



THE IMPACT OF TELEHEALTH ON PSYCHOSOCIAL WELL-BEING AND PATIENT SATISFACTION DURING PREGNANCY: A LITERATURE REVIEW

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Abstract

Background: Telehealth has rapidly evolved as a critical tool in healthcare, particularly during the COVID-19 pandemic, enhancing access to care across various medical fields, including prenatal care. While telehealth offers potential benefits such as improved healthcare access and reduced travel for pregnant women, its impact on psychosocial well-being and patient satisfaction during pregnancy remains insufficiently explored. This literature review aimed to explore the impact of telehealth on psychosocial well-being and patient satisfaction during pregnancy. **Methods:** This literature review employed the PICO method to develop the review question, focusing on randomized controlled trials published between 2020 and 2024, identified through SCOPUS, PubMed, and Google Scholar using specific keywords related to telehealth, pregnancy, and well-being. **Result:** Six relevant articles meeting the inclusion criteria. The review found that telehealth interventions during pregnancy improved psychosocial well-being by reducing stress and anxiety, enhancing social support, and increasing patient satisfaction compared to conventional prenatal care methods. **Conclusion:** The literature review concludes that telehealth may be an effective approach to pregnancy care, providing accessible and continuous support through online consultations that overcome geographical challenges. The evidence suggests that telehealth enhances patient satisfaction and psychological well-being by offering a convenient, flexible, and personalized alternative to conventional in-person visits.

Keywords: pregnancy, psychosocial, satisfaction, telehealth, and well-being

INTRODUCTION

During the COVID-19 pandemic, physical distancing measures and restrictions have led to an increase in the usage of telehealth and digital health platforms (Bouabida et. al., 2022). The telehealth and medical industries have found several uses for this technology, which has proven beneficial and indispensable (Haleem et. al., 2021). Telehealth encompasses a range of technologies and services that facilitate remote health interactions between patients and providers (Haleem et.

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al., 2021). This model of care has demonstrated improvements in access to healthcare (Haleem et. al., 2021). However, the impact on psychosocial well-being and patient satisfaction, especially in the context of pregnancy, remain underexplored. One aspect of telehealth is telemedicine, which involves the remote delivery of healthcare services by professionals using information and communication technology (Haleem et. al., 2021). This includes the exchange of diagnostic information, treatment, disease and injury prevention, research and evaluation, and continuing education for healthcare providers, which all aimed to improve individual and community health (Necualu et. al., 2022). Factors influencing patient use of telemedicine include its perceived usefulness and suitability compared to conventional care, as well as cost reduction and decreased travel requirements (Riyanto, 2021). During the COVID-19 pandemic, patients found telemedicine essential, supporting its continuation even after the pandemic (Riyanto, 2021).

According to James (2027) in his book, it is stated that Pregnancy is a critical period that requires careful monitoring and support in both physical and psychological health aspects (Mirzakhani et. al., 2020). Conventional prenatal care has been well-established for ensuring maternal and fetal health; however, the integration of telehealth into prenatal care is a relatively new phenomenon. Emerging research suggests that telehealth can offer benefits such as enhanced access to healthcare services, reduced travel time, and improved management of routine prenatal consultations (Hawkins, 2023). Despite these advantages, the effects of telehealth on psychosocial aspects of pregnancy—such as emotional well-being, stress levels, and overall patient satisfaction—are not yet fully understood. As telehealth becomes more common in healthcare, it is important to understand its application within maternal care. In Indonesia, before the COVID-19 pandemic, all antenatal visits have been conducted face-to-face, but the pandemic has facilitated a rapid and widespread shift towards telehealth (Atkinson, 2023).

Telehealth interventions have shown promising results in improving access to care and mental health outcomes for pregnant and postpartum women (Hanach, 2021). A pilot study found high patient satisfaction with maternal mental health and substance use disorder treatment via telemedicine, significantly reducing travel

time and distance compared to in-person care (Guille et al., 2022). Another randomized controlled trial demonstrated that low-intensity psychosocial maternal sessions effectively reduced antenatal anxiety, although no significant effects were observed for depression or COVID-19-specific phobia (Naja et al., 2022).

