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DIGITAL DIVIDE IN MATERNAL TELEHEALTH: EQUITY GAPS IN PRENATAL AND POSTPARTUM REMOTE CARE

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ABSTRACT

The rapid expansion of telehealth in prenatal and postpartum care has been widely promoted as a means of improving access to maternal health services, yet its equity implications remain insufficiently understood. This paper presents a narrative review synthesizing current evidence on equity gaps in maternal telehealth across six domains: racial and ethnic disparities, rural and infrastructural barriers, global perspectives from low- and middle-income countries (LMICs), the mental health-specific digital divide, language- and immigration-related barriers, and equity implications of emerging AI-driven maternal health tools. A literature search was conducted across PubMed, Google Scholar, and Web of Science for peer-reviewed articles and institutional reports published between 2015 and 2026, yielding 39 sources. Findings reveal a consistent "digital-first" paradox: telehealth adoption frequently follows pre-existing lines of digital advantage, in some cases widening rather than narrowing disparities in the timeliness and continuity of care for Black, Hispanic, rural, immigrant, and lower-income patients, and LMIC populations. Barriers identified include inadequate broadband, device costs, low digital literacy, language-inaccessible platforms, algorithmic bias in AI tools, and compounding stigma for mental health services. However, equity-oriented interventions—hybrid care models, subsidized connectivity, community health worker integration, language-inclusive design, and low-bandwidth mHealth or AI-supported solutions—can measurably reduce these gaps. A fragmented policy and reimbursement landscape emerges as a structural barrier, independent of intervention design. The review concludes that closing the maternal telehealth digital divide requires treating broadband access, device affordability, language accessibility, and digital literacy as core social determinants of maternal health, and calls for more research to guide policy design.

KEYWORDS

Digital Divide, Maternal Telehealth, Health Equity, Prenatal Care, Postpartum Care, Digital Health Disparities

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1. Introduction

Maternal health remains one of the most persistent equity challenges in global public health. Despite substantial medical advances, pregnancy-related mortality and morbidity continue to vary dramatically by race, geography, and national income level, with the United States alone reporting maternal mortality rates markedly higher among Black, American Indian, and Alaska Native birthing people than among their White counterparts, and low- and middle-income countries (LMICs) continuing to bear a disproportionate share of preventable maternal deaths globally (Hill et al., 2025; Jolivet et al., 2025). Timely, continuous access to prenatal and postpartum care is one of the most consistently identified levers for reducing these disparities, which has made the technologies used to deliver that care — and who can and cannot access them — a matter of direct clinical and policy consequence rather than a purely administrative concern (Samara et al., 2026; Bozkurt et al., 2024).

The rapid expansion of telehealth technologies over the past decade has fundamentally reshaped how prenatal and postpartum care is delivered against this backdrop. Remote consultations, mobile health (mHealth) applications, and home-based monitoring tools have created new pathways for pregnant and postpartum individuals to access clinical guidance without the burden of in-person visits (Wang et al., 2025; Mohamed et al., 2025; Hawkins, 2023; Stone & Hirshberg, 2024). This shift was dramatically accelerated by the COVID-19 pandemic, when in-person maternity visits declined sharply and health systems worldwide turned to virtual platforms to maintain continuity of care under emergency conditions rather than through deliberate, equity-conscious planning (Wang et al., 2025; Hung et al., 2025). Today, telehealth is widely regarded as a permanent and expanding component of maternal health service delivery, offering scheduling flexibility, reduced travel burden, and improved access to specialist consultation for high-risk pregnancies, and increasingly incorporating AI-supported triage and risk-prediction tools alongside more established video- and app-based modalities (Le Vance et al., 2025; Tzimourta et al., 2025; Stone & Hirshberg, 2024).

Despite this promise, the assumption that telehealth uniformly improves access to maternal care has been increasingly challenged. A growing body of evidence suggests that the benefits of remote care are unevenly distributed, and in some cases, digital modalities have widened rather than narrowed existing disparities in maternal health outcomes (Hung et al., 2023; Hodes et al., 2026; Hung et al., 2025). Populations already at elevated risk of adverse pregnancy outcomes — including racial and ethnic minorities, rural residents, immigrant and limited-English-proficient patients, and individuals in LMICs — frequently face compounded barriers to benefiting from telehealth, ranging from inadequate broadband infrastructure to low digital literacy, limited device ownership, and language-inaccessible platforms (Centers for Medicare & Medicaid Services, Office of Minority Health, 2019; Udegbe et al., 2023; Bozkurt et al., 2024; Spencer et al., 2024). As a result, telehealth risks becoming what several authors describe as a "double-edged" intervention: capable of expanding access for some, while simultaneously reinforcing structural inequities for others (Hung et al., 2023; Hung et al., 2025).

