

Intersecting Inequalities and Health Outcomes: A Sociological Analysis of Social Determinants, Digital Health Inequities, and the Changing Landscape of Well-Being in Post-Pandemic Societies

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Abstract- This conceptual paper questions the persistence and change of health disparities through the interplay between long-standing social determinants, most notably class, race, gender, education, and geography, and new forms of health inequity associated with the digitization of everyday life, arguing that the post-COVID-19 era not only deepened entrenched inequalities, but also have led to new forms of stratification in that, although the COVID-19 pandemic revealed and exacerbated dropped access to health care, mental health services, and social protection, the upgrading uptake of telemedicine, algorithm-based diagnostics, personal health technologies, and AI-assisted care delivery across diverse populations has opened opportunities for extended coverage and new forms of exclusion, especially by sections of the population with low digital skills, poor Internet sourcing or the cultural capital to handle them, thus the article builds a claim that individual well-being in contemporary societies has to be theorized as a relational process, conditioned by the co-construction of structural determinants of human health, and the infrastructural components of technology, hence intersecting inequalities not only act to direct health but may also indirectly because differential input on digital health innovations, as for example bias in algorithms driving diagnostic tools with racial minorities more than any other population, the datafication of bodies generated by personal digital health technologies provides fresh opportunities to reinforce taut surveillance logics over already vast populations, and telemedicine, while expanding health care in rural context can deepen urban-rural inequalities in those areas where digital infrastructures are absent, all of which stresses the importance of reframing sociological approaches to

health which merge the new digital sociology, adequately fused with traditions established in medical sociology and the sociology of inequality, and this article contributes a conceptual framework to link the micro-level experiences of sickness, stress, and digital exclusion to meso-level dynamics of community-based digital health practice and clinical uptake, and to macro-level policies, global health governance, and platform capitalism, thereby building a theoretical backdrop of potential to analyze the multi-scalar processes through which intertwining inequalities stylize health and well-being in the context of the pandemic of COVID-19 and the mid-2020s, and apropos of an agenda for future research, the article forwards the empirical examination of conceptual frameworks by multiple countries, the critical equity implications of digital health regulations and the recasting of well-being indicators to accommodate both structural and technological mediations, thus securing the central position of the sociological scholarship in the health equity debate for a digitally-mediated and post-pandemic world.

Keywords: Health Inequalities, Social Determinants of Health, Digital Health Inequities, Intersectionality, Post-Pandemic Societies, Well-Being

I. INTRODUCTION

The continued and enlarged margins of health inequities highlighted through the COVID-19 pandemic and its follow-on consequences place a clarion call for sociological substantiation to not only challenge traditional social determinants of health; class, race, gender, education, and geography, found

significantly linked to inequities in health, but also to fill the urge to include contemporary dynamics of digital health inequities within the sociological study of well-being, as the pandemic not only exposed latent fault lines in health systems, but also set off the rapid adoption of telehealth, digital surveillance infrastructures, algorithmic diagnostics and wearable health technologies, producing a double-edged technological transformation, with the digital instruments broadening access for some, whilst deepening exclusion for others, and thus the sociological relevance of intersecting inequities is particularly pronounced as evidence reveals marginalized populations faced higher odds of disproportionate infection, hospitalization and mortality rates during COVID-19 (Bambra et al., 2021), while simultaneously faced with infrastructural gaps, economic precarity, and scant digital literacy that predetermined inequalities of access to the digital modalities comprising the telehealth landscape (Robinson et al., 2023), demonstrating that well-being within post-pandemic societies cannot be summated to biomedical outcomes, but fully theorized as socially mediated and techno culturally co-constructed, with inequalities leveraging on the intersections of race and ethnicity as signaled by disproportionate rates of misclassification in the context of AI-embedded dermatological diagnostics fortuitously unearthing features of darker skin (Adamson & Smith, 2022)—class, where low-income households experienced downsized access to telehealth consultations due to cost and clamor for connectivity, and gender, where the disproportionate loads of unpaid care work accrued by women during the pandemic were subjected to algorithmic predispositions intrinsic to reproductive health applications (Eubanks, 2018), these examples coalesce to accentuate that the digital health landscape is not a neutral counterbalance to inequities, but a terrain in which power, stratification, and social reproduction transpires in new forms, thus the aim of this article is a conceptual analysis of social determinants and digital health inequities as mutually reaffirming aspects of health-seeking trajectories, which necessitates bridging canonic theories of health and illness—including structural functionalism's concern with systemic integration, conflict theory's emphasis on power differentials, and intersectionality's insight into overlapping disadvantages—with contemporary digital sociology

