (3 studies), mobile applications (1 study), and was unclear or undefined in 5 studies. Each of these interventions resulted in outcomes similar to usual care or control groups. There were no differences for telehealth delivery of contraceptive care versus comparators for outcomes measuring contraceptive use (moderate SOE), sexually transmitted infection (STI) and pregnancy rates (low SOE); evidence was insufficient impact on abortion rates. There were no differences between telehealth versus comparator for IPV outcomes, including depression, fear of partner, coercive control, self-efficacy, and safety behaviors (low SOE). Single studies showed high satisfaction among patients and clinicians for telehealth interventions. The COVID-19 pandemic increased telehealth utilization; one survey of 10 U.S clinics reported differences by race and ethnicity. Barriers to telehealth interventions included limited internet access and digital literacy among English-speaking IPV survivors, and technical challenges and confidentiality concerns for contraceptive care. Telehealth use was facilitated by strategies to ensure safety for recipients of IPV services. Evidence was insufficient for access, health equity, or harms outcomes.

Conclusions. Limited evidence suggests that telehealth interventions for contraceptive care and IPV services are associated with clinical and patient-reported outcomes similar to in-person care. Uncertainty remains on the most effective approaches for delivering these services and how to best mobilize telehealth to address women's health care needs, particularly for those who are geographically isolated or in underserved populations.

Contents

Executive Summary.....ES-1
Introduction.....1
Background.....1
Purpose of the Review.....2
Scope and Key Questions.....3
Key Questions.....3
Contextual Question.....3
Analytic Framework.....4
Methods.....5
Literature Search Strategy.....5
Inclusion and Exclusion Criteria and Study Selection.....5
Data Abstraction and Data Management.....7
Risk of Bias Assessment of Individual Studies.....8
Data Analysis and Synthesis.....8
Grading the Strength of the Body of Evidence.....9
Assessing Applicability.....9
Peer Review and Public Commentary.....10
Results.....11
Results of Literature Search.....11
Key Question 1a. What is the evidence of effectiveness of telehealth as a strategy for delivery of health care services for reproductive health?.....12
Key Question 1b. What are patient preferences and patient choice in the context of telehealth utilization?.....12
Key Question 1c. What is the effectiveness of patient engagement strategies for telehealth?12
Key Question 1d. What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?.....12
Key Question 1e. What are the barriers to and facilitators of telehealth for women's reproductive health in low-resource settings and populations?.....12
Key Question 1f. What are the harms of telehealth for women's reproductive health?.....12
Key Points.....12
Description of Included Studies.....12
Detailed Synthesis.....13
Key Question 2a. What is the evidence of effectiveness of telehealth as a strategy for screening and interventions for IPV?.....17
Key Question 2b. What are patient preferences and patient choice in the context of telehealth utilization?.....18
Key Question 2c. What is the effectiveness of patient engagement strategies for telehealth?18
Key Question 2d. What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?.....18
Key Question 2e. What are the barriers to and facilitators of telehealth for screening and interventions for IPV in low-resource settings and populations?.....18
Key Question 2f. What are the harms of telehealth for screening and interventions for IPV?.....18

Key Points 18
Description of Included Studies 18
Detailed Synthesis 19
Contextual Question. What guidelines, recommendations or best practices have been developed for the design and use of telehealth and virtual health technologies for women for any clinical conditions, including on patient preferences, patient choice, patient engagement, and implementation in low-resource settings? 23
Family Planning Services 25
Contraception 26
Sexually Transmitted Infection Counseling 26
Interpersonal Violence 26
Discussion 27
Key Findings and Strength of Evidence 27
Findings in Relation to What is Already Known 30
Applicability 31
Implications for Clinical and Policy Decisions 31
Limitations of the Systematic Review Process 32
Limitations of Evidence Base 32
Conclusions 33
References 34
Abbreviations and Acronyms 44

Tables

Table A. Summary of Evidence: Effectiveness of Telehealth Interventions vs Comparator 2
Table 1. PICOS - Inclusion and Exclusion Criteria 6
Table 2. Main Findings by Outcomes Category of Studies of Telehealth for Reproductive Health 13
Table 3. Main Findings by Outcome Category of Studies of Telehealth for Interpersonal Violence 22
Table 4. Professional Guidance for the use of Telehealth 24
Table 5. Summary of Evidence of the Effectiveness of Telehealth Interventions 29
Table 6. Limitations of the Evidence 33

Figures

Figure 1. Analytic Framework 4
Figure 2. Literature Flow Diagram 11

Appendixes

Appendix A. Methods
Search Strategies
Table A-1. PICOS and Corresponding Inclusion and Exclusion Criteria
Table A-2. Table of Outcomes by Preventive Service
Table A-3. Modified Risk of Bias Assessment Tool for Pre-Post, Before-After, and Interrupted Time-Series Studies
Table A-4. Risk of Bias Criteria for Cross-Sectional Surveys
Table A-5. Definitions of the Grades of Overall Strength of Evidence
Appendix B. Results
Table B-1. Characteristics of Included studies
Appendix C. Included Studies List
Appendix D. Excluded Studies List
Appendix E. Evidence Tables
Table E-1. Study Characteristics of Trials of Telehealth for Women's Preventive Services
Table E-2. Intervention Characteristics of Trials of Telehealth for Women's Preventive Services
Table E-3. Outcomes of Trials of Telehealth for Women's Preventive Services
Table E-4. Characteristics of Studies of the Impact of the COVID-19 Pandemic on Telehealth for Women
Table E-5. Outcomes of Studies of the Impact of the COVID-19 Pandemic on Telehealth for Women
Table E-6. Barriers and Facilitators to Telehealth for Reproductive and IPV Services
Appendix F. Risk of Bias assessment
Table F-1. Risk of Bias Assessment for Included Randomized Controlled Trials
Table F-2. Risk of Bias Assessment for the Included Nonrandomized Controlled Study
Table F-3. Risk of Bias Assessment for the Included Before-After Study
Table F-4. Risk of Bias Assessment for Included Cross-sectional Studies
Appendix G. Strength of the Evidence
Table G-1. Strength of Evidence
Appendix H. References

Executive Summary

Main Points

- Based on 14 studies, adolescent and adult women had mostly similar outcomes with telehealth interventions compared with in-person or usual care when presenting for contraceptive care or receiving services for screening, evaluation, or treatment of interpersonal violence (IPV).
- Two studies demonstrated that telehealth was either better or worse than usual care; the remaining 12 studies showed no difference. Evidence was most robust for IPV services and contraceptive care. There were no studies of telehealth services for family planning or STI counseling.
- Telehealth results in similar rates as comparators for contraceptive use (oral contraception, condoms, or long acting reversible contraception [LARC]) at 6 months (moderate SOE), sexually transmitted infection (STI) and pregnancy rates (low SOE); impact on abortion rates is unclear (insufficient SOE).
- Telehealth for IPV services results in similar rates of depression, fear of partner, coercive control, self-efficacy, and safety behaviors (low SOE); and unclear evidence on PTSD scores and harms (insufficient SOE).
- Studies did not adequately evaluate factors related to health equity or potential harms of telehealth.

Purpose and Background

This comparative effectiveness review aims to address the decisional dilemma about the uncertainty regarding the **effectiveness of telehealth for delivering specific preventive services for women** and how to best mobilize telehealth to address women's health care needs, particularly for those who are geographically isolated or in underserved settings or populations. This review can also serve as a resource for policymakers, practice leaders, and other stakeholders to inform future efforts to evaluate outcomes for women presenting for preventive services and populations adversely affected by disparities due to socioeconomic disadvantage, race or ethnicity, rural location, or other factors, for which there is important uncertainty regarding the use of telehealth.

Methods

This review follows standard methods for systematic reviews[1] that are further described in the full protocol available on the Agency for Healthcare Research and Quality (AHRQ) web site: *https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/telehealth-women-protocol.pdf*. The protocol was registered with PROSPERO (CRD42021282298).

Searches were conducted in Ovid MEDLINE®, CINAHL®, EMBASE, and Cochrane CENTRAL databases from July 1, 2016, to August 13, 2021, and were supplemented by manual review of reference lists and a Federal Register Notice.

Investigators developed pre-established eligibility criteria defined by populations, interventions, comparators, outcomes, and setting in accordance with established methods[1] and revised the criteria with input from the technical expert panel (TEP) and federal partners. The population

included adolescent and adult women (≥13 years old), including those who are pregnant, eligible for screening, counseling, or treatment for reproductive health (family planning, contraception, and STI counseling) and IPV services.

Results

A total of 5,282 references from electronic database searches and reference lists were reviewed. After dual review of titles and abstracts, 301 papers were selected for full-text review. Across all KQs, six RCTs, one nonrandomized trial, and seven observational studies on the comparative effectiveness of telehealth interventions for women's preventive services were included. Most studies evaluated the effectiveness of telehealth interventions for contraceptive care and IPV. Cross-sectional studies evaluated the effects of telehealth interventions during the COVID-19 pandemic mostly using data from surveys of clinicians and patients.

Evidence on contraceptive care mostly examined populations of non-white (62 to 75%), lower income, young (aged 16-27) women. For IPV interventions, patients were slightly older (mean age 32 years). Outcomes related to access, health equity, or health disparities were not addressed. Data on harms was extremely limited for IPV and not addressed in studies of contraceptive care. Main findings are summarized by preventive service in **Table A**.

Table A. Summary of Evidence: Effectiveness of Telehealth Interventions vs Comparator

Preventive Service	Outcome	Number of Studies;* Study Design; Participants (n)	Overall Effect	Strength of Evidence
Family Planning	NA	No Studies	NA	NA
Contraception	Contraceptive use	2 RCTs (1,724); low-income patients aged 16-24 years; postabortion patients	Similar rates of oral contraceptive continuation and condom use at 3,6, and 12 months; similar rates of LARC use at 6 months	Moderate
	STI rates	1 RCT (1,155); low-income patients aged 16-24 years;	Similar rates of STIs	Low
	Pregnancy rates	1 RCT (1,155) low income patients aged 16-24 years	Similar pregnancy rates	Low
	Abortion rates	1 RCT (569); postabortion patients	Similar rates of abortion in both groups at 1 year; reduction of subsequent abortion in both groups within 2 years	Insufficient
STI counseling	NA	No studies	NA	NA
IPV	IPV rates	No studies	NA	Insufficient
	Depression scores	3 RCTs (1,190)	Telehealth is at least as effective as usual care alternatives for improving measures of depression	Low
	PTSD scores	1 RCT (462)	No differences in PTSD symptoms between interactive vs. noninteractive online tools	Insufficient
	Fear, coercive control	2 RCTs (884)	No differences between interactive vs. noninteractive online tools	Low

Preventive Service	Outcome	Number of Studies;* Study Design; Participants (n)	Overall Effect	Strength of Evidence
	Self-efficacy	3 RCTs (919)	Telehealth is at least as effective as usual care alternatives for improving self-efficacy scores	Low
	Safety behaviors	3 RCTs (763)	Telehealth is at least as effective as usual care for increasing safety behaviors	Low
	Harms	1 RCT (231)	No difference in patient reported anxiety using a tailored, online safety tool vs. a static version	Insufficient

*Outcomes reported separately; the same study may report different outcomes

Abbreviations: LARC=long-acting reversible contraception; NA= not applicable; OCPs=oral contraceptive pills; PTSD=posttraumatic stress disorder; STI=sexually transmitted infection; RCT=randomized controlled trial

Strengths and Limitations

This review provides limited evidence on telehealth interventions for contraceptive care and screening, evaluation, or treatment of interpersonal violence (IPV) in adolescent and adult women, that resulted in mostly similar outcomes compared with in-person care. Limitations of this review include using only English-language articles, studies applicable to the United States, and exclusion of studies published only as abstracts. We did not conduct statistical or graphical methods for assessing for small sample effects (a potential marker for publication bias) due to small numbers of trials and heterogeneity in study design methods, patient populations, and outcomes. Other common reasons studies did not meet inclusion criteria were due to ineligible interventions, populations, or lack of comparators.

Most of the key limitations of the evidence base are related to the lack of relevant telehealth studies for these particular preventive services, the relative weakness of study designs used in this field, the rigor with which the studies were conducted, and the completeness of reporting of key outcomes. Other important limitations include the lack of data on harms.

Future Research Needs and Opportunities

Research is needed to address gaps and deficiencies of existing studies. Additional research is needed to evaluate the effectiveness of telehealth interventions for women's preventive services that have not been addressed by existing studies, including family planning and STI counseling. More research is needed to identify the disadvantages telehealth may pose in effectively delivering preventive services to specific underserved populations.