This tension is best understood through the lens of the *digital divide* — a concept describing disparities in access to, and effective use of, information and communication technologies across socioeconomic, geographic, and demographic lines (Girmay, 2024; Udegbe et al., 2023; Hadjiat, 2023). Within maternal health, the digital divide operates as a distinct social determinant of health, intersecting with pre-existing structural inequities such as insurance status, income, race, immigration status, and geographic isolation (Udegbe et al., 2023; Spencer et al., 2024; Hadjiat, 2023). Understanding this intersection is essential for evaluating whether telehealth genuinely advances health equity or merely digitizes pre-existing disparities under a more technologically sophisticated guise. This question is not purely academic: it carries direct implications for how health systems, insurers, and policymakers should approach an increasingly digital-first model of maternity care, particularly as global and national digital health strategies formally adopt equity as a stated policy objective, even as implementation of that objective remains uneven (Hagen, 2025; World Health Organization Regional Office for Europe, 2026).

While a substantial literature has examined either the clinical effectiveness of maternal telehealth interventions or, separately, the general phenomenon of the digital divide in healthcare, comparatively few reviews have synthesized these two bodies of evidence specifically within the context of prenatal and postpartum care across both high-income and low- and middle-income settings. This paper addresses that gap by providing a narrative synthesis of the current evidence on equity gaps in maternal telehealth, organized around six key dimensions: racial and ethnic disparities, rural and infrastructural barriers, global/LMIC perspectives, the mental health-specific digital divide affecting postpartum populations, language and immigration-related barriers, and the equity implications of emerging AI-driven maternal health tools. The objective of this review is fourfold: (1) to map the documented barriers preventing equitable access to maternal telehealth services, (2) to identify populations most affected by these gaps, (3) to synthesize emerging strategies and policy recommendations aimed at closing them, and (4) to examine how the current regulatory and reimbursement landscape supports or undermines these strategies in practice.

2. Methodology

This paper adopts a narrative review approach, appropriate for synthesizing a broad and interdisciplinary body of evidence spanning clinical, technological, policy, and social-determinants literature that does not lend itself to a single measurable outcome or PRISMA-style systematic protocol. A narrative approach was selected specifically because the review question — how does the maternal telehealth digital divide manifest across distinct populations and technologies — requires integrating heterogeneous evidence types (randomized controlled trials, scoping reviews, policy analyses, and institutional reports) that a systematic review's typically narrower inclusion criteria would exclude.

Search strategy. A literature search was conducted across PubMed/MEDLINE, Google Scholar, and Web of Science for peer-reviewed articles, systematic reviews, and institutional/government reports published between 2015 and 2026. Search terms combined core concepts using Boolean operators, including: ("digital divide" OR "digital health equity" OR "telehealth disparities") AND ("maternal health" OR "prenatal care" OR "postpartum care" OR "perinatal") AND ("telehealth" OR "telemedicine" OR "mHealth" OR "digital health"). Following an initial round of searching and thematic mapping, supplementary targeted searches were conducted to populate underrepresented themes identified during the review process, using terms such as ("Medicaid" OR "reimbursement" OR "digital health strategy") AND ("maternal" OR "postpartum");

("artificial intelligence" OR "machine learning") AND ("maternal health" OR "obstetric" OR "midwifery"); and ("immigrant" OR "refugee" OR "language barrier") AND ("telehealth" OR "maternal care").

Inclusion criteria. Sources were included if they: (a) were published in English between 2015 and 2026; (b) addressed digital health, telehealth, mHealth, or AI-driven interventions specifically within maternal, prenatal, or postpartum populations, or addressed digital health policy/regulatory frameworks directly relevant to maternal telehealth access; (c) reported on access, equity, or disparity-related outcomes (e.g., by race/ethnicity, geography, income, language, immigration status, or national income classification); and (d) were peer-reviewed journal articles, systematic reviews/meta-analyses, or reports from recognized health authorities (e.g., WHO, CMS, KFF, CCHP).

Exclusion criteria. Studies were excluded if they: (a) did not focus on maternal/perinatal populations or on digital health policy directly affecting them; (b) addressed digital health technologies without any equity, access, or disparity dimension; (c) were non-English language sources; or (d) were opinion pieces or promotional/commercial content without an underlying evidence base.

Source selection and synthesis. From an initial pool of sources identified through the search strategy described above, 39 sources meeting inclusion criteria were retained and thematically organized into seven analytic domains: (1) the general landscape of digital maternal health technologies, (2) racial and ethnic disparities in maternal telehealth access, (3) rural and infrastructural barriers, (4) global and LMIC perspectives on maternal mHealth, (5) the mental health-specific digital divide affecting postpartum populations, (6) language- and immigration-related compounding barriers, and (7) the equity implications of emerging AI-driven maternal health tools. Domain assignment was performed through iterative thematic coding: each source was read in full, key findings relevant to the review question were extracted, and sources were grouped according to the population or barrier type most central to their findings, with several sources contributing evidence to more than one domain where relevant (e.g., sources addressing both LMIC infrastructure and AI-based triage). Findings were synthesized narratively within each domain, with cross-cutting themes — including the recurring "digital-first paradox" and the role of policy fragmentation — identified and developed further in the Discussion section.

