



PERSPECTIVE TELEHEALTH

Digital Health Divide: Opportunities for Reducing Health Disparities and Promoting Equitable Care for Maternal and Child Health Populations

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ABSTRACT

The integration of telehealth into maternal and child health (MCH) care presents an opportunity to enhance health equity, offering solutions to bridge gaps in access and quality of care. This paper explores the impact and reach of telehealth services on MCH, emphasizing its potential to address disparities in healthcare access, particularly for underserved and marginalized populations. Telehealth facilitates improved access to care by reducing geographical barriers, offering convenient and flexible consultation options, and providing cost-effective solutions for low-income families. This paper also crystallizes the importance of telehealth services on the continuity of care through consistent remote monitoring, which is crucial for managing chronic conditions and ensuring timely interventions during pregnancy and early childhood. However, the effective implementation of telehealth in MCH also faces significant challenges, including the digital divide, which limits technology access and digital literacy among vulnerable populations. Enhancing digital literacy is essential for empowering individuals to navigate telehealth services effectively and to make informed health decisions. To advance health equity, it is crucial to address these challenges by expanding technology access, improving digital literacy, and developing supportive policies that ensure comprehensive telehealth coverage while considering the Social Determinants of Health (SDoH). This paper explores the importance of leveraging telehealth and other timely interventions to improve MCH equity and justice, including the provision of technological resources and comprehensive policy frameworks. By addressing these factors, telehealth can significantly contribute to reducing health disparities and promoting equitable care for all maternal and child populations.

Keywords: Telehealth, Maternal and Child Health (MCH), Health Equity, Digital Divide, Social Determinants of Health, Policy Development

Maternal and child health (MCH) is a vital component of public health, dedicated to promoting the well-being of mothers, infants, and children throughout their reproductive lives. Despite progress in healthcare, the United States continues to confront significant challenges in MCH, with rising rates of maternal and infant mortality underscoring these issues.^[1] Rural-urban disparities, particularly in managing pre-pregnancy hypertension and other pregnancy-related complications, further exacerbate these challenges.^[2] Telehealth has emerged as a transformative approach to bridging these gaps, offering improved access to care and potentially enhancing health outcomes. It provides a critical solution for women in rural or underserved areas by overcoming barriers such as poor internet connectivity and transportation issues. Additionally, telehealth can play a crucial role in addressing racial disparities in maternal and fetal health, particularly in managing conditions such as preeclampsia and other hypertensive disorders during pregnancy.^[2]

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Digital health literacy, defined as the ability to find, understand, and utilize health information from digital sources, is a critical component for enabling individuals to effectively navigate telehealth services and make informed healthcare choices.^[3] To advance health equity, it is important to address challenges by improving access to technology, enhancing digital health literacy, and developing supportive policies that ensure comprehensive telehealth coverage, while also considering the far-reaching implications of Social Determinants of Health (SDoH).^[4] Digital literacy has become increasingly essential in today's technology-driven world, particularly within healthcare contexts. It empowers individuals by equipping them with the skills needed to find, evaluate, and effectively utilize health information, enabling them to make informed health decisions. As many health services transition online, those with strong digital literacy skills can more easily access telehealth options, patient portals, and educational materials, which can lead to improved health outcomes.^[5]

This paper explores the impact of telehealth on MCH, focusing on its potential to address disparities between rural and urban areas as well as racial inequalities. By improving access to care, enhancing patient-provider interactions, and ensuring continuity of care, telehealth has the potential to advance health equity within MCH.^[5] However, the effectiveness of telehealth in mitigating these disparities depends on overcoming challenges such as limited technology access, a lack of digital health literacy, and the need for supportive policies.^[4] Addressing these challenges is crucial to maximizing telehealth's role in providing equitable healthcare across diverse populations and reducing health disparities, primarily for underserved populations.^[6] This is especially important in maternal health because it empowers expectant and new mothers to access vital information and services that can significantly affect their well-being and that of their children. Women with high digital literacy can leverage the internet to locate evidence-based information about pregnancy, childbirth, and postpartum care. In turn, this enables them to make informed health decisions and navigate the healthcare system more effectively.^[7]