Future trials of telehealth interventions should evaluate effectiveness of different types of telehealth interventions and strategies and include patients from rural and urban settings, patients with broader age ranges and diverse backgrounds including those who are disadvantaged due to socioeconomic factors, rural location, geographic isolation, and other underserved groups at risk for health disparities including race, ethnicity, or gender identity. Trials should evaluate longer-term outcomes, include rigorous evaluation of harms, and evaluate how benefits and harms vary according to demographic characteristics, clinical factors, and patient preferences.

Implications and Conclusions

Overall evidence suggests similar effectiveness for telehealth delivery of contraceptive care to increase contraceptive use compared with usual care. Lower strength evidence also supports similar effectiveness of care for preventing IPV thru telehealth vs more traditional modes for most outcomes and insufficient for some outcomes. There is insufficient evidence for interventions of other included preventive services due to the absence of studies and methodological limitations of existing studies.

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Introduction

Background

In 2016, the Health Resources and Services Administration (HRSA) partnered with the American College of Obstetrics and Gynecology (ACOG) under a cooperative agreement to support the Women's Preventive Services Initiative (WPSI) to develop evidence-based guidelines for women's preventive health care services. Currently, the services informed by the WPSI guidelines are covered for most women without cost sharing under the Affordable Care Act (ACA)[2] resulting in a range of preventive services available to women, including contraception, counseling for sexually transmitted infections (STI), and screening for interpersonal violence (IPV), among others. Implementation of these services is guided by health equity to ensure "quality preventive health care for women at every stage of life."[3] Evaluating approaches to care that are inclusive, accessible, and sustainable are important to optimize women's health and reduce disparities. Effective approaches must appeal to both patients and clinicians. As such, care models that include shared decisionmaking to elicit patient preferences are critical, as they can improve efficacy, patient and clinician satisfaction, and help reduce health disparities.[4] Telehealth is one promising approach to meet these needs. However, coverage, reimbursement, and regulation of telehealth services have been slow to evolve.[5,6]

Traditionally, preventive services for women are either integrated into well woman visits[7,8] focusing on screening and prevention, or offered opportunistically in the context of managing health conditions. Recent research has found that telehealth may improve some obstetric and gynecologic outcomes[9] and may be effective for contraceptive care.[10-12] "Telehealth" has been described to include services that utilize information and telecommunications technology in health care delivery for a specific patient involving a clinician across distance or time, such as remote real-time clinical visits and remote monitoring. Virtual health technologies are also considered telehealth services, and may include mobile health applications (apps) or devices that collect patient-generated health data and interventions provided over the internet, such as screening questionnaires and education, but may not be bidirectional. Telehealth for family planning, contraceptive services, and safety decision aids for survivors of IPV[13-15] show promise as a way to make these services more inclusive, accessible, and cost-effective. Telehealth services have been offered for contraception[16] to facilitate access for more geographically distant patients.[17] Telehealth for IPV services[18-20] have demonstrated acceptability and feasibility for violence prevention and decision support for those in abusive relationships.

Telehealth may improve access for underserved populations and those facing barriers to care.[21] However, use of telehealth could also widen disparities due to the differences in internet access and digital literacy; equity considerations including age and language barriers.[21-23] Other issues such as system factors, including access to care or provider shortages, and social determinants of health including transportation barriers, food insecurity, and trauma could also affect how and whether populations at risk for disparities access care using telehealth. Bias and structural racism[24] further exacerbate health disparities.[25] Given this context, questions remain about how to best promote access and equity while streamlining health care delivery for populations[26] with unacceptable, ongoing disparities in health outcomes.[27,28] Updating the approach to preventive services and reproductive health care to include telehealth for remote counseling or monitoring may present opportunities to close the gap on these disparities.[29] Yet, research has not definitively addressed whether telehealth increases access to care nor whether it

results in similar or better outcomes compared with in-person care for reproductive health (including family planning, contraception, and STI counseling) and IPV in women.

The coronavirus (COVID-19) pandemic led to rapid adoption of telehealth as a strategy to provide health services while reducing the risk of coronavirus exposure.[29-32] The pandemic has also highlighted existing health disparities and placed a spotlight on a concerning rise in the incidence of IPV against women and girls as a direct result of COVID-19 mitigation measures, such as stay at home mandates.[33-37] Intervention efforts for IPV must consider limitations in accessing the usual channels of support, particularly as many women have been unable to leave abusive or unstable environments due to stay at home mandates and increasing hardship, likely resulting in increased rates of IPV[38-40], and creating new barriers to reporting. Recent survey data highlights the impact of the pandemic on the way that women use and access care.[41] Compared with men, more women have skipped preventive health services (26% vs 38%), with differences based on income and overall health, and a disproportionate impact on women of color. Contraceptive access has also been impacted by the pandemic, with more women in younger (18-25 years) age groups reporting a delay or inability to access contraception. In the same survey, there were notable increases in the use of telehealth for both men and women, with high overall satisfaction in telehealth use amongst those surveyed.

The Coronavirus Aid, Relief, and Economic Security (CARES) Act[42] provided federal funding to increase telehealth access and provide infrastructure to increase capability and capacity for services for women including provision of family planning.[43] More recently, additional funding through Title X has been added to enhance and expand telehealth services for comprehensive family planning and related preventive health services.[44] However, questions remain about whether some services can, or should, continue to occur remotely after the pandemic, given issues of patient perceptions, preferences, and barriers to virtual versus in-person care. Changes in regulatory and payment policies that supported the increases in telehealth during the pandemic may inform patient and clinician preferences. Furthermore, it is also important to identify the disadvantages telehealth may pose in effectively delivering preventive services to specific underserved populations.

Purpose of the Review

This systematic review identifies and synthesizes current research on the use of telehealth for a subset of services and conditions included in the WPSI guidelines, specifically women's reproductive health (including family planning, contraception, and STI counseling), and IPV services to inform HRSA program planning and identify research gaps. A comprehensive understanding of the current context (contextual question), effectiveness (Key Question [KQ] 1a and 2a), patient preferences and engagement (KQ 1b, c and 2b, c), and implementation of telehealth in the context of COVID-19 (KQ 1d and 2d) were the foundation for the review. In addition, barriers to and facilitators of the use of telehealth in geographically isolated and underserved settings and populations (KQ 1e and 2e), and evidence about the impact of COVID-19 on the use of telehealth and virtual health for these services, will be included. Harms (KQ 1f and 2f) were also addressed.

Evidence on the impact of COVID-19 on the use of telehealth is particularly relevant.[45] Considerations for the equitable future use of telehealth as a supplement or replacement for some in-person care needs to consider patient-centered outcomes including patient preferences, content of services and frequency of visits, status of technology, and potential harms. Importantly, this review aims to address the decisional dilemma facing policymakers and practice leaders about

the uncertainty regarding the effectiveness of telehealth for delivering specific preventive services and how to best mobilize telehealth to address women's health care needs, particularly for those who are geographically isolated or in underserved settings or populations. This review explicitly evaluates outcomes for populations adversely affected by disparities due to socioeconomic disadvantage, racial or ethnic minority status, rural location, or other factors as defined by the National Institute on Minority Health and Health Disparities.[46]

Scope and Key Questions

The review is defined by two overarching key questions, the first focusing on evidence about women's **reproductive health** and the second focusing on **interpersonal violence** as they relate to telehealth services. A contextual question was also examined to help inform the report. Contextual questions are not reviewed using systematic review methodology. The key questions, contextual question, and analytic framework (Figure 1) are below.

Key Questions

Key Question 1: For conditions related to women's reproductive health (including family planning, contraception, and STI counseling):

a) What is the evidence of effectiveness of telehealth as a strategy for delivery of health care services for reproductive health?
b) What are patient preferences and patient choice in the context of telehealth utilization?
c) What is the effectiveness of patient engagement strategies for telehealth?
d) What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?
e) What are the barriers to and facilitators of telehealth for women's reproductive health in low-resource settings and populations?
f) What are the harms of telehealth for women's reproductive health?

Key Question 2: For IPV (including intimate partner violence and domestic violence):

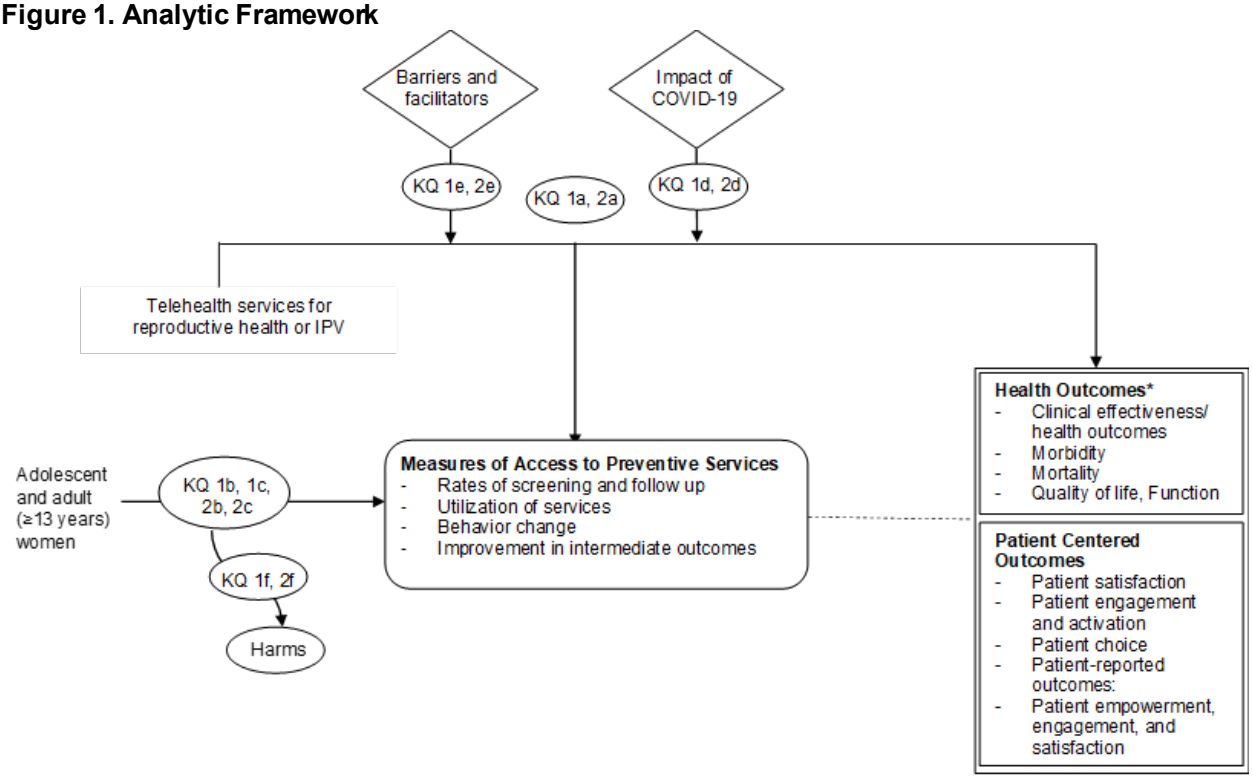
a) What is the evidence of effectiveness of telehealth as a strategy for screening and interventions for IPV?
b) What are patient preferences and patient choice in the context of telehealth utilization?
c) What is the effectiveness of patient engagement strategies for telehealth?
d) What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?
e) What are the barriers to and facilitators of telehealth for screening and interventions for IPV in low-resource settings and populations?
f) What are the harms of telehealth for screening and interventions for IPV?

Contextual Question

What guidelines, recommendations or best practices have been developed for the design and use of telehealth and virtual health technologies for women for any clinical conditions, including on patient preferences, patient choice, patient engagement, and implementation in low-resource settings?

Analytic Framework

Figure 1. Analytic Framework



Abbreviations: COVID-19=novel coronavirus; IPV=interpersonal violence; KQ=key questions

The analytic framework illustrates how the populations, interventions, and outcomes relate to the KQ in the review.
* Outcomes vary by preventive service and are specified in Appendix Table A-2.

Methods

This Comparative Effectiveness Review (CER) follows methods of the Agency for Healthcare Research and Quality (AHRQ) Methods Guide for Effectiveness and Comparative Effectiveness Reviews (hereafter the "AHRQ Methods Guide").[1] All methods were determined a priori and a protocol was developed through a process that included collaboration with a technical expert panel (TEP), federal partners, and public input on key questions and study eligibility criteria. The protocol was registered on the PROSPERO systematic reviews registry (CRD42021282298) and published on the AHRQ web site: *https://effectivehealthcare.ahrq.gov/sites/default/files/pdf/telehealth-women-protocol.pdf*.