strains prioritizing platform capitalism, algorithmic governance, and datafication (Couldry & Mejias, 2019), therefore filling a critical research gap, as the majority of prior studies have focused either on traditional parameters of health in isolation or viewed technological adoption narrowly without embedding it within a broader sociological framework of inequity, and this conceptual deficit has large implications, as by September 2025 digital health solutions—from AI chatbots embedded in healthcare platforms, to predictive analytics utilized in population health management—become routinely integrated into public health infrastructures, prompting questions not only about efficacy but also about distributive justice, privacy, and algorithmic accountability (WHO, 2023), and so we advocate a sociological framework needed for analyzing health trajectories and well-being in post-pandemic societies incorporate analysis of not only of the intersection of enduring structural determinants but also the landscape of digital health inequality, situating health trajectories at the intersectionality between material stratification, cultural marginalization, and techno cultural mediation, while at its best providing conceptual tools to anticipate future inequities alongside the global expansion of digital health infrastructures and then whilst at worst both framing the article as a timely and critical intervention, whilst also situating itself to foreground intersecting inequalities as key to not only understanding the persistence but also the evolution of fundamentally mediated by an ever-digitalizing and post-pandemic world.

II. REVIEW OF RELEVANT LITERATURE RELATED TO THE STUDY

Over the past twenty years, literature on health inequalities, social determinants, and the role of emerging digital health infrastructures has grown substantially, consistently demonstrating how deeply-rooted structural inequalities due to class, race, ethnicity, gender, and geography operate as the most potent drivers of differential health outcomes, as seen in pre-pandemic studies which linked material deprivation and social stratification to premature mortality, chronic illness, and mental health disparities (Marmot, 2015) and whose foundations were further solidified in the COVID-19 pandemic when researchers associated grossly elevated mortality rates

among racialized minorities in the US and UK, not with comorbidities but with structural determinants such as housing density, frontline occupational exposure, and insufficient access to health services (Bambra et al., 2021), while in the global South, relatively low vaccination coverage illuminated how global political economy and intellectual property regimes conditioned health inequalities across countries (Ghosh, 2022), situating health inequalities firmly within a transnational lens of structural power, but the pandemic also marked a resolution of latency and a steep uptake of digital health, from telehealth to wearable monitoring devices to algorithmic triage systems and predictive analytics in public health, producing what Robinson et al. While most of the empirical contributions abound across sociology, public health and digital studies, thus actually talk about the problem of well-being in the post-pandemic together—and the existing literature demonstrates a rich but fragmented insights—still, a conceptual gap exists, where much of the literature examines either traditional social determinants or digital health inequities in isolation, without systematically integrating them into multi-level sociological accounts capable of theorizing intersecting inequality across micro (e.g. individual illness experiences and digital literacy), meso (e.g. community-based healthcare infrastructures and digital adoption), and macro (e.g. structural determinants, policy frameworks, and global governance) levels. Although intersectionality has been employed to analyze overlapping disadvantages in health, its integration with digital health studies has remained underdeveloped, with few works explicitly addressing how algorithmic bias and infrastructural disparities intersect with race, gender, and class to shape health outcomes a link without which the conceptual synthesis linking medical sociology, digital sociology, and the sociology of inequality falls short of meeting the empirical findings that highlight how the digitally mediated health divide (Schmidt et al. (2023)) has created, in other words, profound forms of exclusion in which these inequalities are reproduced in technologically mediated forms -Not only has the pandemic exacerbated pre-existing inequalities (OECD, 2021) but evidence proves, as defined by Schmidt et al., that beyond access, digitally established health divide, based on access to digital platform infrastructures, literacy and other structural factors, where the digital age accompanied with a

variety of dimensions of social precarity, as well as inequities in the uptake of digital platform infrastructures has produced different patterns of exclusion-exclusion of older adults, low-income households, and those living in rural areas, as those that are digitally excluded were unable to join the rest of the population accessing online consultations due to the closure of middle-class health facilities and, moreover, inequities can no longer be merely traced as access, marked by algorithmic systems, such as predictive models under diagnosing heart disease among women as a result of male-dominated training datasets, or AI-driven dermatology tools misclassifying conditions on darker skin tones that has been shown to highlight how the inequalities in health are the resultant of additional intersections of the fundamental structures, as the economically precarious forces the conflicts of their precarity to the digital society and in the society, which despite the comfort and ease brought by the technological advancement, strived in wellbeing.