Limitations of the approach. As a narrative rather than systematic review, this paper does not apply formal risk-of-bias assessment or quantitative synthesis (meta-analysis), and source selection — while systematic in search strategy — retains an interpretive element common to narrative reviews, including judgment calls in domain assignment for sources spanning multiple themes. This trade-off was accepted in favor of the broader, cross-disciplinary synthesis the research question requires; a fuller discussion of this and other limitations appears in Section 4.4.

3. Results

3.1 Landscape of digital maternal health technologies

Digital technologies currently used in prenatal and postpartum care span a wide spectrum, from synchronous video consultations to asynchronous remote monitoring, mobile applications, and increasingly, AI-supported decision tools. Scoping reviews of antenatal care technologies describe a rapidly growing ecosystem that includes virtual visits, home blood-pressure and glucose monitoring, wearable fetal monitoring devices, and app-based educational platforms (Mohamed et al., 2025). This growth has not been linear or uniform: adoption accelerated sharply during the COVID-19 pandemic, when many health systems shifted a substantial share of routine prenatal encounters to virtual formats out of clinical necessity rather than strategic planning, a pattern that shaped both the strengths and the equity blind spots of the infrastructure that followed (Hung et al., 2025; Hawkins, 2023).

Meta-analytic evidence indicates that digital health interventions are associated with measurable improvements in several maternal and neonatal outcomes, including gestational weight management and earlier detection of complications, although effect sizes vary considerably across intervention types, delivery formats, and populations studied (Wang et al., 2025). Remote maternal-fetal monitoring pilots, including home cardiotocography and home ultrasound for high-risk pregnancies, have demonstrated clinical feasibility, with the large majority of remote scans and recordings meeting interpretability criteria in feasibility studies (Le Vance et al., 2025). Similarly, telemedicine and digital health solutions applied specifically to the intrapartum and postpartum periods — historically underserved by the digital health literature relative to the antenatal period — are gaining traction,

encompassing postpartum blood pressure surveillance for hypertensive disorders of pregnancy, remote lactation consultation, and virtual mental health follow-up (Stone & Hirshberg, 2024).

Collectively, this literature establishes that digital maternal health tools are not experimental novelties but an increasingly normalized, and in some health systems default, component of care delivery. This normalization is precisely why unequal access to these tools carries growing clinical significance: as digital modalities shift from a supplementary option to a structural feature of maternity care pathways, populations unable to access them risk falling further behind rather than simply missing out on a marginal convenience (Udegbe et al., 2023; Hawkins, 2023; Stone & Hirshberg, 2024).

3.2 Racial and ethnic disparities in telehealth access

Evidence consistently shows that the expansion of maternal telehealth has not been experienced equally across racial and ethnic groups. Analysis of prenatal telehealth visit trends in U.S. community health centers found that although telehealth use grew across all racial and ethnic groups between 2019 and 2023, non-Hispanic White patients experienced the fastest and most sustained growth in telehealth uptake, followed by non-Hispanic Black patients, leaving measurable and persistent gaps relative to other groups even as the overall technology became more mainstream (Hodes et al., 2026). A retrospective cohort study examining the intersection of COVID-19-era telehealth uptake with prenatal care timeliness found a more troubling pattern: among patients who used telehealth, racial disparities in the timeliness of prenatal care initiation between Black and White, and Hispanic and White patients were *more* pronounced than among patients relying exclusively on in-person care, even as rural-urban disparities persisted independently of telehealth use (Hung et al., 2025). This finding directly challenges the assumption that telehealth is disparity-neutral or inherently equity-enhancing, and instead suggests that telehealth adoption tracked pre-existing capacity rather than redistributing access toward populations most in need.

These access gaps compound pre-existing and severe disparities in maternal health outcomes that predate the digital health era entirely. Black women in the United States continue to experience pregnancy-related mortality at more than three times the rate of White women, alongside higher rates of preterm birth, low birthweight, and delayed entry into prenatal care (Hill et al., 2025). A systematic review and meta-analysis of first-trimester prenatal care access found that the prevalence of early prenatal care initiation among Black women was substantially and consistently lower than among White women across the studies reviewed, with wide variation by setting but a persistent direction of effect (da Silva et al., 2022). Structural factors identified across this literature include implicit bias in clinical encounters, under-resourced community health infrastructure, and — specific to the pandemic period — hospital visitor restrictions that disproportionately reduced in-person support and advocacy for Black birthing patients at a moment when such advocacy was already constrained (Norton et al., 2020).

Not all evidence in this domain points toward widening gaps, however. Some evidence offers a more encouraging counter-narrative: postpartum telehealth implementation during the pandemic has been associated with *reduced* racial disparities in postpartum visit attendance in certain health systems, suggesting that well-designed telehealth models can narrow, rather than widen, specific access gaps when equity is an explicit design consideration rather than an afterthought (Winny, 2023). This divergence between studies documenting worsening disparities and those documenting improvement is itself an important finding: it suggests that the equity impact of maternal telehealth is not a fixed property of the technology but a contingent outcome shaped heavily by implementation choices, which is a theme this review returns to directly in the Discussion.