Literature Search Strategy

We conducted electronic searches in Ovid MEDLINE®, CINAHL®, EMBASE, and Cochrane CENTRAL from July 1, 2016 to August 13, 2021 (see **Appendix A** for full strategies). This captures studies of systems that rely on more current technology and follows searches from a recent report that provided an evidence map of telehealth services for women (search end date was December 2016).[47] We reviewed the studies included in the evidence map for consideration in this review and included information on the dates the studies were conducted, the technologies used, and the dates of publication. Reference lists of included systematic reviews were screened for additional studies and relevant references were carried forward. A Federal Register notification was posted to encourage submission of unpublished studies through a Supplemental Evidence and Data for Systematic review (SEADS) portal. Searches will be updated while the draft report is posted for public comment.

Inclusion and Exclusion Criteria and Study Selection

Criteria was established *a priori* to determine eligibility for inclusion and exclusion of abstracts in accordance with the AHRQ Methods Guide.[19] Study eligibility criteria for this CER were based on the population, intervention, comparisons, outcomes, settings, and study designs of interest (PICOS) framework and the key questions. The population of interest was adolescent and adult women (≥13 years old), including those who are pregnant, and those eligible for screening, counseling, or treatment for reproductive health services (family planning, contraception, and STI counseling) and IPV. Details regarding the PICOS are summarized in **Table 1** with additional details in **Appendix Table A-1.** Specific outcomes for each preventive service considered are described in detail in **Appendix Table A-2**.

For this review, the term *women* is used in a biological context, where applicable (e.g., individuals with potential for becoming pregnant without contraception), and can be applied to individuals of all gender identities, including cisgender, transgender, gender non-binary, or otherwise gender expansive for relevant services.

Reproductive health services considered for this review include family planning, contraception, and STI counseling. For this review, family planning services were defined based on Title X guidelines[48] and include preconception counseling and birth spacing; contraceptive care (screening, counseling, provision, and follow-up care) was considered separately under reproductive health services. We considered contraceptive care that could be delivered via telehealth by a broad range of health care workers (e.g., physicians, nurses, pharmacists, counselors). Telehealth services for IPV include screening, diagnosis, and treatment for intimate partner violence and domestic violence.

The term *telehealth* is used to define services that may include the use of information and telecommunications technology in health care delivery for a specific patient involving a clinician across distance or time, such as remote real-time clinical visits and remote monitoring. For this review we refer to *telehealth* when considering interventions that use technology to facilitate interactions at a distance between specific patients and clinicians and are bidirectional or link to clinical care. Interactions could occur over time (asynchronous) as well as over distance. We considered telephone conversations, e-mail, and short message service (SMS) texts to be telehealth if they allow interaction between patient and clinician (bidirectional) and could replace or supplement an in-person interaction. Interventions were not included if they occurred only in one direction or if they were not personalized (e.g., phone, email or text message notifications, generic messages sent to a group of patients). For example, an app that collects data but does not involve clinical decisionmaking or individualized patient care was not eligible for inclusion, but an app or website that is bidirectional and personalized based on specific patient input was considered.

Study designs considered for inclusion were comparative studies of any design including trials and observational studies. We considered observational cohort studies, pre-post designs (i.e., comparison of the same population across time points), and before-after studies (i.e., comparison of two time points; may not have the same population). Qualitative studies that evaluated patient and clinician preferences, and barriers to and facilitators of telehealth were included. Descriptive studies with no outcome data or studies that included only data from one point in time (cross-sectional) were not included, although they were considered for studies evaluating the impact of the COVID-19 pandemic and for the contextual question. Also excluded were modeling studies or studies that used synthetic data. We reviewed existing systematic reviews and included their results if appropriate. References lists of systematic reviews were also used to identify relevant studies. Commentaries, letters, and articles that described telehealth systems or implementation strategies but did not assess impact were excluded, as were studies published only as conference abstracts. Inclusion was restricted to English-language articles, and studies of nonhuman subjects were excluded. Studies had to report original data to be included.

To ensure accuracy, all excluded abstracts were dual reviewed by two investigators. Each full-text article was independently reviewed for eligibility by two team members. All disagreements were resolved through a consensus process between investigators.

Table 1. PICOS - Inclusion and Exclusion Criteria

	Include	Exclude
Population	Adolescent and adult women (≥13 years), regardless of pregnancy status; eligible for screening, counseling, or treatment for: • Reproductive health services: (family planning, contraception, STI counseling) • IPV services	• Men • Age <13 years
Interventions	Two-way telehealth strategies linked to clinical care with direct contact between a clinician or other provider and a patient or group of patients	One-way telehealth, provider consults, or peer-led interventions not linked to clinical care
Comparators	• Usual or in-person care or traditional care models (care provided without telehealth) • Telehealth + in-person care vs. in-person care alone (augmentation) • Clinical services before and after COVID-19 pandemic	No comparator or comparison groups not clearly described

	Include	Exclude
Outcomes*	For all conditions and services KQ 1a and 2a: • Clinical effectiveness, patient health outcomes • Quality of life, function KQ 1b, 1c, 1d, 2b, 2c, and 2d: Measures or descriptions of patient satisfaction, patient engagement and activation, patient choice KQ 1e and 2e: Measures or descriptions of barriers and facilitators in low-resource settings • Patient-reported outcomes: patient empowerment, engagement, and satisfaction • Measures of health care access, equity, and utilization ○ Rates of screening and followup; adherence; no-shows ○ Utilization KQ 1f and 2f: Harms (e.g. missed diagnosis, incorrect diagnosis, overdiagnosis, delay in treatment, mental health outcomes, stress, anxiety, loss to followup)	• Outcomes not relevant to the KQs • Cost analyses • Patient knowledge/education
Clinical Setting	• Home, outpatient, primary care, or primary care-referable • No geographic restriction: can be urban, suburban, or rural	Studies of health care services delivered outside of health care settings (e.g., social services, churches, schools, prisons)
Country Setting	Countries with services and practice similar to the U.S. ("very high" on the United Nations Human Development Index)	Countries with significantly different health care systems and fewer resources
Study types and designs	• RCTs • Cohort studies with concurrent controls for gaps in RCT evidence • Cohort, pre-post and comparative surveys for before and after start of COVID-19 pandemic (March 2020) • Comparative studies including trial and observational studies, including prospective and retrospective cohort studies and before-after studies (i.e., natural experiments) • Qualitative studies that evaluate preferences, barriers/facilitators	Case reports, case series
Language	English language	Non-English

*See Appendix Table A-2 for a complete list of outcomes considered for each preventive service

Abbreviations: COVID-19=novel coronavirus; IPV=interpersonal violence; KQ=key question; RCT=randomized controlled trial; STI=sexually transmitted infection; US=United States

Data Abstraction and Data Management

Dual review of abstracts was conducted using prespecified inclusion criteria and DistillerSR software. Discrepancies were resolved by discussion and consensus. Investigators tracked results in an End-Note database (Thomson Reuters). For studies meeting inclusion criteria, evidence tables were constructed with the following data: study design, year, setting, country, sample size, patient and clinician type and characteristics (e.g., age, sex, race, reason for presentation, diagnosis, clinician training/background/scope of practice and primary care or specialty type), intervention characteristics (e.g., mode of delivery, duration or frequency, function) and results relevant to each KQ as outlined in the previous PICOS section. All study data were verified for accuracy and completeness by a second team member.

Risk of Bias Assessment of Individual Studies

Predefined criteria were used to assess the risk of bias (also referred to as quality or internal validity) for each individual included study, using criteria appropriate for the study designs (**Appendix A**). Controlled trials and observational studies were assessed using a priori established criteria consistent with the AHRQ-EPC approach recommended in the chapter, Assessing the Risk of Bias of Individual Studies, described in the *Methods Guide for Effectiveness and Comparative Effectiveness Reviews*[1] (**Appendix A**). RCTs were evaluated using criteria and methods developed by the Cochrane Back and Neck Group,[49] cohort and other observational studies of interventions were evaluated using criteria developed by the U.S. Preventive Services Task Force,[50] and followed the approach recommended in the AHRQ Methods Guide chapter "Assessing the Risk of Bias of Individual Studies When Comparing Medical Interventions."[119] For randomized controlled trials (RCTs), we focused on randomization, allocation concealment, analysis according to randomized groups (intention-to-treat analysis), and attrition. Cohort studies were included to fill gaps in evidence for studies not specifically addressing the COVID-19 pandemic. For before-after studies and interrupted time-series studies assessing effects during the COVID-19 pandemic, criteria included prespecified outcome measures, enrollment methods, and controlling of temporal trends, derived from a National Institutes of Health (NIH) checklist.[51] For surveys, criteria were derived from a set of questions developed by members of this review team for a Health Information Exchange systematic review[52] and evaluated reported response rates; sampling strategy, selection, and sample characteristics; survey questions; and consideration of confounders and analyses (**see Appendix A**).

Each study evaluated was independently reviewed for risk of bias by two team members. Any disagreements were resolved through consensus. Based on the risk of bias assessment, individual included studies were rated as "low," "moderate," or "high" risk of bias. High risk of bias studies were not excluded a priori, but were considered to be less reliable than low or moderate risk of bias studies when synthesizing the evidence.

Data Analysis and Synthesis

Evidence tables identify study characteristics, results of interest, and risk of bias ratings for all included studies and summary tables highlight the main findings. Studies were reviewed and highlighted using a hierarchy-of-evidence approach, where the best evidence is the focus of the synthesis for each key question. RCTs were prioritized and studies with lower risk of bias ratings were given more weight in our synthesis for each clinical indication and outcome. Since the key questions varied in nature and scope, the approach to synthesis also varied.

Quantitative data was summarized in summary tables and descriptive analysis and interpretation of the results is provided. Meta-analyses were not performed as they would not produce meaningful results due to limited numbers of studies reporting similar outcomes, and due to heterogeneity based on study design, patient population, and interventions.

Descriptive analysis and interpretation of the results were provided based on the direction and magnitude of effect. Using qualitative synthesis, we created categories of results based primarily on the direction of the effect, whether there was statistical significance or not, with less emphasis on the magnitude of the effect (e.g., large difference in benefits, no difference in harms), reporting findings according to risk of bias ratings, and summarizing results across studies grouped by preventive service and/or telehealth function/modality.

For synthesis of qualitative data on barriers, facilitators, and patient preferences (KQ 1b, 1e, 2b, 2e), key statements were extracted from each study and categorized according to theme and type of preventive service (family planning, contraception, STI counseling, IPV) and results were summarized in tables.

There were not sufficient data available for any of the KQs to conduct an additional analysis of populations particularly affected by potential barriers to preventive services and telemedicine. In addition, health equity, access, utilization, and disparities were considered for inclusion but were not reported by studies.

Grading the Strength of the Body of Evidence

The strength of evidence (SOE) was assessed as high, moderate, low, or insufficient, using the approach described in the AHRQ Methods Guide,[1] based on study limitations, consistency, directness, precision, and reporting bias. These criteria were applied regardless of whether evidence was synthesized quantitatively or qualitatively. SOE was initially assessed by one researcher and confirmed by a second. Descriptions of criteria and overall grades are described in full in **Appendix A**.

SOE and the corresponding conclusions are expressed in terms of whether the outcome measured and analyzed in the studies is better, worse, or similar with telehealth compared with in-person clinical interactions without telehealth, often referred to in studies as usual care. However, usual care could have different definitions depending on the study, including in-person interactions; interactions providing enhanced versus routine counseling; generic information; information covering other health topics; or no clinical interaction. For this reason, we have provided detailed descriptions of usual care when they were included in the articles.

KQs 1b, 1d, 1e, 2b, 2d, and 2e are descriptive. When applicable, a formal SOE assessment was conducted based on study-design specific criteria. We prioritized reports of U.S. national or regional studies over local reports or data from other countries. We summarized the strengths and limitations of the data collection and analyses of the included reports for these questions, with a focus on elements such as the extent the sample represents the population of interest and the completeness and reliability of the data.

The evidence for KQs 1b, 1d, 1e, 2b, 2d, and 2e was limited and consisted of studies that used qualitative methods (e.g., interviews, case studies, focus groups) as well as quantitative methods and the studies were not comparative. We assessed SOE based on methodological limitations, coherence, adequacy, and relevance. We recognize that studies conducted or published quickly during the pandemic may contribute to overall conclusions, but may not be as rigorous as a study of the same design conducted during other timeframes. This was taken into consideration when considering the body of evidence.