During the COVID-19 pandemic, adaptation of perinatal mental health programs to telehealth modalities maintained or even increased participation rates (Paul et al., 2022). Notably, the Mother-Infant Therapy Group saw a reduction in non-completion rates from 36% for in-person services to 17% for telehealth services (Paul et al., 2022). These findings suggest that telehealth can be an effective and accessible option for providing mental health support to pregnant and postpartum women, particularly during challenging circumstances like the COVID-19 pandemic (Hawkins, 2023).

A literature review discussing the implementation of telehealth in Indonesia during the COVID-19 pandemic highlights some benefits, such as enabling remote care and limiting direct contact (Putri et al., 2023). Telehealth has had a positive impact, allowing patients to receive care effectively through phones, computers, the internet, and video and audio conferencing (Putri et al., 2023). A recent research highlights the potential benefit of telehealth to enhance patient satisfaction by providing convenience and personalized care (Amjad, 2023). However, concerns remain regarding the quality of interpersonal relationships between patients and healthcare providers, which is crucial for effective prenatal care (Dietl et. al., 2023). Additionally, psychosocial impacts, including anxiety, depression, and social support, are also critical to examine as they play a significant role in maternal health outcomes (Bedaso et. al., 2021). Therefore, it is essential to evaluate safety outcomes when replacing face-to-face visits and physical examinations with telehealth, as there is concern that such changes may compromise care, particularly if diagnoses are delayed or missed (Atkinson, 2023).

This literature review aims to synthesize current evidence on the effects of telehealth on psychosocial well-being and patient satisfaction during pregnancy. By analyzing recent research findings, this review will provide insights into how telehealth influences the prenatal care experience and offer recommendations for optimal maternal care.



METHOD

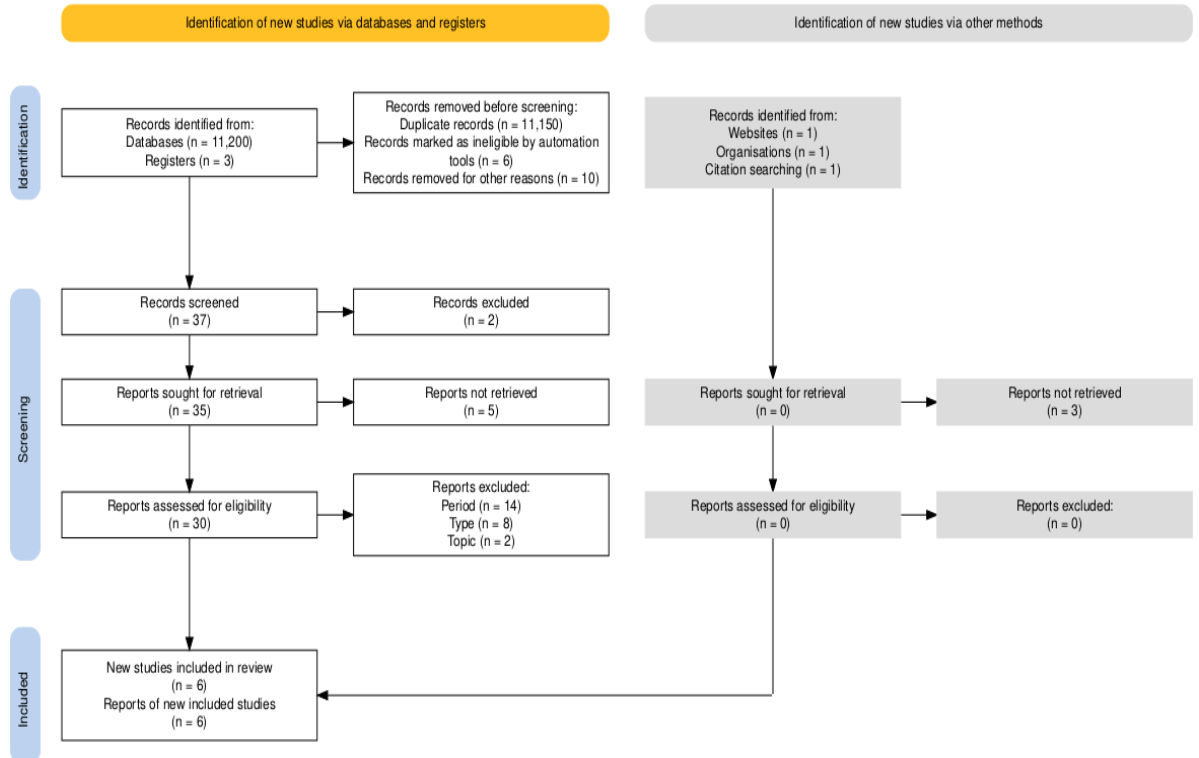
This literature review implemented the PICO (Population, Intervention, Comparison, and Outcome) guideline to develop the review question.