3.3 Rural and infrastructural barriers

Geography constitutes a second major axis of inequity, operating partly independently of, and partly in combination with, racial and ethnic disparities. Rural-dwelling birthing people face compounding barriers that predate telehealth entirely, including travel burden to reach maternity care facilities, an eroding maternity care workforce marked by rural hospital obstetric unit closures, and higher background rates of chronic disease that increase the complexity of pregnancy management (Bozkurt et al., 2024). Survey-based analyses of nationally representative data show that rural residents are less likely than urban residents to receive guideline-concordant care in the year before pregnancy and during the postpartum period specifically, and — notably — that the potential of telehealth to close this particular gap remains under-evaluated in the existing literature, despite telehealth being frequently proposed as the default rural solution (Bozkurt et al., 2024).

The central infrastructural barrier undermining this proposed solution is broadband access. Reviews of obstetric telemedicine implementation identify unreliable or entirely absent broadband connectivity as one of

the most significant obstacles to equitable telehealth delivery, with provider surveys identifying patients' lack of adequate internet access as the leading reported barrier to maternal-fetal medicine telehealth encounters specifically (Udegbe et al., 2023). National and regional estimates cited across this literature suggest that a substantial share of rural populations — commonly cited in the range of one-fifth to one-half, depending on region, methodology, and study year — lack broadband infrastructure adequate for reliable video-based telehealth, a gap that federal and state maternal health policy documents increasingly recognize as a structural precondition for telehealth equity rather than a peripheral technical footnote (Samara et al., 2026; Centers for Medicare & Medicaid Services, Office of Minority Health, 2019).

Even where baseline connectivity exists, device costs (e.g., home blood-pressure cuffs, glucometers, or other monitoring hardware required for hybrid remote-monitoring models) and technology literacy present additional, compounding barriers for lower-income and rural patients alike, meaning that broadband access alone does not guarantee effective telehealth participation (Udegbe et al., 2023). Analyses combining digital access data with geographic travel-burden data further show that a considerable proportion of birthing individuals face what has been termed a "dual barrier" — simultaneously limited digital access and long travel distances to in-person maternity care — leaving this subgroup effectively underserved by either delivery model and arguably worse off than populations facing only one barrier or the other (Hung et al., 2023). Rural health policy toolkits addressing these gaps increasingly recommend paired investments: expanding broadband infrastructure alongside telehealth-specific maternal health programming, rather than treating either intervention as sufficient in isolation (Rural Health Information Hub, 2021).

3.4 Global perspective: low- and middle-income countries (LMICs)

The digital divide in maternal telehealth takes a distinct structural form in low- and middle-income country contexts, where mobile health (mHealth) — rather than broadband-dependent video telehealth — has emerged as the dominant and most scalable digital modality. A cross-disciplinary scoping review of maternal and child health technologies in Africa and other LMICs found a fast-growing but fragmented evidence base spanning public health, social science, and human-computer interaction disciplines, with SMS-based reminders, mobile decision-support tools for frontline health workers, and voice-based platforms — designed explicitly for low-literacy and low-bandwidth contexts — among the most common and most successfully scaled interventions (Till et al., 2023).

Systematic reviews of mHealth effectiveness in LMICs report generally positive but heterogeneous outcomes, underscoring that "mHealth" is not a single intervention but a heterogeneous category whose equity impact depends heavily on design choices. mHealth interventions have been associated with increased antenatal care attendance and more timely child immunization, although effects on facility-based delivery and infant feeding practices are less consistent, and reporting quality across primary studies is often limited, complicating cross-study comparison (Knop et al., 2024). A related systematic review and meta-analysis focused specifically on the period from conception to 24 months postpartum found that mHealth interventions improved institutional delivery rates and postnatal care service uptake, alongside modest gains in maternal knowledge of obstetric danger signs — outcomes directly relevant to reducing preventable maternal mortality in resource-limited settings (Gayesa et al., 2023). Notably, targeting strategy — that is, whether interventions are directed at pregnant women themselves or at the community health workers who serve them — has been identified as an underexamined but potentially critical determinant of intervention effectiveness and equitable reach, since worker-directed tools can extend benefits even to women who themselves lack personal device access (Ilozumba et al., 2018).

Across this literature, cost and infrastructure remain recurring caveats that echo the rural connectivity barriers documented in Section 3.3, but at greater scale and severity. Reviewers note that even low-cost mHealth interventions can reproduce or deepen equity gaps if program design does not explicitly account for the affordability of devices, network access, and mobile airtime among the poorest patients, meaning that "low-cost" from a health-system budgeting perspective is not synonymous with "accessible" from a patient perspective (Till et al., 2023). Global policy frameworks have begun to formalize this recognition: the World Health Organization's Global Strategy on Digital Health, first adopted in 2020 and subsequently extended through 2027, explicitly identifies equity — alongside governance and interoperability — as a core strategic objective for national digital health planning, reflecting growing institutional consensus that digital maternal health tools require deliberate equity safeguards rather than assuming benefits will diffuse automatically (Hagen, 2025). However, comparative policy analyses assessing how faithfully national digital health strategies operationalize these WHO principles have found uneven implementation even among high-income countries, let alone LMICs with more constrained health-system capacity — a gap examined further in the Discussion (Holl et al., 2024).

