The Digital Divide: A Factor That Raises High Levels of Anxiety and Other Mental Health Challenges in African Americans

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The rising level of anxiety among African Americans has been increasingly linked to the digital divide, which exacerbates existing social and economic disparities. This digital divide, due to unequal access to digital technologies and the internet, has major effects for mental health and well-being. African Americans, particularly those in marginalized communities, face greater challenges in accessing essential digital resources that impedes their ability to participate fully in educational, professional, and social opportunities. The digital divide gives rise to feelings of isolation, stress, and anxiety as individuals struggle to keep pace with a rapidly digitizing world. With digital inequity impacting African Americans, many face heightened levels of anxiety. This review will address strategies for addressing these disparities while emphasizing the need for targeted interventions to bridge the digital gap and support mental health within the African American community.

Keywords: anxiety, digital divide, African Americans, psychological impact, mental health

The digital divide, as it now stands, affects millions of Americans across the United States. These effects have been more prevalent in rural areas, in underserved and underresourced communities, and in households near or below federal poverty levels (i.e., only half of households with incomes below $25,000 have access to high-speed internet service at home; Turcios, 2023). Some initiatives established to address barriers to broadband access and digital equity to ensure funds go to areas and communities in most need have since been discontinued. For example, although there was significant progress in successfully addressing the needs for access with the distribution of subsidies for internet services and devices with the Affordable Connectivity Program, over 23 million households across the United States that the program assisted with making broadband access affordable are now without subsidies because of a lack of continued investment to make the program sustainable (Rosenworcel, 2024). This lack of equal investment in our communities has led to continued disparities in African American communities and limited progress towards digital inclusion and equity.

While the digital divide has been widely recognized for limiting access to essential services such as education and healthcare, its psychological consequences, particularly the increase in anxiety and related mental health issues, receive far less attention (Cheshmehzangi et al., 2022; Saeed & Masters, 2021). For many marginalized African American communities, the lack of access to reliable digital resources creates a cascading effect of challenges. Beyond hindering participation in the digital economy, it fosters a sense of social isolation as individuals struggle to connect with others or access online platforms for support. This isolation coupled with the

economic pressures stemming from limited job opportunities and the inability to access remote work exacerbates feelings of insecurity and stress. Over time, these persistent barriers contribute to the development and intensification of anxiety disorders, including generalized anxiety disorder (GAD), social anxiety disorder (SAD), and panic disorder. These psychological burdens are compounded by the limited access to mental health services, such as telehealth, that further deepens the disparity in mental health care for African Americans facing digital exclusion (Cheshmehzangi et al., 2022; Saeed & Masters, 2021).

This literature review begins with an overview of the progression towards modern technological advancements in various sectors that have led to enhancements in healthcare, education, transportation, and communication to address the digital divide. The review then transitions into discussing some of the limitations with these advancements particularly relevant to technological disparities in African American communities related to economic, geographic, educational, and historical factors. These ongoing disparities and underrepresentation in access across the nation is also discussed leading to the final sections on limits to access, effects on educational opportunities and healthcare, and related disorders that can be attributed to the digital divide. Throughout the review, we discuss why addressing the need to close the digital divide gap is essential and conclude with an overview of some current initiatives that can contribute to continued progress now and in the future.

Embracing Our Technological Society

In today's world, technology is integral to virtually every aspect of our lives, profoundly shaping how we live, work, and communicate. From smartphones and laptops to smart homes, our daily routines are intertwined with technological advancements. We rely on technology for education, entertainment, healthcare, and maintaining social connections. In particular, the internet has revolutionized access to information, making knowledge more accessible than ever before. This technological integration has transformed industries, created new job markets, and enhanced productivity and efficiency across various sectors (Qureshi & Woo, 2022).

Education has seen significant benefits from technology with online learning platforms and digital resources providing new opportunities for students and educators alike. Educators have harnessed the power of digital tools to enhance learning outcomes and foster collaboration beyond traditional boundaries. The accessibility of online learning platforms and digital tools helps reduce stress for students by offering flexibility and personalized learning experiences that can improve both academic performance and mental and emotional well-being. In healthcare, telemedicine and electronic health records have improved patient care and streamlined medical processes. Telemedicine has also expanded access to mental health services thus making it easier for individuals to seek professional help without the barriers of location or stigma. Moreover, technology has profoundly reshaped communication and social interactions. Social media platforms and communication apps have bridged geographical divides, enabling instant global connectivity and transforming how people connect, share information, and mobilize communities. This interconnectedness has fueled social movements, facilitated cultural exchange, and amplified voices that might otherwise remain unheard.