The question for this review: What is the impact of telehealth on psychosocial well-being and patient satisfaction during pregnancy?

The breakdown of the PICO from the developed question is as follows.

Population	Intervention	Comparison	Outcome
Pregnant women, either with low-risk or high-risk pregnancies.	The implementation of telehealth, including by using an application and remote consultation services during pregnancy.	Conventional or in-person Ante Natal Care.	1. Psychosocial experiences during pregnancy, including stress, anxiety, and social support. 2. Patient satisfaction with their prenatal care services.

The search terms used in this review: “Telehealth,” AND “Impact” AND “Pregnancy” AND “Satisfaction” AND “Psychosocial” AND “Well-being.” During the search process, 11,200 relevant articles published since 2020 were identified. The literature search process was conducted through SCOPUS, PubMed, and Google Scholar databases. The selection process of the article included in this review was conducted using the Elicit (elicit.com) to identify relevant articles. The articles reviewed are open access, published between 2020 and 2024, and Randomized Controlled Trials. Six relevant articles meeting the criteria were identified. A modified PRISMA flowchart framework tools from Haddaway et. al 2022 in https://estech.shinyapps.io/prisma_flowdiagram/ capturing the literature search process can be seen in the picture 1.





RESULT AND DISCUSSION

Author	Title	Objective	Population	Intervention	Outcome and Result
Askari, S., et al, 2023	Impact of Telehealth on Pregnant Women's Self-care, Self-efficacy, and Satisfaction during the COVID-19 Pandemic: A Quasi-experimental Study	The present study aimed to assess the impact of telehealth on pregnant women's self-care, self-efficacy, and satisfaction during the COVID-19 pandemic	Quasi-experimental study design with 150 participants were assigned to 3 groups : WhatsApp training group (n=50), Phone call training group (n=50), and Control group (n=50)	Four face-to-face prenatal care sessions for all three groups. Four additional virtual training sessions for the WhatsApp and phone call groups.	Raising the awareness of pregnant women through telephone counseling was found to not only increase their self-efficacy, self-care, and satisfaction but also reduce the need for in person visits during the COVID-19 pandemic. Furthermore, a moderate positive correlation was observed between self-efficacy and self-care scores, moreover, they have a relatively negative weak correlation with face-to-face visits

Author	Title	Objective	Population	Intervention	Outcome and Result
Guille, C., et al, 2022	A Pilot Study Examining Access to and Satisfaction with Maternal Mental Health and Substance Use Disorder Treatment via Telemedicine	The purpose of this study is to evaluate patient satisfaction with, and accessibility to, a maternal MH and SUD telemedicine service delivered to obstetric practices.	Patient satisfaction with telemedicine among obstetric patients was assessed via Likert scale surveys, with paired t-tests comparing travel time and distance to in-person care.	The intervention in this study was the provision of maternal mental health and substance use disorder treatment via telemedicine, delivered to participants at their local obstetrics clinic.	Patient satisfaction with the maternal mental health and substance use disorder telemedicine service, measured using a 5-point Likert scale. Accessibility to the telemedicine service, measured by comparing the round trip travel time and distance between the patient's home and the academic medical center versus their local obstetrics clinic where they received the telemedicine services.