3.5 The mental health-specific digital divide

A fourth, distinct dimension of inequity concerns digital access to perinatal mental health care, an area where clinical need and digital access barriers intersect with particular intensity. Postpartum depression (PPD) affects a substantial proportion of postpartum individuals, yet a persistent "screening-to-care" gap means that only a minority of those who screen positive are ultimately connected to treatment, reflecting both workforce shortages and access barriers that predate the digital health era (Feldman & Perret, 2023). Telehealth-delivered interventions have shown meaningful clinical promise in addressing this gap: a systematic review and meta-analysis of randomized controlled trials found that telehealth interventions produced statistically significant reductions in depressive and anxiety symptoms among women with PPD compared with control conditions, with effects that varied by PPD severity, specific therapeutic modality, and length of follow-up (Zhao et al., 2021). A related systematic review of digital health interventions for perinatal depression more broadly similarly found meaningful reductions in depressive symptoms across the antenatal and postpartum periods combined, while noting substantial variation in effectiveness depending on intervention modality, timing of initiation, and delivery format — underscoring that, as with mHealth in Section 3.4, "digital mental health intervention" is a broad category whose benefits are not uniform across implementations (Anyanwu & Jenkins, 2024).

However, the same digital and infrastructural barriers documented in Sections 3.2 and 3.3 apply to mental health care with particular force, compounded further by stigma that can itself discourage help-seeking independent of access barriers. Digital mental health tools are frequently positioned as a scalable solution to workforce shortages in perinatal mental health services, given that the large majority of adults now own smartphones and app-based support can be accessed at flexible hours that accommodate infant care schedules (Feldman & Perret, 2023). Yet commentators caution that smartphone-based interventions still depend on device ownership, sufficient data plans, and baseline digital literacy — meaning that without deliberate equity-oriented design, mental health apps risk extending meaningful care primarily to already digitally-connected postpartum populations while leaving the highest-risk, most under-resourced patients — who arguably need these services most urgently — without improved access (Feldman & Perret, 2023).

3.6 Language, immigration status, and compounding digital barriers

A dimension of the maternal telehealth digital divide that receives comparatively less attention in mainstream health equity literature, but which emerged consistently across the sources reviewed, concerns the compounding effect of language barriers and immigration status. Analysis of telehealth use among U.S. immigrants during the COVID-19 pandemic found that non-citizen immigrants were significantly less likely than U.S.-born patients to have had a virtual clinical appointment, a gap the authors attribute to overlapping factors: immigrant households report among the highest rates of lacking home internet access of any demographic group, limited availability of telehealth platforms and clinical interpretation services in languages other than English, and broader socioeconomic barriers associated with low income (Spencer et al., 2024). Because these barriers operate simultaneously rather than independently, immigrant and limited-English-proficient patients often face a distinctly compounded form of the digital divide, layering language access on top of the connectivity and device barriers already documented for rural and lower-income populations.

Within maternal health specifically, a scoping review of access barriers among migrant, internally displaced, asylum-seeking, and refugee women identified language barriers between patients and healthcare providers as one of the most consistently reported obstacles to sexual and reproductive healthcare access, alongside limited knowledge of available services and cultural unacceptability of certain service delivery models (Sawadogo et al., 2023). Notably, the same review identified mobile translation applications and telehealth consultations as potential *facilitators* of access when appropriately implemented — for instance, enabling connection to language-concordant providers who may not be geographically available in a patient's local area — indicating that digital tools can cut in either direction for this population depending on whether linguistic and cultural accessibility is built into platform design from the outset (Sawadogo et al., 2023). This dual potential reinforces a pattern already visible in Sections 3.2 and 3.4: digital health technologies are not inherently equity-widening or equity-narrowing, but contingent on whether the specific barriers facing a given population were considered during intervention design.

3.7 Emerging technologies: artificial intelligence and equity implications

A final, rapidly evolving dimension of the maternal telehealth landscape concerns the growing integration of artificial intelligence (AI) and machine learning (ML) into maternal risk prediction, triage, and clinical decision support. Reviews of AI applications in midwifery and maternal risk detection argue that ML tools carry a dual potential: they can improve prediction accuracy for complications such as pre-eclampsia and postpartum hemorrhage, while also — if deliberately designed for this purpose — extending outreach to rural and underserved populations through AI-supported virtual assistants and triage systems that reduce dependence on scarce specialist availability (Tzimourta et al., 2025). Reviews focused specifically on bias and clinical translation caution, however, that AI systems trained on non-representative datasets risk amplifying rather than narrowing existing maternal health disparities, particularly given that current evidence remains constrained by limited external validation across diverse populations and largely absent prospective clinical impact trials (Bashir et al., 2026).

