



EMERGING TECHNOLOGIES IN SOCIAL WORK: SOLUTIONS AND CHALLENGES TO TRADITIONAL AND MODERN INTERVENTIONS

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Abstract

Introduction: This study explores the utilization modern and emerging technologies in social work as efficacious interventions for traditionally oppressed, marginalized, and isolated populations.

Methods: This study uses a dialogic approach to explore literature on traditional interventions, modern technologies, and emerging technologies. The discussion centers around two research questions: What are the current emerging technologies? How can current emerging technologies differ in their approaches to address the previously perceived lack of modern technologies' necessary social tools and contexts to act as suitable alternatives to traditional social exchanges and interactions?

Findings & Implications: The solutions that emerging technologies offer far outweigh the challenges surrounding access, cost, and fear. For social workers, the potential to use emerging technologies to correct social injustices are boundless. The implications for emerging technologies are broad and include reducing barriers to mental health services, providing a more intuitive and realistic experience, and mitigating the impact of disabling conditions. For many Americans, emerging technologies will come to act as efficacious interventions for a myriad of issues. Future research in social work should focus on innovative technological interventions that can mitigate serious disabling conditions, and the plethora of social issues where emerging technologies can intersect and intercede social injustices.

Keywords

Emerging Technologies, Spatial Computer, Artificial Intelligence, Neurological Link, Smart Phone, Social Work

Introduction

This dialogic approach explores modern and emerging technologies in the field of social work, investigating how those technologies have created spaces for advancements that will drastically change the way clients interact with service providers. New and innovative technologies such as smart phones, telehealth services, smart device applications, spatial computers, artificial intelligence, and neurological links provide social workers with efficacious modalities for service delivery. In this article, a review of literature on the benefits and challenges associated with integrating newer technologies into social work traditional and modern interventions will be presented. Modern technologies continue to improve; however, the lack of comfort and less intuitive interfaces could use advancements to provide social workers and clients with a more realistic experience. The implications for emerging technologies in social work practice encompass strategies that help to correct social injustices. Examples include reduced barriers to mental health services, mitigating exorbitant costs of technologies designed to offset disabling conditions, and allowing for private, secure, and confidential access to services. The aim of this study is to define and explore how emerging technologies can mitigate issues associated with traditional and modern service modalities, which can help improve upon efficacious approaches to serving traditionally marginalized and oppressed populations. What follows is a discussion on the background of technologies in social work, an outline of the theoretical framework, the benefits and limitations of modern technologies, and solutions and strategies

associated with emerging technologies. Findings and implications for the field of social work will follow the discussion.

Background

Social workers have often turned to contemporary tools and emerging technologies as a means to eliminate barriers to service. From 1997 to 2007, many social workers utilized modern tools, such as internet connected computers and smart devices, despite having less access to the latter. Although smartphones have been around since 1992, after the first iPhone was released by Apple in 2007, smartphones began proliferating to the point that within a decade the use of these devices became common place. While smartphones emerged almost fifteen years prior to the release of the first iPhones, at that time they were largely inaccessible to most service providers and their clients. In fact, the first mobile phone, which was created by engineers at Motorola, was called the DynaTAC 8000X. In 1984, it was priced at \$4,000 USD which would be the equivalent of around \$11,000 USD at the time of this paper's publication (2024). It wasn't until over a decade later (1997) that phones like the Nokia 6110 offered an affordable option coming in at \$900 USD off the shelf, and \$200 USD with a multi-year mobile contract (Chantel, 2023). The iPhone's release had a significant impact on the history of mobile computing. In fact, within the same decade of the iPhone's release, a Grand Challenges for Social Work policy brief was released by Berzin et al. (2016) that called for social workers to harness technologies in their efforts to combat social injustices. The recommendations were twofold; first, social workers needed to acknowledge and combat the lack of access to these internet connected devices, especially among underserved households. Second, social workers were asked to consider big data, accessible at various levels of government, as a means to develop solutions and strategies to combating social injustices.