Author	Title	Objective	Population	Intervention	Outcome and Result
Naja, S., et all, 2023	The impact of telemental health interventions on maternal mental health outcomes: a pilot randomized controlled trial during the COVID-19 pandemic	The objective of this pilot study is to assess the efficacy of video low-intensity psychosocial telemental maternal intervention on COVID-19-specific phobia, antenatal depression, and anxiety among pregnant women	A parallel-design randomized controlled trial enrolled 58 English- or Arabic-speaking pregnant women in their second trimester to assess antenatal anxiety, depression, and COVID-19-specific phobia, with 33 completing the 4-week follow-up.	The intervention was a "low-intensity psychosocial telemental maternal session" provided to the intervention group. The abstract does not provide any further details on the frequency, duration, or amount/dose of the intervention.	Antenatal anxiety: - Intervention group: 2.4 ± 2.2 - Control group: 4.2 ± 1.6 - Statistically significant difference ($p = 0.013$) - Large effect size (Hedges' $g = 0.96$, $0.22-1.74$) - Absolute risk reduction: 27.27% - Antenatal depression: No statistically significant effect - COVID-19-specific phobia: No statistically significant effect

Author	Title	Objective	Population	Intervention	Outcome and Result
Paul, J. J. <i>et al.</i> (2022)	Telehealth adaptation of perinatal mental health mother–infant group programming for the COVID-19 pandemic	The methodology of this study involved a comparison of in-person perinatal mental health services in 2019 versus telehealth services in 2020 during the COVID-19 pandemic.	The study assessed enrollment, completion rates, and demographics of pregnant and postpartum women in support groups, comparing EPDS scores for the Mother-Infant Therapy Group before and after the pandemic.	<ol style="list-style-type: none"> <u>1.</u> Pregnancy Group <u>2.</u> Maternal Postpartum Peer Support Group <u>3.</u> Mother-Infant Therapy Group (M-ITG), which was a 12-week multicomponent program. 	The study found that telehealth services in 2020 led to increased warmline contacts, higher participation in the Maternal Postpartum Peer Support Group, and a significant reduction in the non-completion rate of the Mother-Infant Therapy Group from 36% to 17%.



Author	Title	Objective	Population	Intervention	Outcome and Result
Latendress, G., et al, 2021	A Group Videoconference Intervention for Reducing Perinatal Depressive Symptoms: A Telehealth Pilot Study.	This pilot study evaluated the feasibility and preliminary results of an 8-week facilitated group videoconference intervention.	The 8-week videoconference mindfulness-based cognitive behavioral intervention targeted pregnant and postpartum women at outpatient clinics who screened positive for perinatal depression or were at high risk, assessing attendance and EPDS completion rates.	The intervention was an 8-week facilitated group videoconference program, with weekly 1-hour sessions, using a mindfulness-based cognitive behavioral approach. Participants used their own electronic devices to attend the sessions and completed the Edinburgh Postnatal Depression Scale (EPDS) at several time points.	The primary outcome indicated promising trajectories in perinatal depressive symptoms, with 51.1% of the 47 enrolled women experiencing mild to moderate depression, and 70% attending at least 5 of 8 sessions, showing a decrease in EPDS scores among those currently symptomatic.

Author	Title	Objective	Population	Intervention	Outcome and Result
Alanazi, A.T., et al, 2022	Telemedicine Patient Satisfaction and Cost: A Comparative Study in the COVID-19 Era	This study aimed to assess the impact of telemedicine technology from the patient perspective by comparing patient satisfaction and cost savings of follow-up visits through telemedicine with those of FTF clinical visits.	The cross-sectional study employed convenience sampling of adults living over 90 km from the clinic, comparing a telemedicine group with a face-to-face control group through a survey assessing demographics, visit costs, and patient satisfaction.	The "intervention" in this study was the use of telemedicine for follow-up visits, compared to the control group who had traditional in-person face-to-face (FTF) visits at the tertiary healthcare facility. The paper does not provide any details on the frequency, duration, or other specifics of the telemedicine visits.	The study found no significant difference in overall patient satisfaction between telemedicine and face-to-face care; however, telemedicine resulted in significantly lower costs, reduced time absent from work, and shorter travel distances for patients.



The research literature highlights the positive effects of telemedicine on maternal care, especially amidst the COVID-19 pandemic, making a strong case for the effectiveness of virtual healthcare solutions. Overall, these studies underscore the various advantages of telehealth interventions, not just in enhancing patient results but also in improving access and lessening practical challenges.