Digital health literacy enhances access to telehealth services, which is particularly beneficial for expectant mothers in remote areas or facing challenges with in-person visits.^[7] Expectant mothers can participate in virtual appointments, receive guidance, and connect with healthcare providers from home, leading to timely interventions and support during critical periods.^[8] Digital health literacy also equips women to evaluate online resources, helping them avoid harmful advice or unfounded trends. It also fosters better communication between mothers and healthcare professionals, creating a space for discussing concerns and receiving personalized and tailored care.^[9] Ultimately, improving digital health literacy in maternal health not only

supports women but also promotes healthier families and communities.^[10] Informed mothers are more likely to seek necessary care, follow treatment recommendations, and raise awareness about maternal health issues.^[9]

Health equity involves the removal of unjust and preventable health differences among groups defined by social, economic, demographic, or geographic factors.^[11] In tackling these challenges, policymakers can significantly contribute to addressing the SDoH at play by advocating for the benefits of telehealth services. Telehealth has the potential to promote equity in healthcare by improving access to medical services for underserved populations, including those in rural areas, low-income communities, and marginalized groups.^[12] In addition, telehealth can help in the mitigation of disparities in maternal and child health by enhancing access for marginalized populations, such as racial and ethnic minorities, low-income families, and individuals residing in rural areas.^[12] To this end, equity considerations regarding maternal telehealth services are crucial to note, and policy in this space should focus on ensuring that every pregnant individual has equitable access to services and resources, irrespective of their socio-economic status, race, ethnicity, or geographic location.

Research suggests that in 2021, the maternal mortality rate for non-Hispanic Black women was 69.9 deaths per 100,000 live births, 2.6 times greater than the rate of 26.6 deaths per 100,000 live births for non-Hispanic White women.^[13] The rates for Black women were substantially higher compared to those for White and Hispanic women. Furthermore, maternal mortality rates increased significantly from 2020 to 2021 across all racial and Hispanic-origin groups.^[13] These disparities crystallize the markedly elevated rates compared to their non-Hispanic White and Hispanic counterparts. Data also show that the prevalence of pregnancy-associated hypertension rose from 10.8% in 2017 to 13.0% in 2019.^[2] During this time frame, chronic hypertension rates increased from 2.0% to 2.3%.^[2] The report emphasized that hypertensive disorders of pregnancy were significantly more common among hospitalizations of non-Hispanic Black or African American (Black) women, non-Hispanic American Indian Alaska Native women, and women aged 35 years or older. Moreover, higher prevalence rates were noted among women living in zip codes with the lowest median household income quartile and those giving birth in hospitals located in the South or Midwest Census regions.^[2]

While overall maternal deaths have increased since the early 2000s, recent research highlights how the COVID-19 pandemic has underscored the digital divide and its association with disparities.^[6] Recognizing the importance of support and resources to address barriers in patient portal adoption is crucial, especially in maternity deserts where access to maternity care services is scarce or absent.

Research indicates that approximately 21 million Americans lack high-speed internet access.^[14] This issue is especially significant within minority populations, since Black and Native American mothers face between two and four times more risk of experiencing pregnancy-related complications compared to White women.^[15] Enhancing digital literacy is crucial for addressing health disparities. Populations with lower digital skills often struggle to access vital health information and services, further exacerbating existing inequalities.^[16] Additionally, digital literacy fosters better communication between patients and healthcare providers, facilitating more effective exchanges of information that can lead to improved care. Patients who are digitally literate are more likely to engage in their healthcare, participate in telehealth consultations, and adhere to treatment plans.^[16]

Limited health literacy is closely linked to various socio-economic factors, such as education level, employment status, ethnicity, and age, particularly during the prenatal stage.^[17] These disparities can affect a woman's ability to understand and utilize essential health information, which is critical for a healthy pregnancy and childbirth.^[17] Addressing the SDoH that perpetuates systemic barriers, such as access to internet connectivity and Wi-Fi, can significantly reduce the risks correlated with maternal and infant mortality.^[1,6] The effects of telehealth services can be far-reaching, and their impact can extend widely across various aspects of healthcare delivery and patient outcomes. The offering of telehealth services has also been shown to significantly enhance patient satisfaction while underscoring the positive impact of telehealth in healthcare delivery. A study exploring perinatal health preference visits discovered that mothers valued the convenience of receiving follow-up care at home as opposed to presenting in office.^[18] Research also indicates high patient satisfaction rates with telehealth services in maternal child health, noting convenience and reduced travel time as significant benefits.^[6] This underscores the effectiveness of telehealth interventions in promoting prenatal education and remote monitoring of maternal health.^[19]