As technology continues to evolve, its impact on society becomes increasingly profound. The efficiency gains resulting from digital integration have significantly boosted productivity across diverse sectors thereby fostering economic growth and enhancing global competitiveness (Qureshi & Woo, 2022). In addition, when used mindfully, technology can enhance mental health

by promoting connection, reducing anxiety, and providing valuable resources for self-care and growth. As we navigate this evolving digital landscape, it is crucial to harness the full potential of technology responsibly. This entails ensuring that its benefits are accessible to everyone while effectively managing and mitigating any unintended consequences.

Technological Disparities in African American Communities

Despite the widespread integration of technology into everyday life, there remains a significant disparity in technology use among different demographic groups in the United States. African Americans, in particular, face notable challenges in accessing and utilizing technology (Darko et al., 2023). This digital divide is multifaceted, rooted in economic, geographic, educational, and historical factors. These disparities can have significant effects on mental health, contributing to increased levels of anxiety and stress. The inability to access technology limits opportunities for social connection, education, and healthcare resources, exacerbating feelings of isolation and hopelessness within African American communities (Cheshmehzangi et al., 2022; Saeed & Masters, 2021).

One of the primary barriers to technology use among African Americans is economic. Income disparities significantly influence the ability to afford devices such as computers, tablets, and smartphones as well as the cost of broadband internet access (Atske & Perrin, 2021). According to the Pew Research Center, African American households have a median income significantly lower than that of White households, which can limit their ability to invest in technology (Atske & Perrin, 2021). Moreover, approximately 40% of African American households lack high-speed, fixed broadband compared to 28% of White American households (Darko et al., 2023). The high cost of devices and internet services can make it difficult for low-income families to prioritize technology over other essential needs.

Geographic factors also play a role in the digital divide. Many African Americans live in urban areas where broadband infrastructure is more developed; however, a significant portion also resides in rural areas with limited or no access to high-speed internet (Vassilakopoulou & Hustad, 2023). The Federal Communications Commission (FCC) has noted that rural areas often lack the necessary infrastructure for reliable internet services, and this lack of access disproportionately affects African Americans in these regions (FCC, 2020).

Educational disparities further compound the issue. Schools in predominantly African American neighborhoods often have fewer resources that include access to technology and the internet. This gap in educational resources can result in lower digital literacy rates among African American students thereby affecting their ability to utilize technology effectively in both academic and professional settings (Udeogalanya, 2022). The lack of early exposure to technology can have long-term impacts on technological proficiency and confidence.

Historical and systemic inequalities also contribute to the digital divide. Long-standing issues such as redlining, discriminatory lending practices, and segregation have created and perpetuated economic and educational disadvantages for African American communities. These historical factors have contributed to the accumulation of fewer resources over generations, including access to technology (Noble, 2018). Addressing these deep-rooted issues requires comprehensive and sustained efforts at policy and community levels.

The lack of access to digital tools not only significantly hinders educational and economic advancement but also fosters a profound sense of isolation and helplessness within underserved African American communities (Brewer et al., 2020). In today's highly connected world,

individuals without access to broadband, computers, or other digital resources are left unable to participate in critical aspects of modern life from online education to professional development and essential healthcare services. This exclusion amplifies feelings of disconnection from society as they are left behind while others benefit from the efficiencies and opportunities that digital technology offers. The psychological toll of this exclusion manifests as chronic stress particularly as individuals struggle to keep pace with the rapid shift toward digital reliance in all sectors (Brewer et al., 2020).

Research highlights that this digital marginalization exacerbates anxiety especially in communities where economic resources are already strained (Firth et al., 2018; Sultana & Pagán, 2023). The constant worry of being unable to access basic services such as telehealth or online job applications compounds feelings of inadequacy and uncertainty about the future. Studies have shown that communities facing digital inequity report higher levels of generalized anxiety as they grapple with barriers to full participation in the digital economy and society. The inability to engage in educational, professional, and healthcare opportunities further contributes to chronic mental health challenges, trapping many in a cycle of stress and worry about falling further behind. The cumulative impact of these factors demonstrates that the digital divide is not merely a technological issue but also a significant contributor to widespread mental health disparities in marginalized African American populations (Firth et al., 2018; Sultana & Pagán, 2023).