Between 2007 and 2017, social workers practicing in various sectors started regularly using smartphone applications (apps) as well. Social workers with mobile devices were now more accessible than ever and had access to a myriad of tools at their fingertips. With techno-psychosocial tools at the ready, the agile social worker was no longer tethered to a desk. Three major developments contributed to the widespread use of these devices. First, when Apple released its touch screen iPhone in 2007, it was not the first touch screen smart phone to be released. What made this unprecedented piece of technology different was the intuitive user interface. Similar products boasting touch screen interfaces often failed to work as expected. These devices were sometimes pressure sensitive and required a stylus to work properly. Additionally, they were occasionally glitchy and offered a gimmicky alternative to the then popular PalmPilot style devices that used mechanical buttons for human interface.

Alternatively, engineers at Apple created a touch sensitive screen using capacitive materials and a unique coordinate system. These new capacitors, along with the iPhones intuitive application suite dubbed iOS, offered an unparalleled multi-touch sensitive screen experience (Penn State Mechanical Engineering, 2023). Second, the processors, coupled with architecture that was designed for the processor, meant having computing devices that could outpace some personal computers (PCs). One of the biggest advancements in processor technology was made possible by engineers at Qualcomm. In 2012, Qualcomm released its first one gigahertz (GHz) Snapdragon processor. This was at a time when most smartphones were operating off 512 megahertz (MGz) processors. In short, the integrated enhanced Central Processing Units (CPU), along with Random Access Memory (RAM), and Graphics Processing Units (GPU) were important because they allowed for heavier multitasking, increased battery life, and overall increased speed (Talisetty, 2018; IASE, 2023). Finally, advancements in hardware beyond CPU, GPU, & RAM enhanced the utility of smartphones, making them important tools for service providers. By the later part of this decade, many smart devices came equipped with accelerometers, multi-use cameras, recorders, more screen real estate, artificial intelligence (AI), gyroscopes, global positioning system (GPS) sensors, Light Detection and Ranging (LiDAR) systems, biometric scanners, etcetera. These tools offer integrated utilities allowing users to seamlessly unify their experience when various data, documentation, or measurements are needed within a social service portal or application (MIT Tech Review, 2020).

Generalist practice services providers working in the field now had access to vital information through internet connected devices. Although the conduit for providing these services remains a largely unmeasured outcome, this meant that social workers could look up vital information online or within an application (contacts, calendars, web-based apps, etcetera), and provide that information to clients without ever returning to their desk. This also meant service providers and clients alike were able to work within applications for emailing, texting, calling, critical social networking, and intervention-based website portals to quickly engage clients with vital services & communications.

From 2017 to 2024, smartphone technology continued to saturate the market, which impacted affordability. Recent statistics suggest that 38% of smartphones are being recycled, refurbished, and reused. While critics argue that trade in values cut into the market share of new devices sold, with companies like Apple and Samsung holding about 75% of the market share on refurbished smartphones, these more sustainable approaches will continue to reduce barriers to cost prohibitive technologies. In fact, according to Humphry (2014), 95% of families experiencing homelessness are likely to use mobile devices as their primary source of internet connected

computing. This statistic is important because it is higher than that of the public, suggesting the importance of modern and emerging technologies to vulnerable populations with disabling conditions (p. 55.6). In short, with the release of Apple's iPhone spurring on competition, these emerging technologies began to offer innovative solutions to problems, all while becoming more affordable to the general public.

In December of 2019, after the initial confirmed cases and deaths were documented, the Coronavirus disease 2019 (COVID-19) quickly spread becoming a pandemic with devastating global consequences. By 2020, COVID-19 posed serious risks to not only those in need of services, but to all who worked in public social settings. By the end of 2020, nearly 2 million deaths came about as a result of this global crisis (World Health Organization, 2023). As several interventions emerged to reduce co-morbidity risks associated with COVID-19, the reduction or elimination of contact with others (shelter in place) via emerging technologies surfaced as an effective prevention method (CDC, 2023). As the death toll climbed to 7 million, emerging technologies allowed for some service providers and health care professionals to interact with clients or patients virtually risk-free through telehealth, video communication, and other computing and communications applications.