Furthermore, Askari et al. (2023) found that telephone counseling significantly improved self-efficacy, self-care, and patient satisfaction in pregnant women, while also reducing the need for in-person consultations. This outcome underscores the crucial role of telehealth in reducing physical interactions during the pandemic, ensuring the safety of both patients and healthcare providers. Moreover, the positive relationship between self-efficacy and self-care emphasizes the interconnected nature of these factors in promoting better health outcomes, while the negative association with in-person visits supports the notion that telemedicine can effectively replace face-to-face care in many cases.

Recent research highlights the significant potential of telemedicine services in improving maternal mental health and addressing substance use disorders. Guille et al. (2022) emphasize the accessibility of telemedicine, with consistently high patient satisfaction ratings, as well as reduced travel time and distance to medical facilities, particularly benefiting rural or underserved communities. Naja et al. (2023) demonstrate the effectiveness of telemedicine interventions in managing antenatal anxiety, reporting a statistically significant decrease in anxiety levels within the intervention group compared to the control group. However, the limited impact on antenatal depression and COVID-19-specific phobia suggests the need for tailored interventions for specific psychological conditions. Paul et al. (2022) observe a marked increase in participation in maternal support groups and a reduction in non-completion rates for the Mother-Infant Therapy Group (M-ITG) during the telehealth period in 2020, indicating the enhanced accessibility provided by telemedicine. Similarly, Latendress et al. (2021) report positive outcomes in reducing perinatal depressive symptoms among women engaged in telehealth support groups, with 70% of participants attending at least five sessions, thus affirming the acceptability and feasibility of telemedicine in promoting maternal mental health during the perinatal period.

The study by Alanazi et al. (2022) underscores the cost-effectiveness of telemedicine services, as it found no significant difference in patient satisfaction between telemedicine and face-to-face (FTF) consultations. However, it noted significantly lower costs and reduced work absences among telemedicine users. Additionally, the study highlighted the substantially shorter travel distances for telemedicine patients ($p = 0.001$), illustrating the economic and logistical advantages of virtual care, particularly for patients residing far from medical facilities.

In summary, these studies collectively affirm that telemedicine offers substantial benefits for maternal healthcare, particularly in terms of accessibility, patient satisfaction, and cost-effectiveness. Nevertheless, certain areas, such as antenatal depression and condition-specific phobias, may necessitate more tailored interventions that extend beyond the current scope of telemedicine practices. Therefore, further research is warranted to explore these gaps and optimize telehealth models for maternal mental health care.

The literature review highlights the evolving role of telehealth in antenatal care, categorizing it primarily into real-time and remote monitoring modalities. Real-time telehealth involves direct, synchronous communication, such as video calls or phone conversations between pregnant women and clinicians, designed to replace some traditional face-to-face consultations without entirely eliminating them (Mechanic, 2022). In contrast, remote monitoring uses technology to replicate aspects of clinical examinations that would typically occur during in-person visits. Basic forms of remote monitoring include home-based blood pressure checks and fetal heart rate recordings via Doppler devices, while more advanced techniques such as home cardiotocography and tele-ultrasound are emerging as promising alternatives to conventional monitoring methods (Kern, 2020; Recker, 2022).

The American College of Obstetricians and Gynecologists (ACOG) has published formal guidance on telehealth models, categorizing them into synchronous (real-time communication), asynchronous (deferred analysis of transmitted medical data), and remote monitoring (ACOG, 2020). The COVID-19 pandemic notably accelerated the adoption of telehealth in prenatal care, prompting healthcare systems to adapt by substituting a portion of traditional in-person visits



with virtual consultations while maintaining the overall number of antenatal appointments (Nakagawa, 2020). In most implementations, face-to-face visits are strategically scheduled at key pregnancy milestones, including the initial visit, the 28-week mark, and 36 weeks of gestation, where comprehensive planning for childbirth often occurs.