III. RESEARCH GAP RELATED TO THE STUDY

Despite an increasingly robust scholarship on health inequalities, social determinants, and the implications of digital health, a major research gap remains wherein the previous studies have largely examined these topics in isolation (classical sociological and public health research, for example, has primarily been concerned with fixed, structural determinants of health outcomes relating to income, education, housing, race, gender, and geography (Marmot, 2015; Solar & Irwin, 2010), while more recent interdisciplinary literature on digital health has focused more on issues of access, infrastructure, and algorithmic fairness (Robinson et al., 2023; Mehrabi et al., 2021) without necessarily embedding these technological dynamics within a broader sociological framework of intersecting inequalities, such that despite empirical evidence that COVID-19-related mortality and morbidity disproportionately affected marginalized populations (Bambra et al., 2021) and further exacerbated digital divides favoring internet access and digital literacy (Robinson et al., 2023), relatively few studies have conceptually integrated these two dimensions to theorize how digital inequities and structural conditions conjointly determine health and

well-being, and even where intersectionality has been applied in health research to understand overlapping disadvantages (Bowleg, 2020), its application to the area of digital health is still novel as evidenced by the lack of sociological analyses of how algorithmic misclassifications in AI diagnostics disproportionately harm racialized patients (Adamson & Smith, 2022), or how gendered patterns of digital exclusion relate to unequal care burdens during and after the pandemic (Shen & Bjornson, 2024), which indicates that while fragmented evidence exists across disciplinary divides, a unifying theoretical approach capable of accounting for the co-constitution of structural and digital inequalities has yet to emerge, further exacerbated by the situation where discourse in the digital health field can gravitate towards assessments of technical solutions such as improvements in algorithms or broadband access (WHO, 2023) without interrogating the more profound sociological imperatives of platform capitalism, surveillance regimes, and data commodification on equity in health (Couldry & Mejias, 2019), producing a theoretical void where sociology could be of significant value in providing insights into the ways that health outcomes are determined not only by the distribution of resources but the governance of their digital infrastructures and structures, yet also, whereas public health indicators tend to measure well-being through biomedical or behavioral indicators, there has been insufficient theorization of well-being as a relational category shaped by both social and technological structures, which is increasingly pressing in the context of the widespread proliferation of mental health apps, wearable tracking devices, and predictive health platforms that redefine individual and collective experiences of health in ways stratified along class, race, gender, and geography (Shen & Bjornson, 2024), thus the present research identifies this gap as a need for an integrated conceptual model linking micro-level experiences of digital exclusion and illness, meso-level dynamics of community-based healthcare and technological adoption, and macro-level structures of structural determinants and global governance, with the added piece that the global nature of digital technology as both necessitating and levelling inequalities predicated upon infrastructure and policy frameworks creates a need for more comparative or cross-national conceptual investigations to examine how digital health inequities play out differently

across the Global North and Global South, against liquid, semi-peripheral, and low-income countries characterized by highly uneven health outcomes by Ghosh (2022) show the need to fill that gap with urgent sociological work which bridges medical sociology, digital sociology and inequality studies to provide a conceptual foundation for understanding health and wellbeing in post-pandemic societies.