Despite these challenges, African Americans demonstrate high engagement with certain types of technology, particularly mobile devices. Pew Research Center data indicate that African Americans are more likely than Whites to use smartphones as their primary means of internet access (Atske & Perrin, 2021). However, reliance on mobile internet, which can be less stable and more expensive per gigabyte than home broadband, limits the scope of activities users can perform, such as online education, remote work, and extensive research (Watnick, 2024).

Efforts to bridge the digital divide among African Americans must address economic disparities, geographic limitations, educational inequalities, and historical systemic barriers. Initiatives should encompass expanding affordable broadband access particularly in underserved rural areas, boosting technology funding in predominantly African American neighborhoods, and implementing policies that address broader systemic inequalities. Additionally, community-based programs providing digital literacy training are crucial. By taking a multifaceted approach involving policy changes, increased funding, and community support, society can ensure equitable access to technology thus enabling all of its members to benefit fully from the digital age (Abiddin et al., 2022).

Focusing on African Americans

The term "digital divide," coined in the mid-1990s, refers to the gap between those with access to information and communication technology and those without. This divide is particularly noticeable in the United States when comparing African and White Americans. When it comes to the disparity in broadband access, the numbers are astonishing. In densely populated urban areas like Chicago and Baltimore, African American households are twice as likely as White households to not have a high-speed internet subscription. In the rural South, 38% of African American households lack broadband compared to 23% of White households. This disparity in broadband access significantly impedes digital inclusion. Without reliable internet access, individuals cannot fully engage in the digital economy, encompassing online shopping, banking, telemedicine, and remote learning. The ongoing impact of the COVID-19 pandemic has emphasized the importance

of reliable internet access as many schools and workplaces have shifted to remote learning and work (Darko et al., 2023).

Digital Device Ownership

Although smartphone and tablet ownership is relatively equal among White, African American, Hispanic, and Latino adults in the United States, desktop or laptop computer ownership is lower among African Americans (69%) and Hispanic Americans (67%) compared to White Americans (80%; Quintanilla et al., 2023). This discrepancy in device ownership further widens the digital divide. Without access to a computer, individuals cannot complete tasks that require greater processing power or a larger screen, such as writing a resume or finishing a school assignment. Moreover, many online resources and services are optimized for desktop or laptop computers thereby making them less accessible to those with only a smartphone or tablet (Darko et al., 2023).

Digital Skills and Workforce Representation

A 2020 Organization for Economic Cooperation and Development survey discovered that approximately half of African American workers possess the advanced or proficient digital skills necessary for success in our increasingly technology-driven economy as compared to 77% of White workers. Lower levels of digital readiness contribute to and perpetuate significant gaps in African American representation within professions requiring digital skill sets. Although African Americans make up roughly 13% of the workforce, they only make up 7.4% of digital workers. This underrepresentation in the digital workforce is a concerning issue. Without the requisite digital skills, individuals cannot compete for high-paying, sought-after jobs in the tech industry. Additionally, the lack of diversity in the tech industry can inhibit innovation by limiting diverse perspectives and ideas (Darko et al., 2023).

Impact on Education and Health

Efforts to close the digital divide are crucial for ensuring equal opportunities in education and healthcare regardless of race or socioeconomic status. Government funding such as the $425 billion available through the American Rescue Plan Act, State and Local Fiscal Recovery Funds, and the $65 billion provided by the Bipartisan Infrastructure Law can be used to expand broadband infrastructure, subsidize internet service for low-income households, and provide digital literacy training. However, it is essential to distribute these funds equitably and address the specific needs of African Americans. In addition to government funding, nonprofit organizations and initiatives are working to close the digital divide by providing resources like refurbished computers, digital literacy training, and tech career development programs (Quintanilla et al., 2023).

The digital divide has significant educational implications particularly during the COVID-19 pandemic when schools shifted to remote learning (Quintanilla et al., 2023). A lack of digital resources can worsen frustrations with virtual learning thereby making it difficult for students without reliable internet or devices to attend virtual classes, complete assignments, and pursue growth opportunities like internships and online courses (Martin et al., 2023). Research shows that up to 60% of students without digital access, especially disconnected African American and urban students, cannot afford it (Barber & Tait, 2001). This lack of access creates barriers to educational opportunities and perpetuates systemic inequities (Gee et al., 2023).

