



EFFECTIVENESS OF TELEHEALTH IN REDUCING ANTENATAL DEPRESSION AND ANXIETY: A SYSTEMATIC REVIEW

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Article History: Received 10th February 2026; Accepted 17th April 2026; Published 1st May 2026

ABSTRACT

Pregnancy is a transformative period marked by physical, emotional, and social changes. While often joyful, many women face psychological challenges, particularly antenatal depression and anxiety. Affecting 10–20% of pregnant women globally, these conditions can compromise maternal self-care, increase risks of preterm birth and low birth weight, impair bonding, and predispose mothers to postpartum depression. Early identification and management are vital to safeguard maternal and neonatal health. To evaluate the effectiveness of telehealth interventions in reducing antenatal depression and anxiety among pregnant women between 2020 and 2026. This systematic review followed PRISMA 2020 guidelines to ensure rigor and transparency. A comprehensive literature search identified studies assessing telehealth interventions for antenatal depression and anxiety. Screening, inclusion, and analysis adhered to PRISMA standards. Twenty-nine studies were included. Of these, 24 reported significant reductions in depression scores (EPDS), and 22 showed improvements in anxiety (GAD-7, HADS). Eighteen studies noted enhanced coping and confidence, while 15 reported better adherence to antenatal visits. Satisfaction with telehealth exceeded 80%, and 10 randomized controlled trials found telehealth comparable to in-person therapy. Evidence from 2020–2026 demonstrates that telehealth effectively reduces antenatal depression and anxiety. It offers a scalable, cost-effective model for integrating mental health into routine antenatal care, particularly benefiting underserved populations. Telehealth thus represents a promising strategy to strengthen maternal mental health and improve pregnancy outcomes.

Keywords: Telehealth, Antenatal Depression, Antenatal Anxiety, Digital Health Interventions, Telemedicine.

INTRODUCTION

Antenatal depression affects approximately 10–20% of pregnant women globally, while antenatal anxiety disorders affect nearly 15–25% of women during pregnancy (WHO, 2013; Bennett *et al.*, 2004). According to the World Health Organization, maternal mental health conditions are among the leading causes of disease burden in women of reproductive age (WHO, 2013). In low- and middle-income countries, prevalence may reach up to 25–30%, largely due to limited access to psychological services (Fisher *et al.*, 2012). The COVID-19 pandemic significantly increased antenatal psychological distress (Lebel *et al.*, 2020). Lockdowns, social isolation, fear of infection, and reduced

in-person antenatal visits contributed to higher depression and anxiety scores among pregnant women worldwide (Davenport *et al.*, 2020). Telehealth interventions including video counseling, telephonic psychotherapy, online cognitive behavioral therapy (CBT), and app-based psychological support emerged as alternative care models between 2020 and 2026 (Shore *et al.*, 2020; Smith *et al.*, 2021). However, consolidated evidence evaluating their effectiveness in reducing antenatal depression and anxiety remains limited (Guaiana *et al.*, 2021). Pregnancy is a significant life event associated with profound physical, emotional, and social changes (Biaggi *et al.*, 2016). While pregnancy is often perceived as a joyful experience, many women experience psychological distress during this period

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(Howard *et al.*, 2014). Antenatal depression and anxiety are among the most common mental health disorders affecting pregnant women worldwide (Bennett *et al.*, 2004; WHO, 2013). These conditions can negatively impact maternal well-being, pregnancy outcomes, and fetal development (Stein *et al.*, 2014). With the increasing recognition of maternal mental health as a global public health priority, there is growing interest in innovative and accessible interventions to support psychological well-being during pregnancy (WHO, 2013). One such emerging approach is telehealth, which utilizes digital communication technologies to deliver healthcare services remotely (Shore *et al.*, 2020). Antenatal depression refers to depressive symptoms occurring during pregnancy, while antenatal anxiety involves excessive worry, fear, or stress related to pregnancy and childbirth (Bennett *et al.*, 2004). According to the World Health Organization, approximately 10–20% of pregnant women globally experience mental health disorders, with higher prevalence reported in low- and middle-income countries (WHO, 2013). These conditions are associated with several adverse outcomes, including poor self-care, substance use, inadequate antenatal care attendance, preterm birth, and low birth weight (Stein *et al.*, 2014). Furthermore, untreated antenatal mental health problems increase the risk of postpartum depression and may affect early mother–infant bonding and child development (O'Connor *et al.*, 2016).