Assessing Applicability

Applicability was considered according to the approach described in the *Methods Guide for Effectiveness and Comparative Effectiveness Reviews*.[1] We used the PICOS framework to consider the applicability of the evidence base for each key question, for example, examining the characteristics of the patient populations (e.g., clinical condition) and study setting to determine how well the identified body of evidence matches these criteria. Information relevant for assessing applicability included the number and diversity of settings or locations as well as characteristics of the population, telehealth intervention, or implementation strategy.[53] Variability in the studies may limit the ability to generalize the results to other populations or settings and

affect the degree of confidence on how well this evidence base can be applied to other populations and settings.

Peer Review and Public Commentary

Experts will be invited to provide external peer review of this systematic review; AHRQ and HRSA will also provide comments. In addition, the draft report will be posted on the AHRQ website for 4 weeks for public comment. Comments will be reviewed and used to inform revisions to the draft report.

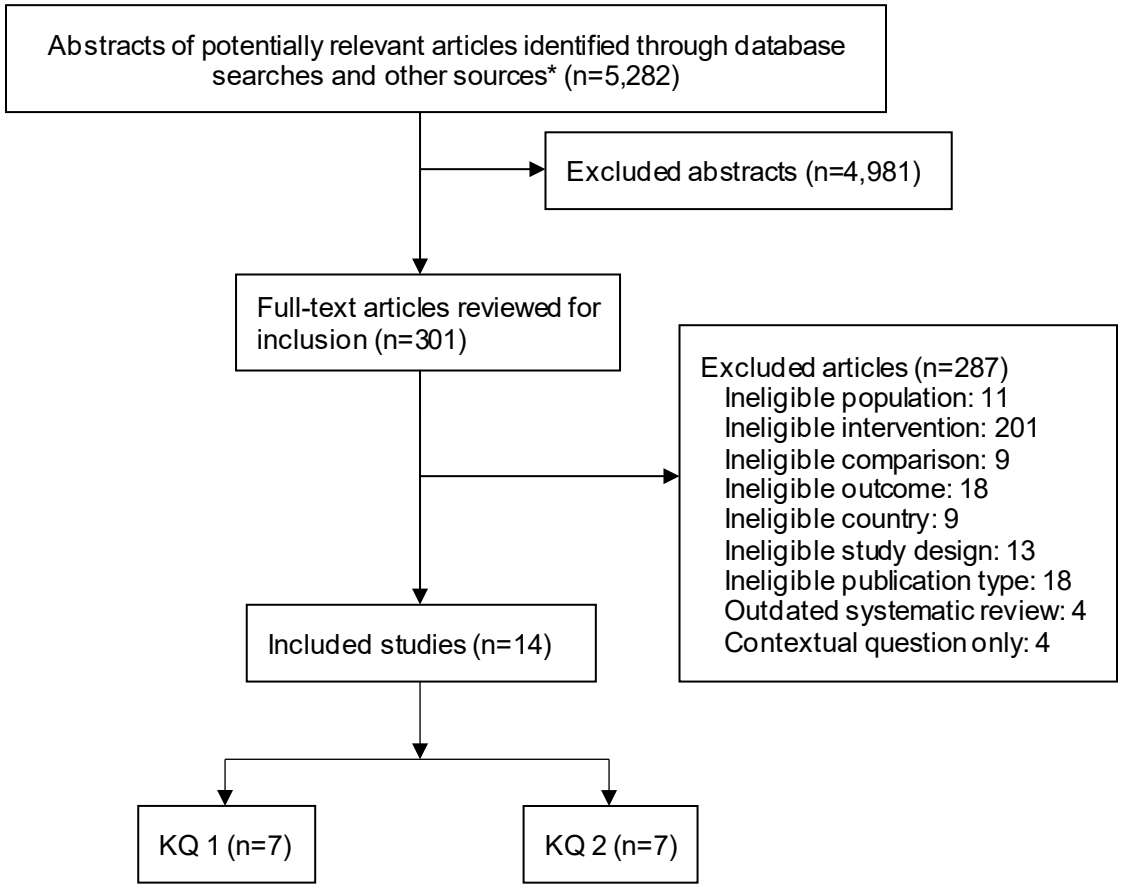
Results

Results of Literature Search

A total of 5,282 references from electronic database searches and reference lists were reviewed. After dual review of titles and abstracts, 301 papers were selected for full-text review, of which 287 articles were excluded. Fourteen studies were included across all key questions: seven RCTs and seven observational studies (**Figure 2**). Results are arranged by key question, then by outcome, and are summarized below, followed by tables in the accompanying text.

Characteristics of included studies are detailed in **Appendix B.** A list of included studies can be found in **Appendix C** and excluded studies with reason for exclusion are in **Appendix D.** Data abstraction of study characteristics and results, quality assessment for all included studies, and details for grading SOE are available in **Appendixes E, F, and G**, respectively.

Figure 2. Literature Flow Diagram



*Other sources include reference lists of relevant articles, studies, and systematic reviews, suggestions from reviewers, etc.

Abbreviations: KQ = Key Question

Key Question 1a. What is the evidence of effectiveness of telehealth as a strategy for delivery of health care services for reproductive health?

Key Question 1b. What are patient preferences and patient choice in the context of telehealth utilization?

Key Question 1c. What is the effectiveness of patient engagement strategies for telehealth?

Key Question 1d. What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?

Key Question 1e. What are the barriers to and facilitators of telehealth for women's reproductive health in low-resource settings and populations?

Key Question 1f. What are the harms of telehealth for women's reproductive health?

Key Points

- Evidence of effectiveness of telehealth interventions for contraceptive care was moderate for contraceptive use at 6 months, low for STI and pregnancy rates, and insufficient for abortion rates compared to in-person visits alone. There were no studies of family planning or STI counseling.
- Telephone counseling when used as a supplement to in-person contraceptive care probably results in similar rates of contraceptive use at 6 months (2 RCTs) and may have similar STI and pregnancy rates (1 RCT each).
- Cross-sectional surveys of primary care clinicians suggest that telehealth visits for contraceptive care increased during the COVID-19 pandemic.
- In cross-sectional surveys, the majority of patients and clinicians surveyed reported that telehealth visits for contraceptive care were satisfying and effective.
- No studies reported on patient engagement strategies (KQ1c) or harms of telehealth interventions (KQ1f) for reproductive health services.

Description of Included Studies

Two RCTS of 1,724 women and adolescents 5 non-RCTs contributed to evidence on the effect of telehealth interventions on contraceptive care (**Table 2**).[54,55] No studies addressed family planning (e.g., birth spacing, preconception planning) or STI counseling. Both RCTs met criteria for moderate risk of bias (**Appendix F**).[54,55] Populations ranged from 569 to 1,155 participants in reproductive health clinics[54] or abortion clinics.[55] Mean ages ranged from 16 to 27 years with the majority of participants identifying as non-White in both studies (62 to 75%). Neither study specifically reported being conducted in rural settings. Interventions with effects on contraceptive use included telephone-based support or counseling. Studies involved telephone counseling supplementation to clinic visits in young women and adolescents[54] or structured telephone support[55] for women seeking postabortion care. Comparisons included limited supplies

of contraception plus in-person counseling[54] or general advice for followup care as needed.[55] Both studies reported contraceptive use as the primary outcome; secondary outcomes included self-reported pregnancy and STI rates,[54] and subsequent abortion.[55] One trial was conducted in the United States[54] and another in the United Kingdom (U.K).[55] Each of the interventions used different approaches for contraceptive care. Overall SOE was moderate for impact on contraceptive use, low for impact on STI and pregnancy rates, and insufficient for impact on abortion rates (**Appendix G**). Detailed study characteristics and results can be found in **Appendix E**.

Five cross-sectional studies meeting inclusion criteria assessed the impact of the COVID-19 pandemic on the effectiveness of telehealth and patient engagement for conditions related to women's reproductive health; all studies were of contraceptive care interventions and did not evaluate STI counseling or family planning (**Table 2**).[56-60] Surveyed populations included primary care and family planning clinicians, as well as women seeking reproductive care, and ranged in size from 86 to 3,142 participants. Three studies of clinicians examined delivery of telehealth visits for contraception before and during the pandemic, but data were collected at a single timepoint. Studies evaluated the types of contraceptive services provided. Two studies examined patients' use and acceptability of telehealth services for contraception during the pandemic. All five studies were conducted in the United States. Assessment of the risk of bias was low[57] to moderate[56,58-60] (**Appendix F**). Details of studies reporting patient-centered outcomes can be found in **Appendix E**.

Table 2. Main Findings by Outcomes Category of Studies of Telehealth for Reproductive Health

Studies (n Patients)	Telehealth Function*	Telehealth Mode†	Clinical Outcomes	Patient-reported Outcomes
2 RCTs (N=1,724)[54,55]	Counseling; contraceptive support	Telephone (2)	~ Contraceptive use[54,55] ~ STI rates[54] ~ Abortion rates[55] ~ Pregnancy rates[54]	NR
5 cross-sectional studies (N=2,026 physicians[57,58,60] and N=3,228 patients[56,59])	Contraceptive care: counseling, management[56-60]	Telephone; Video	NR	+Patient acceptability (quant)[59] +Patient acceptability (qual)[59]

Direction of effect: −, worse outcome with telehealth; ~, similar outcome with telehealth; +, improved outcome with telehealth

*Function categories are prevention, screening, counseling, treatment, remote monitoring

†Mode is a description of the technology, like phone, video, SMS, mobile app

Abbreviations: NR=none reported; RCT=randomized controlled trial; STI=sexually transmitted infection

Detailed Synthesis

KQ 1a. Effectiveness of Telehealth for Reproductive Health Services

Two RCTS evaluated telephone-based contraceptive support in addition to usual care (supplementation). An RCT evaluated two interventions on the effectiveness of behavioral counseling on oral contraceptive (OC) adherence in the United States (n=1,155); and compared standard care (S) with clinic visits (C) or clinic plus phone visits (C+P).[54] Participants were 16 to 24 years old; low income (80%); White (25%), Black (19%), and Hispanic (54%); and the

majority self- identified as single or never married (78%). Those receiving standard care received a 4-month supply of OCs, 24 condoms, and a followup appointment at the initial visit, while those in the clinic intervention also received individual educational and behavioral counseling at the initial visit; those in the phone-enhanced intervention also received weekly phone contact with a counselor until they started OCs, followed by monthly calls for 6 months. Outcomes assessed via phone interviews at 3, 6, and 12 months included contraceptive use, reported as continuation of OC. Secondary outcomes included self-reported pregnancy and STI rates. There were no significant differences in OC continuation after 12 months (C+P: 20% [76/384] vs. C: 18% [69/383] vs. S: 20% [77/388]; p=0.77), based on intention-to-treat analyses. Pregnancy (hazard ratio [HR] [95% confidence interval {CI}]: 1.07 [0.72 to 1.59] vs. 1.00 vs. 1.39 [0.95 to 2.03], p=0.22) and STI rates (13 [3.4%] vs. 18 [4.6%] vs. 12 [3.1%]; p=0.50) did not differ between study groups.

A multicenter RCT of contraceptive care following elective abortion in the U.K. evaluated the effectiveness of structured, specialist contraceptive support via telephone at 2 to 4 weeks postabortion compared with general advice to followup with a general practitioner.[55] Mean age of participants was 27 years; 65 percent were non-White. The primary outcomes were effective contraceptive use at 6 months postabortion and long-acting contraceptive use measured via self-report. There was no statistically significant difference between the telephone intervention and controls for the use of effective contraception methods at 6 months (62% [88/142] vs. 54% [80/148]; mean difference [MD] 8%; 95% CI, -3.4 to 19.2) or long-acting reversible contraception (LARC) at 6 months (42% [60/142] vs. 32% [48/148]; MD 10%; 95% CI, -1.3 to 20.9). There was a statistically significant difference in the proportion of women changing from no method or non-LARC method to a LARC method at 6 months (50%) compared with controls (31%; p=0.004). There were no significant differences between groups for the secondary outcome of subsequent abortion at 1 year (10% [26/270] vs. 10% [28/281]; p=0.10). Limitations included significant loss to followup, as well as lack of blinding and high participant attrition. Applicability was low given the limited population and narrow clinical setting of those enrolled.

In summary, we judged there to be no difference between groups in contraceptive use (two RCTs, moderate SOE) STI and pregnancy rates (one RCT, low SOE), but evidence was insufficient for abortion rates (single smaller RCT).

KQ 1b.Patient Preferences and Patient Choice for Telehealth Utilization

One study assessed patient preferences in the context of telehealth utilization for contraceptive care[59] and one study assessed utilization of telehealth services.[56] Among these patients who received care at a single-family planning clinic in New York City, 86 percent reported being “very satisfied” with their visit and 63 percent reported that the visit completely met their needs. Most of those surveyed agreed that telehealth visits should continue after the pandemic (72%) and half preferred telehealth to in-person care (50%). Though very limited in scope and generalizability, this study supports patient acceptability of telehealth for contraceptive care.