The digital divide also impacts healthcare access with digital redlining denying poor communities of color access to healthcare. Telemedicine has become crucial in accessing healthcare services, but these services have become inaccessible without reliable internet. This lack of access leads to delayed care, poorer health outcomes, and increased health disparities. These impacts on access to healthcare may also affect how counseling services can be provided. With the ensuing effects of the digital divide, specific services that can be utilized with broadband access, such as telehealth, are limited. There are also many disorders that an increase in access to care could address, including anxiety disorders such as GAD, panic disorder, SAD, and separation anxiety disorder.

GAD

It is well-established that GAD is relatively common with lifetime prevalence rates of 47% (Hoge et al., 2012). It is a disorder of chronic uncontrollable worry that is compounded by physiological symptoms such as disturbed sleep, muscle tension, and difficulty concentrating (Hoge et al., 2012). Although GAD has evolved into a well-defined condition characterized by excessive, uncontrollable worry, the assumption that GAD is associated with relatively minimal impairment has persisted in some circles, with the term *worried well* sometimes used to describe affected individuals (Kessler et al., 2001). GAD is now recognized as a disorder with excessive, uncontrolled worry but is still thought of as only a minor problem often associated with excessive worrying.

Studies have shown that anxiety disorders (GAD, panic disorder/agoraphobia, SAD, and others) are the most prevalent psychiatric disorders and are associated with a high burden of illness (Bandelow et al., 2017). Anxiety disorders, including GAD, panic disorder/agoraphobia, SAD, and more, have impacted mental health issues and health concerns.

Panic Disorder

It is well-established that panic disorder is a complex anxiety disorder characterized by discrete periods of intense, uncontrollable fear accompanied by cardiorespiratory, autonomic, and gastrointestinal symptoms (Starcevic, 2008). People with panic disorder experience unexpected intense episodes and out of control fear. These people experience increased heart rate, sweating, shaking, and stomach discomfort.

SAD

SAD—also known as social phobia—involves fear and anxiety about social interaction and is often associated with avoidant behavior (Ratnani et al., 2017). Social anxiety is the most prevalent disorder that impacts children. SAD is a chronic disorder significantly affecting the lifestyle of the individuals, often prevents the individual from available opportunities and makes the person disabled at work and social life (Ratnani et al., 2017).

Current research indicates and epidemiological research confirms that SAD is chronic and among the anxiety disorders has the lowest rates of treatment seeking, receipt of evidence-based treatments, and recovery (Lampe, 2009). However, the greatest variance in SAD is accounted for by temperamental and personality factors and these may be associated with significant heritability (Lampe, 2009). In addition, the environmental contribution is smaller and mainly due to nonshared

factors with a small contribution from shared environmental factors (Lampe, 2009). It is important to note that inherited and personality traits are factors in SAD. However, the environment plays a minor role in the disorder while research states that SAD is long lasting with rates of people seeking and receiving effective treatment.

Separation Anxiety Disorder

Separation anxiety disorder is one of the earliest and most common mental disorders in childhood and a strong predictor of adult psychopathology (Schneider et al., 2011). The DSM IV-TR suggests that separation anxiety may develop after a real or threatened loss (e.g., illness or death of a child relative or pet; Schneider et al., 2011). Separation anxiety is the experience of intense anxiety that occurs with the state or expectation of leaving the basic attachment (Elbay et al., 2021). Research indicates that those who suffer from separation anxiety have strong feelings of worry or attachment separation when someone leaves them.

With limited access to telehealth and other digital health services, many African Americans are not only deprived of timely and effective mental health care but also faced with additional challenges that exacerbate preexisting conditions (Cheshmehzangi et al., 2022; Saeed & Masters, 2021). For individuals suffering from anxiety disorders such as GAD and SAD, timely interventions, counseling, and access to mental health professionals are crucial for managing symptoms and preventing the escalation of these conditions. However, the digital divide creates a significant barrier for many in underserved African American communities, making it difficult for them to access these services. Without stable broadband or the necessary digital devices, individuals often find themselves cut off from virtual mental health resources, including therapy sessions, support groups, and even online mental health education (Cheshmehzangi et al., 2022; Saeed & Masters, 2021).

This inaccessibility leads to delays in diagnosis, treatment, and ongoing care, allowing anxiety disorders to worsen over time (National Institute of Mental Health, 2023). The stress and frustration of being unable to seek help when needed compounds the problem, creating a vicious cycle of worsening mental health. For instance, those with GAD may experience increased uncontrollable worry due to the uncertainty of not being able to manage their condition while those with SAD may become even more isolated without the digital tools to connect with support networks or attend virtual therapy sessions. Moreover, the sense of being excluded from the benefits of modern healthcare technology can heighten feelings of helplessness and despair (National Institute of Mental Health, 2023).