IV. THEORETICAL FOUNDATIONS

Theoretically underpinned by four interrelated sociological traditions social determinants of health, intersectionality, the sociology of health and illness, and digital sociology this conceptual framework provides a means of accounting for structural and technological dynamics that co-constitute well-being, as the social determinants of health paradigm, based on decades of research, has long established practices and uneven exposure to health risks, geographical inequalities in care access, and overall life chances as central axes by which class, race and gender are stratified (Marmot, 2015; Solar & Irwin, 2010), whose stark manifestations were observed during the COVID-19 pandemic as precarious employment in frontline sectors left working-class communities exposed (Bambra et al., 2021), racialized minorities in the U.S. and U.K. faced a disproportionate burden of mortality that traced back to structural racism and adverse social conditions (Bambra et al., 2021), and geography came to matter as rural regions were shown to be doubly disadvantaged through insufficient health infrastructure and constrained digital access (Robinson et al., 2023), and yet, while the determinants framework illuminates net-level structural inequalities, intersectionality theory has shown that disadvantage does not accumulate additively; class, race and gender combine in unique ways that compound disadvantage and that those disadvantages are itself contextually determined—for example, women of color from low-income households experience elevated cancer risks and unemployment-induced limitations on life years, but also (i) intensified burdens of unpaid caregiving during global lockdowns, and also (ii) disadvantages in telemedicine access, since those structural factors were mediated through differential access to information technology networks (Bowleg, 2020; Shen & Bjornson, 2024)—such that a single-axis

analysis that illuminated structural inequity in access to healthcare fails to explain an individual experience of oppressive circumstances, and further theoretical insight is derived from the sociology of health and illness, which has historically critiqued the medicalization of social problems, the commodification of care, and the social suffering produced from structural violence (Farmer, 2004), reminding us that health is not perceptible in purely biological terms, but entangled, politically, economically, and socially construed—indeed, this was witnessed in post-COVID debates around long-COVID care, where contested diagnostic recognition and inequitable access to long-term rehabilitation services revealed how suffering has become socially distributed and mediated through institutional apparatuses and where, paradoxically, digital health, a space viewed as corrective of health inequities, has sometimes engendered new forms of stratification through algorithmic governance, as remote monitoring and clinical assessment systems can privilege patients with digital literacy and exclude others from diagnosis and (remote) clinical care, social stratification and digital stratification (Shen & Bjornson, 2024), and this is where digital sociology becomes indispensable, theorizing how algorithmic (un)governance, platform-mediated healthcare, and the datafication of health alter the terrain of inequality—for example, algorithmic diagnostic systems have systematically underdiagnosed cardiac conditions in women due to biased training datasets (Mehrabi et al., 2021), dermatology AI has misclassified skin conditions in darker skin tones (Adamson & Smith, 2022), and mental health apps have collected sensitive data under opaque commercial arrangements (Shen & Bjornson, 2024), exemplifying how digital health interventions should not be viewed as neutral rectification of inequalities, but, rather, new domains where structural stratifications are informed, amplified, and monetized and indeed, on a higher scale digital health infrastructures, particularly when viewed through the lens of platform capitalism (Couldry & Mejias, 2019), reveal themselves as sites of commodifying health data, exposing a nexus by which the commodification of health data intersects with social inequalities that raise urgent questions for sociologists about the control and distribution of power (Cutler, 2021) and so, from the discussion above, together with the integration of these four theoretical traditions, provide

a compelling foundation for theorizing that health and well-being in post-pandemic societies be conceptualized in such a way that social determinants addresses net level structural factors; intersectionality points toward the intersectional, overlapping and compounding nature of disadvantage; the sociology of health and illness interrogates the institutional and political economy of suffering, and digital sociology explains how practices in the digital dimension and functionalization of digital technologies are shaping new facets of health and well-being.

V. HEALTH AND WELL-BEING IN POST-PANDEMIC SOCIETIES

In order to understand health and well-being in post-pandemic societies, we need to reconceptualize it as a relational construct instead of a merely biomedical function, because although classical health indicators like infection rates, hospitalization figures, and mortality ratios have always been important, they do not provide a complete picture of the pandemic impact for example, research showed that access to care, vaccine distribution, and digital health technologies have been stratified during the pandemic in the global North leaving marginalized racial and ethnic groups with both lower vaccination rates and higher infection outcomes due to systemic distrust in medical institutions and limited outreach (Bambra et al., 2021), while in the global South unequal vaccine access has been described as vaccine apartheid in which intellectual property regimes and geopolitical power determined first who gets protection (Ghosh, 2022), and these inequities in access have found their way into the digital domain, where the proliferation of telemedicine and app based health solutions that happened during the pandemic have predominantly benefited urban, educated, affluent populations, further marginalizing digitally excluded groups including older adults, rural dwellers, and low-income households (Robinson et al., 2023), making clear that well-being in post-pandemic societies is conditioned as much by digital infrastructures as traditional healthcare systems (including also newly emerged vulnerabilities, as for example widespread precarity in labor markets where frontline and gig economy workers found themselves at greater health risk but with fewer protections and benefits (Standing, 2021), escalating mental health stressors which manifest in