Due to the politization and subsequent polarization of COVID-19, despite this high mortality rate and the extreme effectiveness of these interventions, increased numbers of citizens failed to take efficacious precautionary measures outlined by the CDC, scientists, and other medical specialists (Hart et al., 2020). Even at the risk of fatalities, across several sectors including schools (minors) and businesses, critics argued that emerging technologies were not a viable precautionary measure, and began pushing for a return to normal practices, abandoning lifesaving and resourceful technologies and applications such as shelter in place, remote learning, and Zoom video conferencing. Primarily, it was deemed that these interventions simply lacked the necessary social tools and contexts to act as suitable alternatives to traditional social exchanges and interactions.

Other critiques also helped to discourage the use of these life-saving emerging technologies. As consumers, these technologies have become a conduit through which advertisers use marketing strategies to increase profits. Some of this marketing leads to a skewed world view, as it's tailored to the consumers' interests. This can further exacerbate the problem of politization, polarization, and misinformation. It can also open the door to a host of issues such as distractions, cybercrimes, bullying, time consumption via applications such as games or social media, and smartphone addiction.

Despite the number of critics that have surfaced, emerging technologies remain a viable solution for those that need remote services or wish to be good stewards of resources. For example, it is no longer necessary to spend time and money to routinely take life-threatening risks to meet business partners, clients, or patients in remote locations. Modern technologies, along with applications such as Zoom and Webex are not just safe alternatives, but in many cases cost-effective options. Notwithstanding politization around COVID-19 and working remotely, employees that regularly use these tools to work from home often agree that they afford increased levels of personal safety and a better quality of life. In fact, as talented human resources abandon traditional work settings in favor of companies that employ for modern remote and hybrid vocations, concerns are beginning to surface around office price values decreasing by 800 billion in major cities around the world (Mischke et al., 2023; Reuters, 2023).

Currently, new technologies are also emerging to address the many critiques that smartphone related technologies endured. Because many of these nascent technologies are either cost prohibitive or remain unreleased in quantities large enough to be tested, a dialogic approach is used to explore these emerging technologies as interventions with the potential to reduce many of the problems and barriers associated with current modern technologies. Primarily, the discussion centers around the following questions: What are the current emerging technologies? How can current emerging technologies differ in their approaches to address the previously perceived lack of modern technologies' necessary social tools and contexts to act as suitable alternatives to traditional social exchanges and interactions?

Theoretical Dialogic

This paper introduces the concept of emerging technologies through a psychosocially grounded theoretical lens based on voice and dialogicality. The dissemination of this work allows for a replication of voice, as many will encounter it, and research will respond (multiple voices) as emerging technologies become more accessible modern technologies. This reciprocal communication relationship is a transaction that generates discourse within both the academic community and the social work practice arena. It is only through this collaborative process that learning takes place (Koschman, 1999). The framework for this study concerns a Dialogic Theory of Learning.

Modern Technologies

The discussion centers around two research questions: What are the current emerging technologies? How can current emerging technologies differ in their approaches to address the previously perceived lack of modern technologies' necessary social tools and contexts to act as suitable alternatives to traditional social exchanges and interactions? To address these questions, it is important to define and differentiate modern technology from

emerging technologies. In the process of defining these modern and emerging technologies, some insight will be gained on the perceptions of modern technologies' limitations, and how emerging technologies can efficaciously provide alternatives to traditional interactions in clinical and generalist social work settings. For the purposes of this discussion, traditional social exchanges are face to face interactions that happen in the field, or in a clinical setting. Modern technologies are defined as technologies that are currently in existence that help facilitate traditional interactions through some other technological medium. Emerging technologies also help facilitate traditional social exchanges, but they do not exist beyond concept developments, or they are not yet available on scale that would render utility to a multitude of the public. This discussion highlights a few modern technologies, including smartphones, video communications, and computer applications. The benefits and limitations of these technologies are also discussed.