Additionally, the daily stressors of navigating life without adequate digital support—whether it is for educational purposes, job searches, or healthcare appointments—add another layer of anxiety (Cheshmehzangi et al., 2022; Saeed & Masters, 2021). The digital divide forces many African Americans to face ongoing challenges in accessing even basic mental health services thus increasing the likelihood of both the onset and worsening of anxiety disorders. This situation underscores the critical need for expanded digital equity initiatives, particularly those focused on improving access to telehealth and digital mental health resources, to prevent the deepening of mental health disparities within these vulnerable communities (Cheshmehzangi et al., 2022; Saeed & Masters, 2021).

Conclusion

As of this writing, there are several initiatives and continued efforts to bridge the digital divide at the local, state, and federal levels (Darko et al., 2023; Turcios, 2023). For example, at the Texas state level, the state comptroller's office created a Texas Broadband Development Office as an initiative to assess the needs of communities to improve access in rural and other underserved areas. The initiative developed a Texas Digital Opportunity Plan based on feedback and is now in the process of determining how to close the digital divide by increasing access to high-speed internet and computing devices while also expanding work, health, and educational opportunities (Williams, 2023). The initiative is now in the implementation phase (e.g., partnering with and funding statewide organizations, maintaining a living Digital Opportunity Plan, funding local partners, and promoting internet adoption) and includes a complete in-depth analysis and overview of areas affected by the digital divide throughout the state of Texas (Texas Comptroller of Public Accounts, 2024).

At the national and federal level, the National Telecommunications and Information Administration (2024) has a State Digital Equity Capacity Grant Program that provides funding for the implementation of digital equity plans and the promotion of digital inclusion activities. Qualified applicants that include internet service providers and their partners are provided resources to connect unserved and underserved locations with reliable internet reimbursements and grants for broadband units. Additionally, the FCC (2022) developed the Advancing Broadband Connectivity as a Social Determinant of Health Initiative to identify issues related to digital and health equity. The initiative suggests broadband connectivity should be included as a social determinant of the health domain that could bring more awareness to the needs relevant to addressing the digital divide (e.g., through policies, programs, research, and interventions).

In addition to significantly limiting access to education and healthcare, the digital divide has profound and far-reaching mental health implications for African American communities, contributing not only to anxiety but also to a range of other psychological disorders (Stewart et al., 2024; Yelton et al., 2022). The inability to engage in online services and digital platforms due to inadequate access can create feelings of isolation, helplessness, and exclusion, which are key drivers of mental health issues such as GAD and SAD. The psychological stress of being unable to fully participate in a world that is increasingly reliant on digital technologies exacerbates the existing mental health disparities within marginalized communities. This is particularly troubling because access to mental health care, such as teletherapy and digital mental health support, is often a lifeline for individuals struggling with these conditions (Stewart et al., 2024; Yelton et al., 2022).

Addressing digital inequity, therefore, must go beyond simply providing technological access and should incorporate comprehensive mental health support as a fundamental component of policy solutions (Saeed & Masters, 2021). Ensuring that individuals in underserved communities not only gain access to broadband and digital tools but also have the necessary resources for mental health care is essential. This includes promoting digital literacy to help individuals navigate telehealth platforms, ensuring that mental health services are affordable and accessible online, and creating targeted interventions to address the psychological consequences of digital exclusion. By integrating mental health care into digital equity initiatives, policymakers can help bridge the gap that leaves African American communities disproportionately affected by both technological and mental health disparities, ensuring that these communities are not left behind in the rapidly evolving digital age (Saeed & Masters, 2021).

The ongoing efforts to close the digital divide are commendable first steps, but they must be viewed as part of a larger, sustained movement toward true digital equity. To fully address the deep-rooted technological disparities affecting African American communities, advocacy must go beyond short-term solutions and focus on creating long-term, systemic change. Digital inclusion is not just about access to technology; it is about ensuring that marginalized communities can fully participate in the opportunities that technology provides whether in education, healthcare, or the workforce. While significant progress has been made, economic disparities, educational inequalities, and the structural barriers rooted in historical injustices continue to impede true equity. Bridging the digital divide requires a relentless commitment to policies and initiatives that not only increase access but also dismantle the systemic barriers that perpetuate these inequities. Only through sustained and equitable efforts can we ensure that all communities, particularly those most vulnerable, have the resources and opportunities they need to thrive in the digital age.

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