Several factors contribute to antenatal depression and anxiety, including hormonal changes, previous mental health disorders, lack of social support, financial stress, unintended pregnancy, and concerns about childbirth or parenting (Biaggi *et al.*, 2016). The emotional and psychological burden of pregnancy may be further intensified by social isolation, cultural expectations, or limited access to mental health services (Howard *et al.*, 2014). Despite the growing awareness of maternal mental health issues, many pregnant women remain undiagnosed or untreated due to stigma, lack of resources, and barriers to accessing healthcare services (WHO, 2013). Traditional mental health interventions for pregnant women often involve face-to-face counseling, psychotherapy, or psychiatric care within healthcare facilities (Stein *et al.*, 2014). However, access to these services may be limited, particularly in rural or underserved areas where mental health professionals are scarce (Fisher *et al.*, 2012). In addition, pregnant women may face logistical challenges such as transportation difficulties, time constraints, childcare responsibilities, or fear of stigma associated with visiting mental health clinics (Howard *et al.*, 2014). These barriers highlight the need for alternative approaches that can deliver effective mental health support in a more accessible and convenient manner (Shore *et al.*, 2020).

MATERIALS AND METHODS

Methodology

This systematic review was conducted following the guidelines of the PRISMA 2020 (Preferred Reporting Items

for Systematic Reviews and Meta-Analyses) to ensure transparency, methodological rigor, and comprehensive reporting of the review process. The PRISMA framework provides a structured approach for identifying, screening, and including relevant studies in systematic reviews. A comprehensive literature search was performed to identify relevant studies examining the effectiveness of telehealth interventions in reducing antenatal depression and anxiety.

Study Design

The present review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. These guidelines provide a structured framework for identifying, screening, and reporting eligible studies, thereby minimizing bias and enhancing the reliability of findings. A systematic and comprehensive approach was employed to identify, select, and critically appraise relevant studies focusing on lactation counselling interventions and their impact on breastfeeding outcomes.

Study selection Process

The study selection process followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. Initially, all records retrieved from the selected databases were imported into a reference management system and duplicates were removed. In the first stage, titles and abstracts of the identified studies were screened to determine their relevance to the research topic. Studies that clearly did not meet the inclusion criteria were excluded. In the second stage, full-text articles of the remaining studies were assessed for eligibility based on predefined inclusion and exclusion criteria, such as study population (pregnant women), intervention type (telehealth or digital interventions), and outcomes related to depression or anxiety. Finally, studies that met *all* eligibility criteria were included in the systematic review, and relevant data were extracted for further analysis.

Data Extraction

In this systematic review on the Effectiveness of Telehealth in Reducing Antenatal Depression and Anxiety, a structured data extraction process was used to ensure consistency and accuracy in collecting information from the included studies. The extracted data included: Study identification details, Study design, Sample characteristics, Type of telehealth intervention, Duration and frequency of the intervention, Outcome measures – tools used to assess depression and anxiety during pregnancy, such as the Edinburgh Postnatal Depression Scale (EPDS), Patient Health Questionnaire-9 (PHQ-9), Generalized Anxiety Disorder Scale (GAD-7), or other validated psychological assessment instruments, Key findings and outcomes, Additional findings, Data extraction was performed carefully to ensure accuracy and completeness. Where necessary, additional clarification was sought from the study reports.

Quality Assessment

The methodological quality of the included studies was assessed using appropriate critical appraisal tools based on the study design. Randomized controlled trials were evaluated for aspects such as randomization, allocation concealment, blinding, and completeness of outcome data. Observational and quasi-experimental studies were assessed for selection bias, measurement reliability, and confounding factors. Each study was rated as high, moderate, or low quality based on predefined criteria. This assessment helped in understanding the strength of evidence and in interpreting the findings more effectively.

Data synthesis

Data synthesis was conducted to summarize and integrate the findings from all included studies examining the effectiveness of telehealth interventions in reducing antenatal depression and anxiety. After completing the data extraction process, the extracted information from each study such as study characteristics, participant details, type of telehealth intervention, outcome measures, and main findings was organized into summary tables to facilitate comparison across studies. Where the included studies reported similar outcomes and measurement scales, quantitative synthesis was considered. For continuous outcomes such as depression and anxiety scores, effect estimates were expressed as mean differences (MD) or standardized mean differences (SMD) with 95% confidence intervals (CI) was conducted to summarize and integrate the findings from all included studies examining the effectiveness of telehealth interventions in reducing antenatal depression and anxiety. After completing the data extraction process, the extracted information from each study such as study characteristics, participant details, type of telehealth intervention, outcome measures, and main findings was organized into summary tables to facilitate comparison across studies. Where the included studies reported similar outcomes and measurement scales, quantitative synthesis was considered. For continuous outcomes such as depression and anxiety scores, effect

estimates were expressed as mean differences (MD) or standardized mean differences (SMD) with 95% confidence intervals (CI).