One cross-sectional study examined racial and ethnic differences in utilization of telehealth services at 10 family planning clinics located in Arkansas, Kansas, Missouri, and Oklahoma during the early pandemic (April to July, 2020).[56] Based on a review of electronic health records from this period, 40 percent of a total of 3,142 sexual and reproductive health visits were

conducted using telehealth. During this specific time period there were differences in the number of visits conducted via telehealth based on participant race or ethnicity. Among Black participants 31.6 percent of visits were conducted using telehealth, 29.2 percent of visits were among individuals reporting multiple races, and 41.2 percent of visits were among White participants. Visits among Black patients were less prevalent for telehealth visits compared to in-person visits (19.3% vs 27.7%; $p<0.001$), with similar patterns among those reporting multiple races (2.5% vs 4.0%; $p<0.05$). Visits by White patients were more prevalent among telehealth visits (61.3% vs. 58.3%; $p<0.05$), as were visits by Asian/Native American/Hawaiian patients (4.0% vs. 2.9%, $p<0.05$) and those with unknown race/ethnicity (12.9% vs 7.1%; $p<0.001$). There was no significant difference for patients identifying as Latinx (8.6% vs. 8.8%). Findings were limited by a narrow selection of family planning clinics in a single geographic region and did not describe the scope of family planning services; however, the majority of visits were for contraception (64%). Study authors did not further elucidate reasons for observed differences in telehealth visits between groups.

KQ 1d. Impact of COVID-19 on the Effectiveness of Telehealth and Patient Engagement

Patient Preferences and Patient Engagement

One cross-sectional survey evaluated use and acceptability of telehealth services from a patient perspective.[59] Patients who received contraceptive services via telehealth (n=86) at a family planning clinic affiliated with a large academic health center in New York between April and June, 2020 were surveyed.[59] There were 169 patients who had an eligible telehealth visit during this period based on their need for contraceptive counseling (e.g., initiate contraception, problems with current method, desire to change or discontinue methods). Of these, 86 (51%) responded to the quantitative survey and 23 participated in a qualitative, in-depth interview. Patients represented different demographic characteristics (12% White, 33% Black, 56% Hispanic), levels of education (33% high school or less), marital status (43% married/partnered), employment status (41% employed full time, 26% employed part time), and the majority (76%) reported never having prior difficulty accessing contraceptive care in the past 5 years. Patient visits primarily took place over the phone (93%) and the remainder (7%) took place via video. Most participants (94%) used smartphones for the visits. Among participating patients, 86 percent reported being "very satisfied" with their visit and 63 percent reported that the visit completely met her needs. The majority indicated that they were not concerned about privacy (67%), though 25 percent reported being somewhat or very concerned about privacy. Interviews revealed that many privacy concerns were regarded as minor and were frequently from non-private home environments where conversations could be overheard. Most patients (72%) agreed that telehealth visits should continue after the pandemic and 50 percent preferred telehealth to in-person care. This study was limited by small sample size from a single, specialty-focused academic health center and had a low response rate, but demonstrated that telehealth was an acceptable mode of delivering and implementing contraceptive care.

Clinician Preferences and utilization

Three cross-sectional surveys of primary care clinicians suggest an increase in provision of telehealth visits for contraceptive care during the COVID-19 pandemic and high levels (86%) of clinician and patient satisfaction when using telehealth.

A cross-sectional study described results of a survey aimed to evaluate clinician preferences and experiences with rapid expansion of telemedicine for contraceptive counseling in response to the COVID-19 pandemic.[58] The survey was given to 754 family planning clinicians and was completed by 172 (34% response rate). Participating clinicians had a mean age of 39.9 years, were primarily female (92.9%) and White (68.6%), were physicians in residency training or fellowship (39.7% and 34.6%, respectively), in mostly academic settings (75.6%) and had practice locations across the U.S. Of responders, 54.3 percent reported that they "sometimes or often" used telehealth for contraceptive care prior to the pandemic and 30.8 percent reported they "sometimes or often" used telehealth for contraceptive care during the past 2 months of the pandemic. Of those who responded, 156 reported providing telehealth services during the COVID-19 pandemic. The majority (79.5%) of clinicians strongly agreed that telehealth visits are an "effective way to provide contraceptive counseling" and 84 percent strongly agreed that the "role of telehealth for contraceptive counseling should be expanded even after the pandemic."

A cross-sectional study surveyed 791 U.S. primary care physicians who delivered sexual and reproductive health care to adolescents prior to the pandemic.[57] Data came from the national DocStyles survey of U.S. physicians. Physician specialties included internal medicine (46.0%), family medicine (31.2%), and pediatrics (22.8%). Surveys were completed between September and October, 2020 and compared pre- and during pandemic timeframes. Survey response rates were 69 percent and 76 percent for physicians in internal medicine or family medicine and pediatrics, respectively. Participants were predominantly male (64.8%), non-Hispanic White (59.7%), represented all regions of the United States, had a median age of 47 years, and a median of 16 years in practice. For contraceptive care, 60.7 percent reported that they used telehealth for contraceptive initiation or continuation during the pandemic, compared with 35.2 percent prior to the pandemic. For STI services, 43.5 percent utilized telehealth during the pandemic compared with 21.7 percent prior. Among physicians who delivered these services, 27.3 percent reported confidentiality concerns about the delivery of sexual and reproductive health care via telehealth, though the specific nature of these concerns were not described.

A cross-sectional survey of U.S physicians (n=1,063) from the web-based 2020 DocStyles survey compared changes in the provision of family planning-related clinical services before and during the COVID-19 pandemic.[60] The online survey included primary care physicians (63%), obstetrician-gynecologists (23%), and pediatricians (15%), with nine additional questions specifically evaluating family planning service delivery during the pandemic. Participants represented all U.S. regions, were predominantly male (61.5%) and mostly non-Hispanic White (62%), had practiced medicine for more than 10 years (76%), were in a suburban setting (74.6%), and were over 45 years of age (60%). Prior to the pandemic, 27.6 percent reported providing contraceptive initiation by telehealth and 29.4 percent reported managing contraceptive continuation by telehealth. During the pandemic, these proportions increased to 55.8 and 60.1 percent, respectively. Based on physician reporting, there were statistically significant differences in the proportion of those providing LARC placement (41.2% [438] vs. 36.3% [386]; $p<0.05$) and removal (45.1% [479] vs. 40.1% [426]; $p<0.05$) before versus during the pandemic and an increase in the use of telehealth for contraceptive initiation (27.6% [293] vs. 55.8% [593]; $p<0.05$), continuation (29.4% [313] vs. 60.1% [639], $p<0.05$), or renewal (54.9% [584] vs. 62.2% [661]; ($p<0.05$) during the same period.

These studies demonstrate strong clinician acceptability among primary care and family planning providers. Limitations include low overall survey response rates and the potential for

recall bias regarding specific services delivered and delivery timing. Studies also lacked precision in the definitions of contraceptive and STI services as well as timeframes for the periods pre- and during-pandemic.

KQ 1e. Barriers and Facilitators of Telehealth for Women's Reproductive Health Services in low resource settings

One study examined racial and ethnic differences in the uptake of telehealth services at 10 nonprofit family planning clinics located in Arkansas, Kansas, Missouri, and Oklahoma during the early pandemic (April to July, 2020).[56] This study (described above) suggests that there are barriers to participation in telehealth for contraceptive care based on demographic groups. Reasons for between-racial group differences were not explored. Another study conducted in a clinic serving the poorest area of New York City also identified privacy concerns as a potential barrier, though notably, participants reporting these concerns still participated in a telehealth visit.[59] Physicians also reported a number of barriers to providing family planning services via telehealth during the COVID-19 pandemic, including: technical challenges (45.8%), confidentiality concerns (21.8%), billing concerns (32.7%), and patient discomfort (31.2%). Compared with a pre-pandemic assessment of telehealth barriers (31.7%, 17.0%, 23.1%, and 21.9%, respectively), the proportion of physicians reporting each of these barriers increased ($p<0.05$ for each).

In both studies, surveyed patients included only those who participated in telehealth care, so characteristics of nonparticipants (who may have been most impacted by barriers) were not described. **Appendix Table E-6** provides a summary of the barriers and facilitators for telehealth interventions identified for this report.

Key Question 2a. What is the evidence of effectiveness of telehealth as a strategy for screening and interventions for IPV?

Key Question 2b. What are patient preferences and patient choice in the context of telehealth utilization?

Key Question 2c. What is the effectiveness of patient engagement strategies for telehealth?

Key Question 2d. What is the impact of COVID-19 on the effectiveness of telehealth and patient engagement?

Key Question 2e. What are the barriers to and facilitators of telehealth for screening and interventions for IPV in low-resource settings and populations?

Key Question 2f. What are the harms of telehealth for screening and interventions for IPV?

Key Points

- No trials determined whether telehealth interventions subsequently reduced IPV.
- Low strength of evidence of effectiveness that telehealth interventions for IPV was as effective as control for reducing symptoms of depression; insufficient for reducing symptoms of posttraumatic stress syndrome; and low for reducing fear of partners or experiences of coercive control.
- Low strength of evidence that telehealth interventions for IPV were as effective as control for improving scores of self-efficacy; and low for increasing safety behaviors.
- Use of a mobile app for IPV screening in pregnant women increased during the COVID-19 pandemic compared with pre-COVID utilization rates.
- Internet access and digital literacy were reported barriers to use of web-based meeting platforms for telehealth visits among English-speaking immigrant IPV survivors.
- No trials evaluated patient preferences and choices or patient engagement strategies using telehealth interventions for IPV (KQ2b,c).
- Feeling anxious or upset while engaging with an online IPV intervention tool was similar for both intervention and control groups in the only trial evaluating potential harms.

Description of Included Studies

Four RCTs[13,61-63] and a nonrandomized trial[64] of 1,531 women evaluated the effectiveness of telehealth methods for IPV interventions. One before-after study[65] and one cross-sectional study[66] described the impact of COVID-19 on the effectiveness of telehealth for IPV (**Table 3**). Two RCTs met criteria for low risk of bias[13,62] and two for moderate risk of bias;[61,63 58] a nonrandomized trial met criteria for moderate risk of bias (**Appendix F**).[64] No trials evaluated patient preferences and choices or patient engagement strategies using telehealth interventions for IPV, and one trial of interventions also evaluated harms.[56]

Trials were conducted in the United States,[62-64] Australia,[13] and Canada,[61] and enrolled women with positive responses to IPV screening questions or recent IPV experiences. Trials enrolled between 150 to 531 women from academic medical centers,[61] family planning clinics,[63] a district attorney's office,[64] probation programs,[62] and through online recruitment.[13] Participants were generally age 18 years and older.

The before-after study[65] evaluated utilization of a mobile pregnancy app; the other cross-sectional study[66] used qualitative data to evaluate virtual (online) platforms for IPV services among immigrant women and providers to identify changes in IPV services and strategies to ensure safety, as well as identify barriers and facilitators to using virtual platforms. Based on modified risk of bias assessments, one study met criteria for moderate risk of bias[65] and the other for high risk of bias.[66] Both studies were conducted in the United States, one in an academic health center and the other in domestic violence organizations; sample sizes ranged from 62 to 959 participants.

Detailed Synthesis

KQ2a. Effectiveness of Telehealth for Interpersonal Violence Interventions

Four RCTs of IPV interventions showed no differences between telehealth interventions versus comparison or usual care for depressive symptoms, fear of partner, coercive control, measures of self-efficacy, and safety behaviors (low SOE). Evidence was insufficient to reach a conclusion about the comparative effectiveness of telehealth on PTSD measures and harms.

Depression and Posttraumatic Stress Disorder

Of the four RCTs of IPV interventions, three evaluated depressive symptoms and one RCT also evaluated PTSD.[61] All RCTs used versions of the Center for Epidemiologic Studies Depression Scale (CES-D) to evaluate depressive symptoms, although trials did not indicate whether participants met clinical thresholds for depression based on CES-D scores.

A RCT of 306 women screening positive for IPV in family planning clinics in the United States evaluated an IPV intervention consisting of in-person motivational interviews and three subsequent telephone sessions over 4 months compared with a control intervention involving referrals to community-based resources.[63] Depressive symptoms, measured by CES-D scores, improved (declined) for both groups from baseline to 6 months (intervention, 15.7 vs. 11.7, $p<0.001$; control, 14.3 vs. 11.8, $p<0.0001$). In an adjusted analysis, improvements in scores were greater for the intervention versus control group (adjusted mean change [standard error {SE}], -4.2 [0.6] vs. -2.6 [0.6]; $p=0.07$). Limitations for this study were that the comparison did not isolate the telehealth component to determine its effect and that the referral (comparison group) was vaguely defined.