Research crystallizes the importance and timeliness of social media interventions, which can significantly enhance health equity by eliminating geographical and physical barriers to accessing healthcare.^[20] It remains essential that digital health initiatives, particularly those utilizing social media, prioritize equity as well.^[20] Various factors contribute to disparities in digital health, such as socioeconomic status, geographic location, age, education, the strength of social support networks, health literacy, and cultural variations. These elements can affect both the adoption and effectiveness of social media interventions, potentially exacerbating health inequities.

Telehealth has the potential to promote equity in healthcare by improving access to medical services for underserved populations, including those in rural areas, low-income

communities, and marginalized groups.^[21] In addition, telehealth can help in the mitigation of disparities in maternal child health by enhancing access for marginalized populations, such as racial and ethnic minorities, low-income families, and individuals residing in rural areas.^[21] To this end, equity considerations regarding maternal telehealth services are crucial to note, and policy in this space should focus on ensuring that every pregnant individual has equitable access to services and resources, irrespective of their socio-economic status, race, ethnicity, or geographic location.

Closing the digital divide in maternal child health is essential for ensuring equitable access to information, healthcare services, and networks required to support positive mental and physical health outcomes. Thus, expanding broadband infrastructure in underserved regions, developing tech-friendly health resources, and fostering collaborations between healthcare providers and community organizations are some strategies that can be explored.^[22] Artificial intelligence (AI) is greatly enhancing telehealth platforms, especially in public health. One of the most impactful uses of AI is through chatbots, which are virtual assistants that are typically available 24/7.^[23] This access to reliable information can help moms make informed decisions without having to wait for a doctor's appointment or navigate through confusing online sources.^[23] In addition to chatbots, AI-powered virtual health assistants are improving how patients manage their health between telehealth visits.^[24] By gathering this information, they can provide personalized advice and alert patients to any potential health concerns.^[24] This immediate and continuous support allows patients to feel more engaged and in control of their health journeys. Overall, AI is making telehealth more responsive and accessible, significantly enhancing the quality of care in public health, particularly for maternal health.^[25] These efforts are crucial for efficiently and effectively reaching and aiding vulnerable populations in accessing telehealth services.^[25]

Policymakers play a critical role in championing the healthcare benefits of telemedicine and encouraging healthcare providers to offer telemedicine services. Extant studies also emphasize the need for policy support and infrastructure investment to address disparities in access to maternal child health services.^[26] Recognizing the necessity for focused support and resources is essential to overcome barriers in the adoption of remote health services among specific populations. Considering SDoH to improve both prenatal and postnatal care through expanded broadband capabilities could impact birth equity and reproductive justice outcomes.^[27]

To continue moving toward improved maternal and infant health outcomes, research and policy approaches should also consider the resultant implications of provider bias.^[27] Provider bias in telehealth can influence maternal health outcomes through

its impact on diagnosis accuracy and treatment options and decisions.^[27] Addressing and minimizing provider bias in telehealth settings is crucial for promoting overall equitable care and enhancing maternal health outcomes across diverse patient populations. The effectiveness of telehealth does not present without its challenges. Limited technology access and the need for provider support must also be addressed.^[28]

CONCLUSION AND GLOBAL HEALTH IMPLICATIONS

In summation, while telehealth presents a transformative opportunity for maternal healthcare, addressing the social determinants of health, expanding broadband access, improving digital health literacy, and mitigating provider bias are key areas of focus to maximize its benefits and ultimately advance health equity and reproductive justice.

Key Messages

- Telehealth can transform maternal care by improving access, ensuring continuity, and enhancing patient engagement. It enables women to receive timely and consistent care, regardless of their geographical location.
- To maximize the benefits of telehealth, it is essential to address the Social Determinants of Health, such as the expansion of broadband access and improved digital health literacy.
- Eliminating provider bias within telehealth services is critical for accurate diagnoses, and equitable treatment, and advances reproductive justice.

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COMPLIANCE WITH ETHICAL STANDARDS

Conflicts of Interest

The authors declare no competing interests.

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Use of Artificial Intelligence (AI)-Assisted Technology for Manuscript Preparation

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