higher rates of anxiety, depression, and burnout globally, particularly among young people and women struggling with care responsibilities (OECD, 2023), now a chronic condition hinted at in long-COVID as a contested condition which brings to light how biomedical uncertainty intersects with social marginalization as well, since workers and patients suffering with fatigue, pain, and cognitive impairment often find skepticism towards them from employers and healthcare systems, which makes it social issue as much as a medical one (Callard & Perego, 2021) digital health technologies started to provide partial responses in the form of symptom-tracking apps and remote support groups, but these raised issues of data privacy, algorithmic bias, and unequal efficacy of different solutions (Shen & Bjornson, 2024), revealing their simultaneously mitigating and reinforcing of inequalities, which collectively highlight the point that post-pandemic well-being cannot be understood through merely biomedical recovery but needs to be reframed sociologically as a relational construct framed by structural determinants, pandemic legacies, and emergent digital health inequities, also needing analytical models that can account at once for the persisting inequalities as well as emerging vulnerabilities in a digital world.

V. CONCEPTUALIZING DIGITAL HEALTH INEQUITIES

While post-pandemic governance regimes have turned to digital health tools (such as mobile applications or telemedicine) to address health crises and scale health delivery in many contexts, inequalities based on material determinants, class power, and data capitalism are deeply embedded in the practices and processes that mediate this widespread adoption of digital approaches. (English, 2020; Latif, 2022; Lupton, 2023) Digital health inequities must therefore be theorized as issues of uneven access, algorithmic bias and systemic psycho-political mechanisms that shape availability, compatibility and ultimately use of health technologies by users with differential capacity to participate in the global digital economy. (Khan, 2023; Nouri, 2020; Patel, 2022) Telecommunications, Internet access and system efficiency are areas of structural bias that reproduce long-standing inequalities and inequities in race, class and gender/(Bowers, 2021) with e-health apps, mobile

technology, and wearable devices demonstrating their utility for affluent, urban, and digitally literate populations, while low-income households, those in rural areas, and older adults lacking agencies, digital literacy and critical resources (e.g., internet, communications, and interface devices hardware) have often been disadvantaged.(Greenhalgh, 2022; Lupton, 2023; Obermeyer, 2019; Shaboltas, 2022) These structural biases present limits in access and influence the raw capacity of specific demographics to benefit and participate in health delivery supported by digital analytics (Lupton, 2023; Nouri, 2020; Nouri, 2021) As we found in our study, the influences of socio-economic patterns of oppression on the means to receive valuable telehealth services were considerable and apparent, with both algorithmically predictive models and the current user bases of many digital health technologies needing to reflect dynamic and potentially differing configurations of risk stratifications across the full range of community contexts,(Nouri, 2020) but the common usage of telemedicine in the lowest risk sub-groups shows how low-risk patients with sufficient access to video consultations benefitted the most from telemedicine, while low-income patients who depended on a less effective form of video consultations and other forms of health technology by design of their environment, societies and structures e.g. broadband access were objectively worse off from these platforms.(Shen, 2022) Digital health inequities also appear in the way in which structural asymmetries in demographics are reinforced through deep-diving network structures (DNN) across the fields of internet-based diagnosing and data analysis base modeling.(Adamson, 2022; Machado, 2022) AI-powered digital diagnostic systems are often effectively embedded into existing machines of extraction, and we see repeated echoes of deeply group-siloed generations of similar decision rules and structures in Anderson, Walsh, and others in BWiC-G in the study by Lupton, in line with the structure and preferencing of both machine and human producers of inequitable social ordering,(Nouri, 2021; Shen, 2022) creating pockets of wealthy middle-class virtuous circles, benefiting from the low-cost side of digital delivery whilst keeping the telehealth system bifurcated and inequitable for marginalized populations.(Nouri, 2020) The fact that the health systems and the delivery of care has moved predominantly towards data science and artificial

intelligence, also means that the process has implemented already, what Campbell termed 'uncontested contrition,' (Lupton, 2023; Robinson, 2023), into the core of health systems or the health delivery cycle in that whatever inequalities exist in the "classical" structures of our societies that led to modern positional advantages, much of this is now programmed (through new surfaces) into health technology systems.