A RCT of 462 Canadian women with recent IPV evaluated depressive symptoms, measured by the revised CES-D (CESD-R), from baseline over 3, 6, and 12-month followups for women randomized to a tailored, interactive online safety and health intervention (iCAN Plan 4 Safety) or a static non-tailored version of the tool (comparison).[61] In the tailored version, women received individualized responses and an action plan based on their responses to questions. Depression scores improved for both groups over time (baseline vs. 12-months: tailored, 40.62 vs. 27.95, $p<0.001$; non-tailored, 39.15 vs. 29.83; $p<0.001$), and did not differ between groups. Results were similar for PTSD symptoms, measured by the PTSD checklist, Civilian Version

(PCL-C), a second primary outcome of the trial (baseline vs. 12-months: tailored, 53.00 vs. 43.29, p<0.001; non-tailored, 51.69 vs. 44.45; p<0.001; tailored vs. non-tailored, p=0.269).

In another RCT of 422 women receiving community supervision for substance use in Australia who experienced IPV or fear of a partner in the previous 6 months, interactive computer modules (I-DECIDE) were compared with a static website containing brief information about IPV and a standard emergency safety plan (comparison).[13] The computer modules addressed healthy relationships, safety, and priorities. Based on responses, women completed an action planning or motivational interviewing module, and an individualized action plan was developed. Depression scores (CESD-R) improved for both groups from baseline to 12-month followup and did not differ between groups (intervention, 30.6 vs. 21.9; control, 32.5 vs. 21.5; p=0.163).

In summary, we judged there to be no difference between groups in depression scores (two RCTs with similar or slightly improved measures, low SOE) but evidence was insufficient for PTSD scores (single RCT) .

Interpersonal Violence-Related Outcomes

In an RCT, experiences of coercive control, measured by the Women's Experiences with Battering (WEB) scale, improved (scores declined) from baseline to 12 months for women randomized to either a tailored interactive online safety and health intervention (iCAN Plan 4 Safety) or a static non-tailored version of the tool (comparison) (tailored, 50.15 vs. 39.62, p<0.001; non-tailored, 49.93 vs. 40.94; p<0.001).[61] Results did not differ between groups (p=0.645). In another RCT of 422 women, the level of fear of a perpetrator, measured by responses on a visual analogue scale, similarly improved (decreased) from baseline to 12 months for women randomized to interactive computer modules (I-DECIDE) or a static website containing brief information about IPV and a standard emergency safety plan.[13]

In summary, results of both telehealth studies that evaluated interactive online tools indicated improvements in IPV-related measures for both intervention and control groups without significant differences between groups (low SOE).

Self-Efficacy

Three RCTs evaluated self-efficacy as an outcome measure.[13,62,63] Self-efficacy scores, measured by the Generalized Self-Efficacy Scale, improved (increased) from baseline to 12 months for both groups in a RCT of 422 women evaluating interactive computer modules (I-DECIDE) compared with a static website containing brief information about IPV and a standard emergency safety plan (comparison).[13] However, in this RCT, scores increased more in the control group (intervention, 27.0 vs. 27.8; control, 26.3 vs. 29.0; p=0.0023).

A RCT of 191 women receiving community supervision for prior substance use in the United States evaluated self-efficacy scores from baseline over 3-months followup for women randomized to computerized versus in-person services (comparison).[62] These included IPV education, screening, and risk assessment; safety planning; identification of social support; goal setting; and identification of service needs and referrals. A printout of services selected with referrals and action plans were provided to both groups. Results indicated improved (increased) self-efficacy scores, measured by the Domestic Violence Self-Efficacy Scale (DVSE), for both groups (computerized, 20.29 vs. 22.18, p<0.001; in-person, 20.93 vs. 22.85); improvements in

scores did not differ between groups (0.36; -2.20 to 2.91). The clinical significance of the 2-point mean increase in scores is unclear.

Self-efficacy scores, measured by the DVSE, also improved from baseline to 6-months followup for both groups in a RCT of 306 women comparing in-person motivational interviews and three subsequent telephone sessions with referrals to community-based resources (comparison) (intervention, 75.9 vs. 82.1, p=0.0002; control, 76.6 vs. 80.7, p=0.0087).[63] In an adjusted analysis, improvements in scores did not differ between intervention versus control groups (adjusted mean change [SE], 6.1 [1.6] vs. 3.7 [1.5]; p=0.255). In summary, we judged there to be no difference between groups in self-efficacy scores (three RCTs with similar or slightly improved measures, low SOE).

Safety Behaviors

Three trials evaluated efforts to adapt safety behaviors as outcome measures.[13,62,64] A nonrandomized trial of 150 women with protection orders against an intimate partner in the United States evaluated an intervention consisting of six telephone calls over 8 weeks to discuss safety-promoting behaviors compared with usual care.[64] Outcomes were measured using the Safety-Promoting Behavior Checklist that included 15 behaviors, such as removing weapons, hiding keys and money, and asking neighbors to call police if violence begins. Women in the intervention group averaged two new safety behaviors over the 18-month followup period ($F_{4,144}$=5.45, p<0.001), which was significantly higher than the control group (difference, $F_{4,144}$=2.81; p=0.028).

The proportion of women receiving IPV services over the previous 90 days increased from baseline over 3-months for women randomized to either computerized or in-person services (comparison) in a RCT [62] of 191 women receiving community supervision for substance use in the United States (computerized, 8.3% vs. 19.4%, p<0.05; in-person, 4.0% vs. 16.2%, p<0.05); changes did not differ between groups (0.51; 0.07 to 3.92).

In another RCT, the number of helpful behaviors for safety and wellbeing undertaken increased from baseline to 12 months for women randomized to interactive computer modules (I-DECIDE) or a static website containing brief information about IPV and a standard emergency safety plan.[13] Each group adopted a mean of 4.2 actions over time, with no difference between groups. In summary, we judged there to be no difference between groups in safety behaviors scores (three RCTs with similar or slightly improved measures, low SOE)

Harms of Interventions

One trial reported potential harms of an online IPV intervention using a scoring system based on a 5-point scale.[61] There was a similar number of the study population that reported that "working through the online tool made me anxious or upset" (tailored, 29.3% vs. non-tailored, 24.9%). However, there was no difference in potential harms between the tailored intervention and control group (mean [standard deviation {SD}] 3.22 [1.25] vs. 3.33 [1.21], p=0.380). No other studies evaluated harms of telehealth interventions for IPV, therefore we judged the evidence to be insufficient to make a conclusion.

KQ 2d. Impact of COVID-19

Two studies evaluated the impact of telehealth strategies to evaluate IPV screening frequency or access to services during the COVID-19 pandemic using a mobile app, phone, or video conference.

A before-after study of 950 women evaluated the use of self-screening tool for IPV as part of an optional module in a prenatal care app.[65] The population included pregnant women (80% white) attending an academic health center and compared patients who used the mobile app and completed the IPV screening module during COVID-19 stay-at-home order with patients who used the mobile app before the COVID-19 pandemic. Using a quality improvement pilot evaluation strategy, outcomes assessed included a comparison of IPV screening frequencies and IPV incidence rates during these two time periods. The mobile app provides resources to users (e.g., local shelter), analyzes user information to predict pregnancy adverse effects, and assesses patients' psychosocial risks. The IPV screening module includes two questions from the Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System measures of physical violence and forced sexual acts, and 10 questions from the WEB scale to quantify psychological abuse. Study results demonstrated an increased use of IPV screening mobile app during COVID-19 stay-at-home order compared with pre-pandemic use from 67% (368/552) to 85% (347/407) (95% CI, 17% to 28%; $p<0.001$) but reported similar levels of physical violence, sexual violence, and psychological abuse before and during the stay-at-home order ($p=0.56$).

In a cross-sectional study,[66] qualitative interviews were conducted with IPV survivors (n=45) and 17 providers who serve them to assess the barriers to accessing IPV services using a virtual platform during the COVID-19 pandemic. Participants included English-speaking immigrant IPV survivors from several U.S. regions (i.e., Massachusetts, New Jersey, Texas, Illinois, Maryland, Virginia, and Washington D.C.) and care providers. Interviews were conducted over the phone or via video conference to evaluate the effect of the COVID-19 pandemic on their relationship, accessibility of IPV services, and identification of other pertinent needs or safety concerns. Participants reported challenges with accessing a virtual platform (i.e., lack of internet access, digital illiteracy) and preference for face-to-face interactions, as it allowed survivors to leave their homes. Providers reported strengthening their web-based platforms via code words and hand signals to mitigate risk while using video and telephone visits and using telephone applications and text messaging to check-in with survivors.

Major limitations of studies include low power to detect change in IPV incidence.[65,66]

Table 3. Main Findings by Outcome Category of Studies of Telehealth for Interpersonal Violence

Studies (n patients)	Telehealth Function*	Telehealth Mode†	IPV-Related Outcomes	Mental Health Outcomes	Access-Related Outcomes	Patient-Reported Outcomes
4 RCTs[13,61-63] (N=1,381); 1 nonrandomized trial[64] (N=150)	Counseling; education	Phone[13,61,62]; online[63,64]	~Fear of partner[13] ~Coercive control[61] ~Safety behaviors[13,62,64]	~Depressive symptoms ~PTSD symptoms[61]	NR	~Self-efficacy[13,62,63] ~Harms [63]

Studies (n patients)	Telehealth Function*	Telehealth Mode†	IPV-Related Outcomes	Mental Health Outcomes	Access-Related Outcomes	Patient-Reported Outcomes
1 before-after (959)[65]; 1 cross-sectional (45 patients; 17 providers)[66]	Screening; assessment of access[66]	Mobile app[65]; phone or video conference[66]	~Levels of physical violence, sexual violence, and psychological abuse	NR	+ Use of IPV screening mobile app during COVID-19	–Patients reported challenges with accessing virtual platform +Providers reported strengthening their virtual platforms

Direction of effect: – , worse outcome with telehealth; ~ , similar outcome with telehealth; + , improved outcome with telehealth

*Function categories are prevention, screening, counseling, treatment, remote monitoring

†Mode is a description of the technology, like phone, video, SMS, mobile app

Abbreviations: COVID-19=novel coronoavirus-2019; IPV=interpersonal violence; NR=not reported; PTSD=posttraumatic stress disorder; RCT=randomized controlled trial

Contextual Question. What guidelines, recommendations or best practices have been developed for the design and use of telehealth and virtual health technologies for women for any clinical conditions, including on patient preferences, patient choice, patient engagement, and implementation in low-resource settings?

In response to the COVID-19 pandemic there was a rapid shift in clinical care to provide clinical services using telehealth platforms. Slowly, guidance emerged in response to the need to support stay-at-home orders while continuing to provide clinical care, including preventive services. Initially, the move to telehealth was reactive and guided by available resources. As the pandemic progressed, data emerged about delays in screening,[67] increased incidence of advanced disease,[68-70] and increasing disparities in preventive care.[71] This resulted in best practices to promote the effective and equitable delivery of health care.[72-77] Although there are no formal guidelines for telehealth delivery of preventive services, guidance by leading professional organizations for the use of telehealth services can be found in **Table 4**. None of the guidance specifically addresses low-resource settings.

As the pandemic has continued, formal guidelines from the Centers for Medicare & Medicaid Services (CMS) and others on the health care system side have emerged as a response to billing and reimbursement needs, in addition to efforts to optimize patient health and safety, and to help guide clinicians.[78-81] While screening guidelines have not changed in response to the pandemic,[82,83] methods for facilitating appropriate and timely screening have been revised to reflect the changing health care needs,[74] in particular for those at higher risk for health care disparities, including those with limited resources due to geography, socioeconomic status, or local resources.