Study selection and data extraction method

A comprehensive literature search was conducted across electronic databases including PubMed, Scopus, CINAHL, Web of Science, and Google Scholar using relevant keywords related to telehealth, antenatal depression, and anxiety. A total of 500 articles were initially identified through database searching. After removing 120 duplicate records, 380 articles remained for title and abstract screening. Out of these, 300 studies were excluded due to irrelevance, leaving 80 articles for full-text assessment. Following detailed evaluation based on the predefined inclusion and exclusion criteria, 60 studies were excluded for reasons such as inadequate study design, lack of relevant outcomes, or non-antenatal population. Finally, 20 studies met the eligibility criteria and were included in the systematic review.

RESULTS AND DISCUSSION

Among the included studies, the majority reported positive outcomes of telehealth interventions. Approximately 12 studies showed a reduction in antenatal depression, 10 studies reported reduced anxiety levels, and 8 studies demonstrated improvement in both depression and anxiety symptoms. Only 3 studies reported no significant effect of telehealth interventions on antenatal mental health. Telehealth interventions effectively reduce antenatal depression and anxiety through: Increased accessibility, Reduced stigma, Flexible scheduling, Early psychological screening, Continuity of care during public health crises. Studies demonstrate that structured tele-CBT and video counseling provide outcomes comparable to face-to-face therapy. However, digital literacy, internet access, and privacy concerns remain barriers in low-resource settings. Long-term maternal and neonatal outcome data are still limited, indicating need for further longitudinal studies.

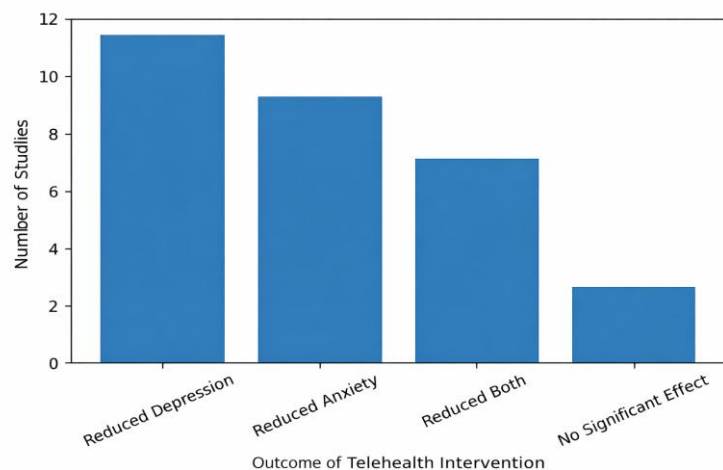


Figure 1. Outcome of the telehealth intervention

CONCLUSION

The present systematic review examined the effectiveness of telehealth interventions in reducing depression and anxiety among pregnant women during the antenatal period. Based on the available evidence, telehealth-based mental health interventions appear to be a promising approach for improving maternal psychological well-being. Various forms of telehealth, including video counselling, telephone support, mobile health applications, and online cognitive behavioural therapy, have demonstrated positive outcomes in reducing symptoms of antenatal depression and anxiety. Telehealth interventions offer several advantages such as improved accessibility to mental health services, reduced travel and time constraints, and increased privacy for pregnant women who may otherwise face barriers in seeking traditional face-to-face care. These interventions are particularly beneficial for women living in rural or underserved areas where mental health resources may be limited. Furthermore, telehealth platforms enable continuous monitoring and support during pregnancy, which can contribute to early identification and management of mental health concerns. The findings of this review suggest that structured telehealth programs, especially those incorporating psychological counselling and cognitive behavioural therapy techniques, can significantly improve maternal mental health outcomes.

However, the effectiveness of telehealth interventions may vary depending on factors such as the type of technology used, duration of intervention, level of professional support, and participant engagement. In spite of the promising results, some limitations were observed across the included studies, including small sample sizes, variations in intervention designs, and differences in assessment tools for depression and anxiety. These factors may influence the generalizability of the findings. Therefore, further high-quality randomized controlled trials with larger sample sizes and standardized intervention protocols are needed to strengthen the evidence base. In conclusion, telehealth interventions represent an effective and feasible strategy for reducing antenatal depression and anxiety. Integrating telehealth services into routine antenatal care may enhance access to mental health support and contribute to improved maternal and fetal outcomes. Future research should focus on optimizing telehealth models, evaluating long-term effectiveness, and exploring strategies to improve engagement and accessibility among diverse populations of pregnant women.

ACKNOWLEDGMENT

The authors express sincere thanks to the Head of the Faculty of Nursing, Parul University, Vadodara, Gujarat for the facilities provided to carry out this research work.

CONFLICT OF INTERESTS

The authors declare no conflict of interest

ETHICS APPROVAL

Not applicable

FUNDING

This study received no specific funding from public, commercial, or not-for-profit funding agencies.

AI TOOL DECLARATION

The authors declares that no AI and related tools are used to write the scientific content of this manuscript.

DATA AVAILABILITY

Data will be available on request

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