Patient satisfaction with telehealth during pregnancy has been consistently reported as high across various studies. Konnyu et al. (2023) explored the experiences of 251 pregnant women using telehealth, identifying that while some concerns persisted—such as delays in receiving timely information, increased personal responsibility due to fewer visits, and safety considerations—patients generally felt that telehealth could be better tailored to meet their needs compared to traditional care. Ghimire et al. (2023) extended this analysis through a comprehensive review encompassing over 15,000 pregnant women from 23 studies conducted between 2011 and 2021. Their findings indicated a clear preference for video conferencing over telephone consultations, highlighting the importance of straightforward, flexible, and user-friendly technologies. Additionally, women favored telehealth when it was offered in their native language and expected it to be more cost-effective than conventional prenatal care. The study also revealed a strong preference for a hybrid model combining in-person and virtual visits (Ghimire et al., 2023).

Despite these positive insights, several barriers to telehealth utilization were identified. Ghimire et al. (2023) noted significant obstacles, including inconsistent internet access, limited digital literacy, language barriers, privacy concerns, and a perceived lack of empathy from providers. Other studies corroborated these findings, emphasizing technological challenges and a reduced sense of connection between patients and clinicians as critical limitations of telehealth (Davis, 2022). However, the review also highlighted enablers of telehealth adoption, such as improved access to care, reduced travel time and work absences, enhanced self-management capabilities, cost savings, minimized exposure to COVID-19, and increased patient confidence and engagement.

The provider perspective on telehealth also reflects overall positivity, though concerns remain. Konnyu et al. (2021) included 674 healthcare providers in

their review, found that many valued telehealth for its convenience and the ability to optimize clinic time for high-risk pregnancies. Hofmann et al. (2022) surveyed 56 maternity care providers, reporting that most found telehealth feasible (94%), appropriate (80%), and acceptable (83%). In addition, a significant proportion of providers expressed satisfaction with telehealth, with 89% favoring its continued use in future practices (Hargis-Villanueva et al., 2022). However, concerns included inadequate equipment, insufficient clinic support, poor quality of images and sound, and apprehensions about the potential for telehealth to exacerbate existing healthcare inequities (Hofmann, 2022; Holman, 2023).

The synthesis of these findings underscores the potential of telehealth as a transformative approach in antenatal care, offering benefits such as enhanced patient satisfaction, cost reduction, improved accessibility, and overall efficiency in healthcare delivery. However, to fully realize these benefits, it is essential to address the technological, educational, and systemic challenges associated with telehealth. Ensuring equitable access, enhancing technological infrastructure, and providing comprehensive training for both patients and providers are critical steps in optimizing telehealth integration into antenatal care models. This approach not only promises to improve clinical outcomes but also addresses the psychosocial needs of pregnant women, thereby enhancing their overall well-being during pregnancy.

CONCLUSION AND SUGGESTION

The literature review of the literature reveals that telehealth serves as an effective modality for pregnancy care, particularly in facilitating online face-to-face consultations that bridge geographical barriers and provide continuous support to expectant mothers. Evidence from multiple studies indicates that telehealth enhances patient satisfaction by offering a flexible, accessible, and personalized approach to healthcare, which is often perceived as more convenient than traditional in-person visits. This model of care not only addresses immediate healthcare needs but also fosters a sense of empowerment and psychological well-being among pregnant mothers, as it allows for frequent and timely communication with healthcare providers.



Furthermore, the integration of telehealth into pregnancy care has been shown to reduce overall healthcare costs by minimizing the need for physical visits, thus conserving time and financial resources for patients and providers alike. The efficiency gained through telehealth is further reflected in the improvement of healthcare quality, as it enables more consistent monitoring and rapid response to emerging concerns, contributing to better maternal and fetal outcomes. Importantly, the positive impact on psychosocial well-being extends beyond clinical effectiveness, as telehealth supports mental health by reducing stress associated with logistical challenges and enhancing the overall pregnancy experience. These findings underscore the potential of telehealth to transform pregnancy care by making it more patient-centered, cost-effective, and high-quality care, ultimately improving the holistic well-being of pregnant women.

DECLARATION

Conflict of Interest

The authors declare that there is no conflict of interest in this research.

Authors' Contribution

All contributors were involved in every stage of the research, from the initial concept to the drafting of the article.

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Ethical Approval

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Data Availability

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