Table 4. Professional Guidance for the use of Telehealth

Organization	Topic Area	Guidance/Best-Practices
American College of Obstetricians and Gynecologists (ACOG)[72]	General Telehealth	Obstetrician-gynecologists and other physicians should consider becoming familiar with and adept in telehealth technology. In most states, physicians, nurses, and other health care providers must be licensed in the state where the patient is located and may also need to be credentialed at the facility where the patient is located. It is important that the patient–physician relationship is upheld and valued in the treatment plan, and physicians who provide telehealth should examine their state laws and medical board definitions closely to ensure that their practices are compliant. Obstetrician–gynecologists and other physicians who provide telehealth should make certain that they have the necessary hardware, software, and a reliable, secure internet connection to ensure quality care and patient safety. Physicians who provide telehealth must comply with the Health Insurance Portability and Accountability Act (HIPAA) privacy and security rules and also should be aware of the unique security risks posed by virtual health care technology, which can be vulnerable to outside threats In response to the COVID-19 pandemic, many elements of a well-woman examination might be conducted with virtual counseling sessions, with the in-person physical examination deferred to a later date or performed on an as-needed basis.[73]
Women's Preventive Services Initiative (WPSI)[74]	General Telehealth, preventive services	The WPSI encourages health care professionals to continue to offer preventive services for their patients through telehealth platforms whenever possible. Health care professionals should consider telehealth modalities as an alternative to in-person preventive visits and services. Many preventive services on the Well Woman Chart (*link*) that involve screening, assessment, and counseling can be done via telehealth. It is important to note that in some situations, a physical examination may be indicated to address the particular preventive service being addressed. However, some aspects of the preventive visit, such as obtaining relevant medical history, family history, review of systems, counseling, education, and potential prescription could occur via telehealth, with the physical examination conducted at a later time during a subsequent in-person visit. The following preventive services may be done via telehealth: • Contraceptive counseling, discussion of methods, and prescribing contraceptives that do not require an in-person visit such as intrauterine devices or implants. • Interpersonal and domestic violence screening and discussion of available resources • Sexually Transmitted Infection prevention counseling • Postpartum contraceptive counseling, discussion of methods, and prescribing contraceptives that do not require an in-person visit such as intrauterine devices or implants • Counseling regarding folic acid supplementation
USPSTF	Preventive services	The USPSTF does not have formal guidelines regarding telehealth, however, they do note preventive services that could easily get worse over time should be continued via telehealth and if appropriate, in-person visits. IPV may be hard to recognize via telehealth.

Organization	Topic Area	Guidance/Best-Practices
Centers for Disease Control and Prevention (CDC)[75,76]	General Telehealth during COVID-19 pandemic	Telehealth services can facilitate public health mitigation strategies during this pandemic by increasing social distancing. These services can be a safer option for health care providers and patients by reducing potential infectious exposures. They can reduce the strain on healthcare systems by minimizing the surge of patient demand on facilities and reduce the use of PPE by healthcare providers. Maintaining continuity of care to the extent possible can avoid additional negative consequences from delayed preventive, chronic, or routine care. Remote access to healthcare services may increase participation for those who are medically or socially vulnerable or who do not have ready access to providers. Remote access can also help preserve the patient-provider relationship at times when an in-person visit is not practical or feasible. During COVID-19, it is critical that access to family planning services remains available while keeping healthcare providers and their patients safe.
American Academy of Family Physicians (AAFP)[84]	General Telehealth and Telemedicine	The AAFP supports expanded use of telehealth and telemedicine as an appropriate and efficient means of improving health, when conducted within the context of appropriate standards of care. The appropriateness of a telemedicine service should be dictated by the standard of care and not by arbitrary policies. Available technology capabilities as well as an existing physician-patient relationship impact whether the standard of care can be achieved for a specific patient encounter type. The AAFP recommends streamlined licensure processes for obtaining several medical licenses that would facilitate the ability of physicians to provide telemedicine services in multiple states. The AAFP encourages states to engage in reciprocity compacts for physician licensing, especially to permit the use of telemedicine. Within a state licensure framework, the AAFP strongly believes that patients with an established relationship, who are traveling, should be allowed to be treated by their primary care physician, so long as the physician is licensed in the state in which the patient receives their usual care. As telemedicine services are expanded and utilized to achieve the desired aims, it is imperative that outcomes are closely monitored to ensure disparities in care are not widened among vulnerable populations, attributed to increased use of telemedicine. Policies should acknowledge the geographical and socioeconomic disparities that exist and could be exacerbated by the improper adoption of telehealth if not explicitly addressed. Access to broadband is a social determinant of health. All patients and practices should have broadband access to support delivery of telehealth services in accordance with AAFP's policy on Health Care for All.
American Academy of Pediatrics (AAP)[77]	Telehealth during COVID-19 pandemic	Updated AAP interim guidance strongly urges continued use of telehealth and in-person services so that all children and adolescents have access to health care during and after the pandemic.

Abbreviations: STD=sexually transmitted disease; STI=sexually transmitted infection; USPSTF=United States Preventive Services Task Force; WPSI= women's preventive services initiativeFamily Planning Services

Many organizations, including ACOG, American Academy of Family Physicians (AAFP), World Health Organization (WHO), International Federation of Gynaecology and Obstetrics (FIGO), and WPSI among others,[85] have recommended that access to family planning services should be available via telehealth, especially during the COVID-19 pandemic.[72,76] Notably, some of these services were offered via telehealth prior to the pandemic and were effective and

acceptable to both patients and clinicians.[9] These services have continued to remain feasible, safe and acceptable for patients throughout the pandemic.[86]

Contraception

Several groups, including those who support the use of telehealth for family planning services,[85] have recommended reducing barriers to contraceptive access during the COVID-19 pandemic through a variety of mechanisms. These include performing new patient contraceptive visits via telehealth, prescribing multi-month contraception at reduced or no cost, providing counseling about postponing removal of LARC, prioritizing in-person contraceptive visits to placement of LARC while performing pre-procedural counseling via telehealth, training and offering self-administered injectable contraception, and utilizing pharmacist prescribed contraception.[87]

Sexually Transmitted Infection Counseling

No organizations provide specific guidance or recommendations for STI counseling via telehealth. Recommendations by the Centers for Disease Control and Prevention (CDC) suggest reducing barriers to STI testing by increasing access to self-collected STI screening, when appropriate. The CDC and AAP recommend that in-person STI management be reserved for symptomatic patients who have a risk for developing complications, while low-risk STI screening and uncomplicated symptom management be performed via telehealth.[88,89]

Interpersonal Violence

A proposed option to facilitate routine screening for IPV during the COVID-19 pandemic is to include telehealth via technology-enabled interventions, which has been shown to be preferred by IPV survivors in other contexts.[36,90] Organizations such as the National Network to End Domestic Violence, the National Coalition Against Domestic Violence, the National Domestic Violence Hotline, the Sexual Violence Research Initiative, and the Center for Court Innovation have emphasized the importance of continued screening via telehealth visits with clinicians using trauma informed approaches.[36,90] While telehealth may offer many benefits and can provide IPV screening that might otherwise not be available under stay-home orders, organizations have recommended that digital tools should be used to augment screening rather than replace it entirely.[36,90] More research is needed to identify how digital screening tools and telehealth IPV screening could negatively impact underserved patients. It is recommended that providers who serve immigrant communities be trained to be culturally sensitive when addressing the issue of IPV, and to be able to provide local resources specifically for immigrant patients.[66] Prior to the pandemic, online resources allowed for effective screening, and this remains a promising tool in order to improve access to care and promote patient safety given the ongoing pandemic. Screening for IPV during the COVID-19 pandemic has presented many challenges.

Discussion

Key Findings and Strength of Evidence

The key findings of this review are summarized in **Table 5** and in the SOE table (**Appendix Table G-1**). Fourteen studies were identified for inclusion and were limited to contraceptive care and IPV services (6 RCTs, 1 nonrandomized trial, 1 before-after study, and 6 cross-sectional studies). We found no differences in outcomes between telehealth interventions and comparisons for contraceptive use (moderate SOE), STI and pregnancy rates (low SOE), and insufficient evidence for rates of abortion. For IPV services, there were no differences between telehealth interventions and comparisons for depressive symptoms, fear, coercive control, self-efficacy, and safety behaviors (low SOE), and insufficient evidence for harms of interventions. There were no studies that evaluated harms of telehealth interventions for reproductive health services, including contraceptive care.

Telehealth interventions included both synchronous and asynchronous interventions aimed at providing access to reproductive health or IPV services outside of an in-person clinical visit using video, websites, mobile app, or telephone to supplement or replace in-person care. Findings suggest that several strategies could facilitate the uptake of telehealth for these preventive services and can result in outcomes mostly similar to in-person care.

Surveys of clinicians utilizing telehealth for contraceptive care during the COVID-19 pandemic demonstrate an increase in telehealth visits compared with pre-pandemic use. Both patients and clinicians found telehealth for contraceptive care to be satisfying and effective.

Studies evaluating the effectiveness of telehealth methods for IPV screening demonstrated differences in scores for depression favoring the intervention in one trial but not 2 others; increase in self-efficacy favoring the control group in one trial; more safety behaviors for intervention group in one trial. Trials indicated no differences for other outcomes. Measures were predominantly based on clinical scales that may have limited relevance or unclear diagnostic implications. Surveys reflect how strategies to ensure safety when using virtual platforms for IPV interventions are critical.

Studies conducted during the COVID-19 pandemic were largely cross-sectional studies that did not assess the impact of pandemic on telehealth services provided or the effectiveness of care. Rather, these studies report a snapshot of utilization patterns or patient perspectives and a low level of evidence to inform this question. For example, a study conducted in 10 family planning clinics in different states reported differences in rates of utilization by race and ethnicity. The study reported the number of patients who accessed services during the pandemic and captured differences in uptake and use. While it may reflect potential barriers to telehealth and disparities in access, it does not account for other contributing factors such as social determinants of health, technology services, internet access, or translation services. Studies do not account for regional differences on the impact of the pandemic nor do they account for clinic-level differences in available resources for telehealth provision. While some studies report on service acceptability,[58,59] measures of effectiveness are notably absent. The cross-sectional design of the available studies also increases the risk of recall bias from participants.

Barriers to telehealth implementation include limitations in internet access, lack of comfort with technology, and lack of resources for engaging in telehealth services. The impact of telehealth on patient engagement, access to care, health equity, and harms is uncertain.

Our review highlights a substantial gap in the evidence to inform telehealth interventions for family planning, contraception, STI screening, and IPV services. More evidence is needed on the benefits or potential harms of these interventions. While some findings of this review suggest a small benefit for a limited number of outcomes, further well-designed studies, such as RCTs with clearly defined comparison groups and health outcomes, are needed to improve understanding around the effective telehealth interventions that address women's preventive health care needs.

Table 5. Summary of Evidence of the Effectiveness of Telehealth Interventions

Preventive Service	Outcome	Intervention	Comparison	Number of Studies;* Study Design; Participants (n)	Overall Effect	SOE
Family Planning	NA	NA	NA	No Studies	NA	NA
Contraception	Contraceptive use	Supplemental telephone counseling; Structured telephone support[55]	4-month supply of OCPs, condoms, and in-person counseling; general advice for followup as needed	2 RCTs (1,724)[54,55]	Similar rates of OCP continuation and condom use at 3,6, and 12 months; similar rates of contraceptive or LARC use at 6 months.	Moderate
	STI rates	Supplemental telephone counseling	4-month supply of OCPs, condoms, and in-person counseling;	1 RCT (1,155)[54]	Similar rates of STI among low income patients aged 16-24 years.	Low
	Pregnancy rates	Supplemental telephone counseling	4-month supply of OCPs, condoms, and in-person counseling;	1 RCT (1,155)	Similar pregnancy rates among low income patients aged 16-24 years.	Low
	Abortion rates	Structured telephone support[55]	General advice for followup as needed	1 RCT (569)	Similar rates of abortion in both groups of postabortion patients at 1 year; similar reduction in subsequent abortion rates within 2 years.	Insufficient
STI Counseling	NA	NA	NA	No studies	NA	NA
IPV	IPV rates	NA	NA	No studies	NA	Insufficient
	Depression scores	In-person interviews followed by phone calls; interactive online tools	Referral; noninteractive online tools	3 RCTs (1,190)	Telehealth is at least as effective as usual care alternatives for improving measures of depression.	Low
	PTSD scores	Interactive online tools	Noninteractive online tools	1 RCT (462)	No differences in PTSD symptoms between interactive vs. noninteractive online tools.	Insufficient
	Fear, coercive control	Interactive online tools	Noninteractive online tools	2 RCTs (884)	No differences between interactive vs. noninteractive online tools.	Low
	Self-efficacy	Interactive online tools; computerized encounters; in-person interviews followed by phone calls	Noninteractive online tools; in-person encounters; referral	3 RCTs (919)	Telehealth is at least as effective as usual care alternatives for improving self-efficacy scores.	Low
	Safety behaviors	Telephone calls; computerized encounters; in-person interviews followed by phone calls	Usual care; in-person encounters; referral	3 RCTs (763)	Telehealth is at least as effective as usual care for increasing safety behaviors.	Low
	Harms	Interactive online tool	Noninteractive online tool	1 RCT (231)	No difference in patient reported anxiety using a tailored, online safety tool vs. a static version.	Insufficient

*Outcomes reported separately; the same study may report different outcomes

Abbreviations: LARC=long acting reversible contraception; NA= not applicable; OCPs=oral contraceptive pills; STI=sexually transmitted infection; RCT=randomized controlled trial

Findings in Relation to What is Already Known

While this systematic review demonstrates a paucity of data to inform the effectiveness of telehealth interventions for family planning, contraception, STI counseling, or IPV services, other systematic reviews have found that telehealth interventions for other women's health services (e.g., smoking cessation, breastfeeding, medication abortion, and high-risk obstetric scheduling) were associated with improved clinical outcomes.[9] Our findings are consistent with a 2019 systematic review that found that telehealth interventions were effective for contraceptive continuation, but that review did not include interventions for contraceptive care that were bidirectional.