Smart Phones

Before COVID-19 brought to the light the benefits of offering services while sheltering in place, notwithstanding marginalized groups who lacked access because of poor proximity to services, many concerns surfaced around ethical issues related to smartphone use among social workers. According to Reamer (2015), much of the concern springs from modern technologies introducing risks to participants through diminished informed consent, privacy, and confidentiality. To manage these risks, it is important for social workers to make sure that their use of these tools is consistent with the profession's ethical standards (NASW, 2023). Further, applicable federal policies and guidelines, such as those outlined by the Health Insurance Portability and Accountability Act (HIPAA) and the Family Education Rights and Privacy Act FERPA, should also be observed ("HHS.gov," 2023; "2.ed.gov," 2023).

What sets social work apart from other occupations is its professional commitment to correcting social injustices. Despite the issues related to using smartphones, it is hard to argue that these modern technologies haven't been instrumental in exposing and correcting social injustices. Prior to smartphones and social media, journalists controlled the media, and could shift passive consumer's attention away from social injustices to focus on alternative issues, creating policy windows that further marginalize already oppressed groups. The Black Lives Matter movement is perhaps one of the best examples of how smartphones have provided a counternarrative to the killing of unarmed African Americans by police (Richardson, 2020; Corby, 2023). Being the majority, whites are more frequently fatally shot by police, but as minorities, blacks are still 2.8 times more likely than whites to be killed. Further, black victims are also more likely to be unarmed when shot (DeGue et al., 2018). Taken together, through smartphones and advocacy work, policy changes were enacted, thereby contributing to fulfilling social work's ongoing professional obligation to correct social injustices through anti-racist initiatives (Ray, 2022; "socialworkers.org, 2022").

Video Communications

Smart phones have spurred on video communications, including telehealth in the field of social work. While other licensed clinicians are not obligated to expand services so that isolated and oppressed groups can be reached, Licensed Clinical Social Workers (LCSW) and generalist alike have a professional commitment to eliminating barriers to services, while still offering premium interventions to impoverished populations that aren't cost prohibitive. Rural populations suffer from diminished access to clinical services. Within rural settings and among other socially isolated groups, video communications and telehealth services increase access to services, reducing the time and resources needed to travel to remote locations. These interventions often help social workers and clients be good stewards of their limited resources. However, challenges do exist. The challenge often lies with patients being comfortable and capable of using telehealth services (DeHart et al., 2021). Even worse, despite social work's professional and ethical commitments, some LCSWs simply have no desire to become knowledgeable or skilled enough to use these services, choosing to instead focus their efforts on other social injustices that intersect with clinical interventions.

Telehealth and communication services were more widely used among licensed clinical professionals and generalist social workers once the pandemic struck. One potential solution was to provide guidelines for providers that promote standards in telehealth communications (Sherpis & Smith, 2021). In addition to professional guidelines, state and federal laws and regulations provide an effective framework for practice. For example, in Illinois, Governor Pritzker (D) recently passed House Bill 3308 (HB 3308) into legislation. HB 3308 expands access to vital services through uninterrupted telehealth care and interventions ("Illinois.gov," 2021). NASW Illinois Chapter was instrumental in garnering support through Advocacy Day constituents who lobbied to get the bill passed ("naswil.org," 2023). Further, professional organizations provide helpful guidelines for clinicians who wish to understand these legal considerations. According to Camper and Felton (2020), NASW suggests legal considerations for LCSW telehealth providers in Illinois. For example, social work telehealth providers should consider informed consent, HIPAA compliant video conferencing platforms, insurance, privacy, and confidentiality.

Applications (Apps)

Video communications in the form of Telehealth services often rely on intuitive and thoughtful applications for the intervention to be widely understood and adopted. Federal and professional guidelines understand the importance of reliable and safe HIPAA compliant video conferencing applications and platforms. To that end, NASW encourages the use of platforms such as TimelyCare, Zoom for Healthcare, and TheraPlatform. The Office of Civil Rights (OCR) also discourages the use of non-compliant applications such as Facebook Live and TikTok Live (Camper & Felton, 2020).