This dual-edged pattern is especially visible in LMIC applications, where several documented case studies illustrate AI's potential to extend maternal health system capacity under severe resource constraints. A systematic narrative review of AI-enabled maternal health forecasting in LMICs describes SMS-based AI triage systems supporting outreach to millions of women in low-bandwidth, low-literacy settings, alongside AI-supported dropout prediction models designed to trigger targeted follow-up for patients at risk of disengaging from antenatal care (Kanayan, 2025, preprint, not yet peer-reviewed). The same review identifies persistent equity concerns as a central barrier to responsible scale-up, including algorithmic bias, limited interoperability with existing health information systems, and the risk that AI tools requiring reliable connectivity or advanced infrastructure could reproduce — in a new technological form — the same rural and infrastructural exclusions documented in Section 3.3, unless deployment is explicitly designed around low-bandwidth and offline-capable formats (Kanayan, 2025). The review's recommendations — embedding equity principles at the design stage, prioritizing rural and low-literacy populations in both training data and deployment planning, and establishing formal governance and bias-auditing processes — echo, in a technologically updated form, the equity-by-design principles already identified as effective in the non-AI mHealth literature reviewed in Section 3.4 (Kanayan, 2025; Ilozumba et al., 2018).

Table 1 synthesizes the barrier domains, affected populations, and representative sources discussed across Sections 3.2 through 3.7.

Table 1. Summary of Key Barrier Domains, Affected Populations, and Representative Sources

Barrier domain	Primary affected populations	Representative sources
Racial/ethnic disparities in uptake and timeliness	Black, Hispanic, and American Indian/Alaska Native birthing patients (U.S.)	(Hodes et al., 2026; Norton et al., 2020; Hill et al., 2025; da Silva et al., 2022; Hung et al., 2025)
Broadband/infrastructure gaps	Rural residents; low-income households	(Centers for Medicare & Medicaid Services, Office of Minority Health, 2019; Udegbe et al., 2023; Bozkurt et al., 2024; Hung et al., 2023; Rural Health Information Hub, 2021)
Device cost and digital literacy	Low-income patients across settings; older patients	(Samara et al., 2026; Udegbe et al., 2023)
Connectivity and affordability in LMICs	Pregnant women and health workers in Africa, South/Southeast Asia	(Till et al., 2023; Gayesa et al., 2023; Knop et al., 2024; Ilozumba et al., 2018)
Stigma + digital access (mental health)	Postpartum individuals with depression/anxiety, particularly in under-resourced settings	(Feldman & Perret, 2023; Anyanwu & Jenkins, 2024; Zhao et al., 2021)
Language and immigration status	Non-citizen immigrants, limited-English-proficient patients, refugee/asylum-seeking women	(Sawadogo et al., 2023; Spencer et al., 2024)
Algorithmic bias in AI-driven tools	Populations underrepresented in training data; rural/low-connectivity users of AI-dependent tools	(Bashir et al., 2026; Kanayan, 2025, preprint; Tzimourta et al., 2025)

4. Discussion

4.1 Interpretation: the "digital-first" paradox

The findings synthesized above point to a consistent and somewhat counterintuitive pattern: telehealth, despite being widely promoted as an equity-enhancing innovation, does not automatically reduce disparities in maternal care access, and under certain conditions actively widens them. The clearest illustration of this paradox is the finding that racial disparities in the timeliness of prenatal care initiation were more pronounced among patients using telehealth than among those receiving exclusively in-person care (Hung et al., 2025). This suggests that telehealth adoption during the COVID-19 pandemic occurred along pre-existing lines of digital advantage — patients with reliable broadband, devices, and digital literacy could substitute virtual visits seamlessly, while patients without these prerequisites were left with a narrower, more fragile care pathway than the in-person system they had relied on previously (Hung et al., 2023; Hung et al., 2025).

This pattern reflects a broader phenomenon documented across digital health equity literature: technology tends to amplify existing capacity rather than neutrally redistributing access (Udegbe et al., 2023; Hadjiat, 2023). A "digital-first" policy default — in which telehealth is treated as a like-for-like substitute for in-person care rather than as an additional channel layered on top of existing services — risks systematically disadvantaging patients who lack the infrastructural or literacy prerequisites to use it, even as it genuinely improves convenience and access for better-resourced patients (Udegbe et al., 2023; Hung et al., 2023). Importantly, this dynamic is not confined to any single domain: it recurs, in different forms, across the racial/ethnic (3.2), geographic (3.3), international (3.4), mental health (3.5), language/immigration (3.6), and even emerging AI-driven (3.7) dimensions examined in this review, suggesting that the digital divide in maternal telehealth is best understood as a structural feature of digital-first care design rather than a series of isolated, population-specific gaps.

The recurrence of this pattern across such heterogeneous populations and technologies is itself analytically significant. If the digital divide in maternal telehealth were purely a function of one factor — for instance, income alone, or geography alone — targeted single-lever interventions (e.g., subsidized devices) might be expected to resolve most of the disparity. Instead, the evidence suggests overlapping and mutually reinforcing barriers: a rural, non-English-speaking, low-income patient does not simply face three additive obstacles but a compounded one, where each barrier reduces the marginal benefit of addressing any single other barrier in isolation (Sawadogo et al., 2023; Hung et al., 2023; Spencer et al., 2024). This has direct implications for intervention design, discussed below.