Remote provision using telehealth strategies for contraceptive care and reproductive health services is not a new practice. Prior to the COVID-19 pandemic, a wide range of reproductive health services were already being offered via telehealth.[91] The use telehealth for contraceptive care is increasingly more common, as demonstrated by a 2017 survey indicating that contraceptive care (e.g., counseling, surveillance, provision) represented four of the five most commonly reported uses of telehealth for reproductive health care services.[91] Currently there are no federal limitations to the use of telemedicine for contraceptive services, but variation in state laws that may have different requirements for in-person services could impose specific limitations for telehealth.[92]

Telehealth platforms (e.g., telephone and video visits) have also been effectively used to provide access to medication abortion and have been a viable care strategy for over a decade.[93,94] More recently, the AAFP has endorsed the expanded use of telehealth for reproductive health services, including medication abortion.[95,96] As women face an increase in state-by-state abortion restrictions,[97-99] access to these services are becoming more limited,[100] particularly among those who already have limited access to reproductive health care.[101] Importantly, telehealth for medication abortion has been shown to be an effective and safe alternative and is acceptable to patients compared with in-person care.[102] Guidance on implementation of these services in the face of the COVID-19 pandemic is also available[103] and supported by organizations such as ACOG, the American Board of Obstetrics and Gynecology, and the Society for Maternal-Fetal Medicine, among others.[104]

Clinical decision aids are another example of how technology has been utilized to enhance clinical care. Although clinical decision aids were not evaluated in the context of telehealth interventions for this review, they could be applied as examples of tools that could be tested or adapted to facilitate care or serve as clinician extenders. For example, in a systematic review of achieving health equity in preventive services, cancer screening rates were higher in patients provided with navigation, including reminder calls, to facilitate receipt of preventive services.[105] Clinical decision aids have been described as effective methods to facilitate clinical care and to help patients navigate the clinical space.[91] Future research could consider the role of decision aids and patient navigation strategies that are amenable for use in the telehealth setting. For example, a mobile app used as a clinical adjunct for contraceptive decision support improved contraceptive use at 3 and 6 months and increased patient satisfaction with visit quality and contraceptive choices compared with usual care.[106] Decision aids may be an unstudied area of potential tools that are available but have not yet been applied in the telehealth setting. These tools have been used to screen for IPV[15,107] and facilitate contraceptive decision making.[106]

Applicability

A number of issues could impact the applicability of our findings. Applicability of the findings of this review is limited by small study size, and limited geographic and clinical settings of the clinicians or patients surveyed. The scope of this review was defined to include a subset of preventive services for telehealth for a specific population (i.e., women presenting for reproductive health or IPV services). Of these services, we found only studies on contraceptive care and IPV services. Studies conducted specifically to evaluate the effect of the COVID-19 pandemic on the use and acceptability of telehealth for the defined preventive services may have limited applicability and scope. For example, the time period identified as a focus of this review includes a time characterized by a sudden acceleration in the adoption of telehealth services and concurrent rapid policy changes for reimbursement for health care services in response to the COVID-19 pandemic. There may also be studies of telehealth in this new context that are ongoing, but were not yet published at the time of this review.

Implications for Clinical and Policy Decisions

Our review has implications for clinical and policy decisionmaking. The majority of studies did not demonstrate significant differences in clinical outcomes and trials did not report differences in acceptability when telehealth modalities were used to enhance or replace in-person care. As such, when determining whether telehealth services should continue to be offered as a feasible option for the delivery of reproductive health or IPV services, it is critical to consider the comparable performance of these services. Importantly, the comparison used in many studies included for this review was usual care or in-person care; some telehealth interventions supplemented usual care. This assumes that the alternative to telehealth is in person care, rather than no care at all, as telehealth may improve access to care for those who otherwise might not receive care. There are populations whose clinical needs can be better met remotely because having access to telehealth-based care is as not as onerous as travelling long distances, taking time off work, or seeking childcare coverage to achieve their preventive health care needs.

One of the more significant impacts of the COVID-19 pandemic on health care delivery is the transformative effect on the adoption of many forms of telehealth.[30,108,109] Increased use of telehealth for direct patient care demonstrates how the pandemic has been a catalyst for changes in technology, policy, payment/reimbursement, and patient workflows. While there was initially a drastic increase in telehealth visits at the onset of the pandemic, these levels have since declined as patients, clinicians, and health care systems have adapted. However, the use of telehealth remains high and is unlikely to return to lower, pre-pandemic levels.[110]

This review of telehealth was conducted in response to the COVID-19 pandemic and data on its effectiveness continues to emerge. As such, synthesizing the available evidence about the comparative effectiveness, acceptability, implementation, and methodological weaknesses of research studies, although limited, contributes to understanding about the future use of telehealth services for reproductive health and IPV. As data emerges in response to the rapid increase in telehealth utilization during the COVID-19 pandemic, future research should include rigorous studies measuring the impact of telehealth on health equity, access to care, and evaluating the effectiveness and harms of telehealth for women's preventive services, including studies in diverse populations and rural settings. Given that evidence specific to telehealth for women's preventive health services is incomplete, this review highlights the need for additional research in this area while continued coverage of telehealth services is considered.

Limitations of the Systematic Review Process'

We excluded non-English language articles and did not search for studies published only as abstracts. In addition to the limitations of the evidence base described below, there are limitations to the review process and the decisions, tools, and methods available for systematic reviews. Searching for telehealth studies related to reproductive health and IPV services poses several challenges that required assessing whether and how to use specific indexing and key word terms. While telehealth is increasingly indexed, it is a broad term that overlaps with others. Additionally, while the MeSH term "m-health" exists in Medline this does not capture all possible models of telehealth. Given these challenges, we worked with an expert research librarian with extensive experience with systematic reviews and tested combinations of index terms and key words. Our search strategies are included in **Appendix A**. Despite this approach and supplemental efforts that included checking references of included studies and systematic reviews, and suggestions from stakeholders and responses to requests for data, it is possible that relevant studies were missed.

Determining if similar outcomes confer a benefit depends on considering multiple factors, such as resources needed and how perspectives may differ (e.g., what is most important to a patient may not be what is most important to a clinician or a health system). For this reason, we reported when outcomes were similar, and then discussed the context to help facilitate conclusions about whether similar outcomes with telehealth can be interpreted as a benefit. Given the variety of study designs, interventions, outcomes and the lack of detail on comparators in many studies, we were unable to conduct quantitative synthesis, or meta-analyses. This heterogeneity is also challenging for qualitative synthesis of the effectiveness studies.

Limitations of Evidence Base

We identified 14 studies that evaluated the effectiveness or implementation of telehealth interventions for women's reproductive health and IPV services, with contraceptive care being the only reproductive health service addressed. Important limitations to this evidence base need to be considered as they impact the utility of this research for practice and policy decisions. Most of the key limitations are related to the lack of relevant telehealth studies for these particular preventive services, the relative weakness of study designs used in this field, the rigor with which the studies were executed, and the completeness of reporting of key outcomes (**Table 6**). Many excluded studies implemented telehealth approaches that were not bidirectional or did not link to clinical care. Other common reasons studies did not meet inclusion criteria were ineligible interventions, populations, or lack of comparators.

Most of the included studies were small and not randomized trials. Many studies of telehealth were cross-sectional and compared outcomes before and after the implementation of telehealth or compared cohorts of patients, clinicians, or organizations with and without telehealth and did not include comparison groups or efforts to isolate the effect of telehealth from historical trends or changes over time resulting from the COVID-19 pandemic. Six trials and five observational studies were rated moderate risk of bias; two were rated low and one was rated high risk of bias (**Appendix F**). Methodological limitations of moderate and high risk of bias studies were related to selection bias (e.g., whether inclusion was based on a random sample or all that met inclusion criteria and whether analyses account for important potential confounding); unclear blinding; high levels of attrition or differential loss to followup; and unclear use of statistical methods.

In studies of telehealth, interpreting these results requires consideration of the context and the intended function of the telehealth intervention. For this reason, we expressed the overall effect as whether the outcome measured and analyzed in the studies is better, worse, or similar with telehealth compared with clinical interactions without telehealth. When outcomes are better or worse, the interpretation is relatively clear. If telehealth is used to provide access to additional services and patient outcomes are found to be better, telehealth is providing a benefit. If a study finds patient outcomes are worse, then telehealth is having a negative impact or causing harm. Evaluating the impact of interventions is less clear when patient outcomes are found to be similar with and without telehealth. However, some of the available trials demonstrated benefit in both groups, which is particularly challenging when outcomes are measured on scales with unclear clinical application.

The main limitation of this evidence base is small studies with sometimes conflicting results. While there were no studies conducted in rural settings, it might be possible to use telehealth to allow health care to be delivered in rural locations as an alternative to transferring a patient or requiring travel to a non-rural setting. More research is needed to identify the disadvantages telehealth may pose in effectively delivering preventive services to specific underserved populations.

Table 6. Limitations of the Evidence

Domain	Limitations of the Evidence
Populations	• Mostly adolescents and younger women; limited studies in some clinical areas; lack of reporting on or analyses of social determinants of health and sociodemographic factors
Interventions	• Limited detail on some interventions (content, approach, frequency of interactions), especially mobile applications and websites
Comparisons	• Variation in comparators and definition of usual care; interventions to enhance usual care were not always clinically distinct
Outcomes	• For some, lack of clear definitions or variability in outcome definition or measure • Lack of telehealth harms outcomes • Access and health equity outcomes not reported; simple reporting of utilization does not address access
Setting	• No studies of patients in rural areas; reporting is limited to the location of the clinician or services provided
Study Design	• Few RCTs of contraception and IPV • No RCTs for STI counseling and family planning • Risk of bias limitations (**Appendix F**) • Studies conducted during pandemic used observational study design that have inherently higher risk of bias (pre-post or cross-sectional)

Abbreviations: IPV=interpersonal violence; RCT=randomized controlled trials; STI=sexually transmitted infection

Conclusions

Limited evidence suggests that telehealth interventions for contraceptive care and IPV services are associated with clinical and patient-reported outcomes similar to in-person care. Uncertainty remains on the most effective approaches for delivering these services and how to best mobilize telehealth to address women's health care needs, particularly for those who are geographically isolated or in underserved populations.

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Abbreviations and Acronyms

AAFP	American Academy of Family Physicians
ACA	Affordable Care Act
ACOG	American College of Obstetrics and Gynecology
AHRQ	Agency for Healthcare Research and Quality
C	clinic visits
CDC	Centers for Disease Control and Prevention
CER	Comparative effectiveness review
CES-D	Center for Epidemiologic Studies Depression Scale
CI	confidence interval
CESD-R	Center for Epidemiologic Studies Depression Scale, Revised
CMS	Centers for Medicare & Medicaid Services
COVID-19	Novel coronavirus infection
DVSE	Domestic Violence Self-Efficacy Scale
HR	hazard ratio
HRSA	Health Resources and Services Administration
IPV	Interpersonal violence
KQ	key question
LARC	Long-acting reversible contraception
MD	mean difference
NA	Not applicable
NIH	National Institutes of Health
NR	None reported
OC	Oral contraceptive
PCL-C	PTSD checklist, Civilian Version
PICOS	Population, intervention, comparisons, outcomes, settings, and study designs of interest
PTSD	Posttraumatic stress disorder
RCT	Randomized control trial
SD	standard deviation
SE	standard error
SEADS	Supplemental Evidence and Data for Systematic review
SMS	short messaging service
SOE	Strength of evidence
STD	Sexually transmitted disease
STI	Sexually transmitted infections
TEP	Technical Expert Panel
U.K.	United Kingdom

USPSTF	United States Preventive Services Task Force
WEB	Women's Experiences with Battering
WPSI	Women's Preventive Services Initiative