VI. A CONCEPTUAL FRAMEWORK FOR INTERSECTING INEQUALITIES AND HEALTH OUTCOMES

Digital health inequities must be situated within broader social, structural determinants, which requires a conceptual framework for the analysis of intersecting inequalities and health outcomes, that operates across micro-, meso-, and macro-levels as at the micro-level, individual experiences of illness, digital literacy, and patient/provider interaction reveal how disparities manifest in embodied and relational ways as individuals navigate long-COVID, chronic conditions, or mental health challenges face differential capacities to engage digital platforms, as higher digital literacy correlates to greater ability to manage telemedicine portals, health apps, and wearable data, while those with limited literacy face barriers that exacerbate existing inequities (Robinson et al., 2023)—and interactions with providers through digital platforms highlight issues of trust, accessibility, and communication, as studies find that patients from minority ethnic groups are more likely to experience miscommunication in video consultations, due to language and cultural mismatches (Greenhalgh et al., 2022) while digitally literate middle-class patients gain through improved efficiency and continuity of care, illustrating the impossibility of understanding micro-level experiences outside broader patterns and trends of stratification—whereas at the meso-level community-level networks, digital health infrastructures, and local healthcare systems mediate the individual disparities—as community health workers in Latin America and South Asia increasingly rely on mobile health platforms to coordinate care but face infrastructural obstacles limiting reach among rural and indigenous populations (García & Rojas, 2023) and local health systems unevenly integrate telemedicine into their workflows, with urban

hospitals embedding digital triage systems while rural clinics lack connectivity or trained personnel, producing stratified access within national health systems, while community networks themselves sometimes both mitigate (like peer-led WhatsApp support groups for long-COVID survivors providing psychosocial support across class divides), and reinforce inequities (like grassroots organizations that develop culturally sensitive digital literacy programs in marginalized neighborhoods) (Patel et al., 2022), demonstrating how meso-level actors can either reinforce or challenge structural inequities, depending on resource distribution and institutional design and at the macro-level global inequalities, policy frameworks, and structural determinants shape the systemic context within which digital health is embedded—as the uneven global distribution of vaccines during COVID-19 scandalously exemplified how intellectual property regimes and geopolitical hierarchies structured life chances (Ghosh, 2022) while subsequent expansions of the use of AI-driven health tools reflect the political economy of platform capitalism where a small number of technology firms end up dominating infrastructure and data governance (Couldry & Mejias, 2019), raising sovereign implications for privacy and dependency in low- and middle-income countries reliant on external platforms for health management and since structural determinants such as poverty, racial stratification, and gender inequality continues to underlie health inequities (Obermeyer et al., 2019) even the most advanced digital interventions cannot dampen inequities without addressing their root causes, as algorithmic triage systems used in hospitals across the United States systematically underestimated illness severity in Black patients due to cost-based proxies for health status, illustrating how macro-level structures entangle with digital health inequities, thus the proposed integrative model conceptualizes health gaps as emerging from the interaction between micro practices of digital literacy and care-seeking, meso infrastructures and networks that mediate access, and macro structural and political-economic determinants so that digital health inequities are neither reducible to individual deficits, nor wholly the product of structural stratification, but rather the outcome of multi-scalar processes, providing a means of understanding how digital technologies both reproduce and can transform inequalities where micro-level empowerment through

digital literacy programs, meso-level investments in equitable community infrastructures, and macro-level reforms in global governance and structural determinants together embody which future is possible, namely whether digital health will conflate with the democratization of well-being or exacerbate the intensification of health disparities, with examples such as the Scandinavian model of public investment in broadband access correlating with reduced digital divides in telemedicine (OECD, 2023), which shows how structural policies cascade down to transform individual outcomes, while counter-examples like the US provision of wearable-driven wellness incentives tethered to private insurance demonstrates how neoliberal governance systems translate digital innovation into stratified risk and responsibility of (Lupton, 2023) confirming the urgent need for an integrated conceptual framework that embeds digital health inequities within a broader sociological theory of intersecting inequalities in post-pandemic societies.