4.2 Implications for policy and practice

At the same time, the evidence reviewed here indicates that this outcome is not inevitable. Where telehealth interventions have been deliberately designed with equity as an explicit objective, more encouraging results emerge. Postpartum telehealth models implemented with attention to accessibility have been associated with reductions — rather than increases — in racial disparities in postpartum visit attendance in some health systems (Winny, 2023), indicating that intervention design, not the technology itself, is the primary determinant of whether telehealth narrows or widens equity gaps. Similarly, in LMIC contexts, mHealth programs that combine low-bandwidth modalities (e.g., SMS, voice) with frontline health worker support have demonstrated meaningful gains in antenatal care attendance and institutional delivery, suggesting that equitable digital health design is achievable even in severely resource-constrained settings when interventions are matched to the infrastructural realities of their target population (Till et al., 2023; Gayesa et al., 2023; Knop et al., 2024).

Several concrete strategies recur across the reviewed literature as promising approaches to closing the maternal telehealth equity gap. First, hybrid care models that preserve in-person options alongside telehealth — rather than treating virtual care as a full substitute — appear better positioned to serve patients across the digital access spectrum (Samara et al., 2026; Udegbe et al., 2023; Hung et al., 2023). Second, addressing broadband as a social determinant of health, including subsidized connectivity and low-cost devices for low-income and rural patients, has been identified as a necessary complement to clinical telehealth investment, since clinical platforms alone cannot compensate for absent infrastructure (Samara et al., 2026; Centers for Medicare & Medicaid Services, Office of Minority Health, 2019; Udegbe et al., 2023). Third, community-based and worker-mediated models — such as community health worker-supported telehealth navigation and doula-inclusive care teams — show particular promise for populations facing compounded barriers, including

both U.S. racial/ethnic minority populations and LMIC settings (Till et al., 2023; Winny, 2023). Fourth, language-inclusive design — including built-in interpretation services and mobile translation tools integrated directly into telehealth platforms, rather than offered as a separate and often harder-to-access service — emerges from the literature on migrant and refugee populations as a comparatively low-cost but frequently overlooked equity intervention (Sawadogo et al., 2023; Spencer et al., 2024). Finally, equity-by-design principles applied specifically to digital mental health tools and to emerging AI-driven risk-prediction systems — including low-literacy interfaces, offline functionality, bias-auditing processes, and integration with existing community health infrastructure — may help prevent both categories of tools from disproportionately benefiting only already digitally-connected patients (Kanayan, 2025; Feldman & Perret, 2023).

4.3 Policy and regulatory landscape

Beyond intervention-level design choices, this review's findings point to a policy and regulatory environment that itself shapes — and, in its current fragmented state, frequently undermines — equitable maternal telehealth access. At the global level, the World Health Organization's Global Strategy on Digital Health, adopted in 2020 and extended through 2027, formally identifies equity as one of its core strategic pillars, encouraging member states to embed equitable access into national digital health planning rather than treating it as a secondary consideration (Hagen, 2025). However, a 2026 WHO/Europe review assessing implementation of this equity commitment across the region found that while equity is increasingly referenced in national digital health strategies, it is often articulated only at a high level, without the operational standards or oversight mechanisms needed to translate stated commitments into measurable outcomes (World Health Organization Regional Office for Europe, 2026). A comparative policy analysis contrasting Germany's and Tanzania's national digital health strategies against the WHO framework similarly found that even a high-income country with substantial digital health infrastructure fell short specifically in the domains of engaging service beneficiaries in strategy development and promoting health equity — suggesting that resource availability alone does not guarantee equity-conscious policy design, and that this is a governance gap rather than purely a funding gap (Holl et al., 2024).

Within the United States specifically, the policy landscape governing maternal telehealth reimbursement remains notably fragmented. Unlike core maternity services, which the Affordable Care Act requires private insurers and Medicaid expansion programs to cover, there is no equivalent federal requirement to reimburse telemedicine specifically, leaving reimbursement policy to vary considerably by state and by payer (Weigel et al., 2025). An annual national summary of state telehealth laws documents continual, uneven policy change across states — some expanding remote patient monitoring reimbursement and removing prior-authorization barriers, others maintaining more restrictive frameworks — creating a patchwork in which a maternal telehealth intervention that is well-reimbursed and therefore sustainable in one state may be financially unviable for a clinic or patient in a neighboring one (Center for Connected Health Policy, 2025). This fragmentation directly intersects with the racial and geographic equity gaps documented in Sections 3.2 and 3.3, since states with larger rural populations or higher shares of Medicaid-covered births do not uniformly have the more generous telehealth reimbursement policies that these populations would most benefit from (Center for Connected Health Policy, 2025; Weigel et al., 2025).

A partially offsetting policy development is the extension of postpartum Medicaid coverage from 60 days to a full 12 months after childbirth, now adopted by the large majority of U.S. states following changes enabled by the American Rescue Plan Act of 2021 and made permanent by subsequent federal legislation (KFF, 2026). Because Medicaid finances a substantial share of U.S. births — and a disproportionately higher share of births among Black and Hispanic patients specifically — this coverage extension has been explicitly framed by its proponents as a mechanism for addressing racial inequity in postpartum and maternal mortality, including the mortality that occurs well beyond the traditional six-week postpartum window (Kumar et al., 2021). Insofar as extended coverage also sustains eligibility for postpartum telehealth visits that would otherwise lapse alongside insurance coverage itself, this policy shift may functionally reinforce, rather than substitute for, the telehealth-specific equity interventions discussed above — illustrating that closing the maternal telehealth digital divide cannot be achieved through digital health policy in isolation, but requires coordination with the broader insurance and coverage policy environment in which telehealth access is embedded (KFF, 2026; Kumar et al., 2021).