Applications (apps) have demonstrated utility with other vulnerable groups. For example, a randomized controlled trial was recently published on the efficacy of a smartphone application called “S-Health.” The application was designed to walk substance abuse clients through Cognitive Behavioral Therapy (CBT) based relapse prevention interventions and strategies, such as identifying triggers. Because applications can simply be adjusted for improved outcomes, this was a deliberated pilot study with N=75 participants (Liang et al., 2018). The intervention group had access to the application and agreed to urine testing at baseline, and on a weekly basis. Over time, the intervention group demonstrated reduced use among participants who had access to “S-Health.” Perhaps the most promising thing about this application is that the software can be tested and updated remotely to ensure that future versions of the interventions are efficacious (Zhang et al., 2022).

In addition to helping social workers address issues around substance abuse and addictive disorders, medical social workers can also take advantage of these tools. Patients who are in need of organ transplants often feel awkward asking candidates to be live donors. This uncomfortable feeling can lead to fewer attempts to find a live donor. Smartphone applications, which often host social groups, can provide a medium through which live donors can come forward to help. The applications can help patients safely create and post useful information regarding risks, benefits, and criteria for becoming a donor. This eases the process of asking for help, which contributes to improved outcomes. Those who used the transplant application were over 6.5 times more likely to have a live donor come forward (Kumar et al., 2016).

Benefits & Limitations

As a guiding professional standard, there are clearly many benefits to social workers continuing to develop technological competence (“socialworkers.org,” 2017). Some of the more salient benefits include the ability to shelter in place during pandemics and other potentially threatening situations, increased access to services for marginalized, isolated, and oppressed groups, and software designed to provide lifesaving support, assistance, and communications (DeHart et al., 2021; Kumar et al., 2016; Liang et al., 2018; Zhang et al., 2022). Additionally, the emergence of modern technologies spurred on Federal, State, and Professional guidelines for social workers. Finally, modern technologies also provided a platform where traditionally oppressed groups disseminated counternarratives that opened policy windows which contributed the ongoing dismantling of social injustices (DeGue et al., 2018; Ray, 2022; “socialworkers.org, 2022”).

It is also clear that these interventions also have some limitations. Perhaps the most concerning problems are around a lack of interest in these modern technologies. From a professional standpoint, this contributes to technological incompetence, which is a direct violation of NASW Ethical Standards, and is also largely responsible for many of the issues pertaining to the use of modern technologies (“socialworkers.org,” 2017). Similarly, potential participants lack comfortability with these tools is an issue as well, which is only exacerbated by the lack of competent professionals to guide them (DeHart et al., 202). Finally, there are inherent risks associated with using even the simplest of modern technologies. For example, providing clinical or generalist services over landline telephones as a modality introduces clients to diminished privacy and confidentiality, as the risk of being overheard is increased.

Emerging Technologies

As mentioned above, unlike modern technologies which are currently in use, emerging technologies help facilitate traditional social exchanges, but they do not exist beyond concept developments, or they are not yet available on scale that would render utility to a multitude of the public. However, social workers should be mindful of these technologies, as proficiently utilizing evidence based technological approaches to correct social injustices contributes to Standard 2.06 which calls for Technological Competence (“socialworkers.org,” 2017). To that end, this dialogic defines emerging technologies and their potential to address perceptions of modern technologies’ limitations, including the lack of necessary social tools and contexts to act as suitable alternatives. As part of this dialogic on emerging technologies, spatial computers, artificial intelligence, and neurological links will be discussed.

Spatial Computing

Spatial computing, which includes virtual reality, augmented reality, and mixed reality headsets or glasses, is an exciting new frontier for social workers to explore. While these technologies have been available for some time,

they are not prevalent enough to be widely adopted. According to Katatikarn (2023), less than 20% of consumers have experienced some form of virtual reality in the United States. Exorbitant costs also act as an impediment, as the acceptance of early renditions of these advanced technologies tend to start with early adopters or those with niche interests. That said, only about 15% of the population is putting these devices to use (Kolmar 2023). In short, Americans are not relying on spatial computing hardware to enhance or facilitate traditional or modern means of communication and service delivery.