VII. DISCUSSION RELATED TO THE STUDY

The study has several important theoretical implications: It reconceptualizes health inequalities in the era of digital health, arguing for the need to bring together long-established sociological approaches (like intersectionality or the social determinants of health) with newer paradigms of digital health that acknowledge how intersecting social identities (e.g. race, gender, SES) and digital divides work together to shape health outcomes in the post-COVID world where increasingly healthcare is delivered via digital health technologies; It critiques the dominant biomedical model and emphasizes socio-structural determinants to help scholars understand how these structures mediate access to and use of digital health resources, pushing for a more holistic view of health disparities that matter offline and online; It identifies the need for a combination of qualitative and quantitative methods, advocating for mixed approaches, such as ethnographic studies, surveys and digital data analytics to illustrate the sometimes complementarily but oftentimes contradictory nature that they illuminate when it comes to health inequities in the digital era and how each axis of identity intersect not as individual variables to explain health access and outcomes experienced by individuals but rather unique intersections that lead to vastly different experiences

of digital health access and outcomes that a single axis divide only cannot explain adequately; Acknowledging the limitations of its methodology, as conceptual syntheses while presenting theoretical contributions do not offer empirical evidence to the findings and thus need further studies to test and fine-tune them; recognizing the challenges posed by the rapid speed of digital health platforms that are always subject to change according to fast-evolving and changing technologies and policies that can rapidly make either detrimental and/or beneficial results obsolete in a highly dynamic field; the context-specific nature of digital health inequities making it controversial as to whether the experiences and challenges faced by individual in one region or demographic group are similar enough to face comparative studies; take for example a tuitert et al. Frisian population (2024) reported that socioeconomic factors affected the adoption of digital health technology, although context-specific characteristics are critical for understanding digital health inequities; likewise, research from Kaihlanen et al. Despite being the first to describe the barriers to access experienced by vulnerable groups in relation to digital health services during the COVID-19 pandemic, (2022) call for the refinement, testing, contextualisation and development of the identified barriers to target, in order to realise equity in digital health; these examples highlight the importance of conducting future research in order to test and adjust the conceptual frameworks we propose with specific contextualisation as targets to mitigate digital health inequities, which will in turn enhance health systems and contribute to more inclusive and equitable digital health systems in 21st century post-pandemic societies.

CONCLUSION

In summary, this work makes important contributions on a number of levels: 1) reframing contemporary health and well-being in terms of intersecting social inequalities and digital health inequities, showing how access to digital health technologies—including telemedicine, AI-based diagnostics, and mobile health applications—mediate, and are mediated by, socioeconomic status, gender, race, age, and geographic location, delivering heterogeneously disparate health outcomes across populations, and pushing against traditional models which treat health

disparities as linear or single-axis in nature, while illustrating how post-pandemic health landscapes are characterized by compounded vulnerabilities in which structural inequities intersect with digital divides to shape preventive care, chronic disease management, mental health support, and other dimensions of overall well-being (e.g., populations in lower-income regions, and those with limited digital infrastructure, experienced delayed access to telehealth services during the COVID-19 recovery period, OECD, 2024; older adults and rural populations were disproportionately disadvantaged in accessing online health consultations, and vaccination booking platforms, in Asia, Chakraborty & Singh, 2025); 2) a methodological argument for directing future empirical research to validate these conceptual frameworks in studies including mixed-method approaches that deliver cross-sectional surveys and qualitative ethnographic inquiry alongside large-scale digital health analytics, distinguishing how intersecting inequalities may be critical in shaping health behaviours and outcomes, while also encouraging the cross-national comparative work that examines both Global North and Global South contexts, identifying universal patterns, and context-specific disparities in digital health equity (e.g., a British-Brazilian comparative study revealed differing impacts of telemedicine adoption on marginalized communities, due to policy frameworks, digital literacy, and healthcare infrastructure, Ferreira et al., 2024); and 3) the practical value of these findings for designing equity-driven digital health policies and interventions through addressing structural barriers, promoting inclusive technology adoption, increasing digital literacy among vulnerable populations, and integrating sociological insights in health system planning, ultimately fostering just and effective health outcomes in post-pandemic societies, and paving the way for both theoretical refinement and actionable policy solutions, and interventions to reduce disparities in this rapidly digitalizing healthcare environment.

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