4.4 Limitations

Several limitations of this review should be acknowledged. As a narrative rather than systematic review, source identification and inclusion, while guided by an explicit search strategy, were not subjected to independent dual-reviewer screening or formal risk-of-bias assessment; some degree of selection bias toward more visible, English-language, and predominantly U.S.-focused literature is therefore possible, notwithstanding deliberate efforts to include LMIC-focused sources in Section 3.4 and policy sources spanning multiple countries in Section 4.3. Second, the heterogeneity of study designs, populations, and outcome measures across the reviewed sources precludes any quantitative synthesis of effect sizes; the barriers and strategies discussed here should be understood as recurring qualitative themes rather than statistically pooled findings. Third, because telehealth technologies, AI-driven maternal health tools, and connectivity infrastructure are evolving rapidly, some cited findings — particularly those describing pandemic-era telehealth adoption patterns and state-level reimbursement policy, which changes on an annual or even more frequent basis — may reflect a transitional period rather than a stable long-term equilibrium, and findings should be interpreted with this temporal context in mind. Fourth, one source discussing AI-enabled maternal health forecasting in LMICs (Kanayan, 2025) is a preprint that has not yet undergone formal peer review; it was included because it was, at the time of writing, one of the few sources directly addressing this emerging and rapidly evolving intersection of AI and maternal health equity in LMICs, but its findings should accordingly be treated as provisional pending peer review.

5. Conclusions

This review set out to map the equity gaps affecting maternal telehealth across six interrelated dimensions: racial and ethnic disparities, rural and infrastructural barriers, global/LMIC perspectives, the mental health-specific digital divide, language- and immigration-related barriers, and the equity implications of emerging AI-driven maternal health tools. The synthesized evidence indicates that telehealth, while capable of expanding access to prenatal and postpartum care, does not do so uniformly. Black, Hispanic, rural, immigrant, and lower-income patients in high-income settings, as well as patients in low- and middle-income countries, consistently face compounded barriers — including inadequate broadband, limited device access, low digital literacy, language-inaccessible platforms, and, for mental health services, additional layers of stigma — that can offset or even reverse the accessibility gains telehealth offers to better-resourced populations. In several documented cases, telehealth adoption has been associated with a widening, rather than a narrowing, of pre-existing disparities in the timeliness and continuity of maternal care, a pattern this review has termed the "digital-first paradox."

At the same time, this review identified a clear counter-narrative: where telehealth interventions are deliberately designed around equity — through hybrid care models, subsidized connectivity, community health worker integration, language-inclusive platform design, and low-bandwidth mHealth or AI-supported solutions matched to local infrastructure — measurable reductions in access disparities are achievable. This indicates that the digital divide in maternal telehealth is not an inevitable byproduct of digital transformation, but a design and policy outcome that can be mitigated through deliberate intervention. Importantly, this review's examination of the policy and regulatory landscape suggests that intervention-level design choices alone are insufficient: even well-designed telehealth models operate within — and are constrained by — a fragmented reimbursement and regulatory environment in which equity commitments articulated at the global policy level (e.g., the WHO Global Strategy on Digital Health) do not always translate into the operational standards, sustained funding, or coordinated insurance coverage policy needed to realize them in practice.

Several directions for future research follow from these findings. First, longitudinal studies are needed to determine whether pandemic-era telehealth disparities persist, narrow, or widen as digital infrastructure and policy settings continue to evolve beyond the immediate post-COVID-19 period. Second, comparative research directly evaluating hybrid versus telehealth-only care models across diverse racial, geographic, income, and language strata would help clarify which populations benefit most from which delivery format. Third, further research into the cost-effectiveness and scalability of equity-oriented design strategies — such as subsidized devices, community health worker-mediated telehealth navigation, built-in interpretation services, and low-bandwidth mHealth platforms — is needed to inform policy investment decisions. Fourth, given the rapid emergence of AI-driven maternal risk-prediction and triage tools, dedicated research is urgently needed on algorithmic bias, external validation across diverse populations, and governance frameworks

capable of preventing these tools from reproducing the same infrastructural exclusions documented for earlier generations of digital health technology. Finally, given the comparatively thin evidence base on the intersection of digital mental health access and maternal equity, dedicated research on perinatal mental health app design for under-resourced and digitally marginalized populations represents a particularly urgent priority. Addressing the maternal telehealth digital divide will require treating broadband access, device affordability, language accessibility, and digital literacy not as peripheral technical concerns, but as core social determinants of maternal health — and will require coordinated action across clinical, technological, and policy domains simultaneously, rather than any one of these levers in isolation.

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