Social workers should anticipate wearable spatial computing hardware such as goggles, glasses, and contact lenses becoming more prevalent in time. Computer companies have invested billions of dollars in research and development into these headsets. For example, Apple has invested over \$20 billion (about \$62 per person in the US) into the new Apple Vision Pro (Pooley, 2023). These emerging technologies will quickly surface, becoming modern technologies in daily use. Perhaps the most promising indicator that these devices will gain popularity is Apple's announcement of the Apple Vision Pro at Apple's Worldwide Developers Conference (WWDC 2023). If history is any indicator of which emerging technologies will transition into more frequently used modern technologies, Apple's introduction of a new product category sets precedent for mass adoption. Products such as the iPod, iPhone, iPad, and Apple Watch saw these categories of technologies proliferate until it was commonplace to utilize them.

Artificial Intelligence

Artificial intelligence (AI) exists as a modern technology, and AI will continue to push boundaries as an emerging technology. Because recent developments in AI are alarming to teachers in academia, it is easy to forget that AI is both commonplace and essential. For example, for something as simple as taking a photo on a modern iPhone to be easy and intuitive, over 100 billion operations are performed by AI on the user's behalf. Academia is still debating how much reliance should be placed on AI. While there is notable adapt or resist discourse around the benefits and drawbacks of generative pretrained transformers (GPT) such as ChatGPT, supporters of AI in academia are beginning to find ways in which AI can complement student learning (Mucharrz y Cano et al., 2023). However, due to the initial concerns, other AI applications have also come under scrutiny after years of use. For example, professors may have differing opinions on AI applications such as Grammarly, which help to generate text, but are primarily used to proof for spelling and grammatical errors. As the public becomes more aware of the heavy reliance on AI, more scrutiny could follow. For example, students and researchers in academia frequently use sophisticated analytic and statistical software such as SPSS and NVivo to run complex operations that they may not fully comprehend. These AI generated analyses form the basis for their discussions, yet they still publish from these results.

Despite recent scares and genuine limitations, it is essential for spatial computers like the Apple Vision Pro to rely heavily on AI to remain intuitive and easy to use. In fact, in the first quarter of 2024, Apple's mixed-reality headset will become the most powerful spatial computer on the market. This is in part due to the Apple M2 and R1 Central Processing Units (CPUs) running an optimized version of the Vision Operation System (visionOS) on the headset ("apple.com," 2023). The optimization helps these chips easily process over 15 trillion operations a second. The raw processing power supports the advanced array of sensors, cameras, speakers, and microphones, placing the device in a category of its own. Finally, the Vision Pro will boast two 4K micro-OLED displays projecting an unprecedented 23 million pixels to each eye. With early adopters describing their experiences with the prerelease AI assisted user interface on the device as "magic," the headset has the potential to offer treatment applications that are so realistic and intuitive, that they are virtually indistinguishable from reality (Brownlee, 2023).

Neurological Link

The natural progression of spatial computing is toward neurological links. Although it is assumed that these links (computers) will be implants, they will likely be micro versions of spatial computers. After trillions of dollars of research and development, spatial computers like the Apple Vision Pro will become smaller, faster, and more intuitive allowing for the user to incorporate them into a normal looking pair of glasses, a framework resembling a contact lens, or a resilient microfilm that attaches to the skin. As these technologies continue to become more intuitive, allowing the user to simply look at or think about command or input options to execute them, they will become more useful for a wider variety of purposes. For example, entering commands via thought will allow an amputee to send and receive signals to cybernetic prosthetics (Bensmaia et al., 2023). In a similar fashion, wireless micro technologies could one day help a paraplegic begin sending and receiving electrical impulses to their own limbs by virtually reestablishing the previously severed link within the spinal cord.

While it is exciting to consider the future of emerging technologies, an obvious limitation is many of these efforts are still in the earlier stages of the research and development phase, and therefore are generally only accessible to those with access to a laboratory or military funding (Pohlmeyer et al., 2017).

Solutions & Challenges

The most salient challenge with emerging technologies is lack of access. If developers and consumers display a lack of interest, these technologies will slowly experience mass market penetration, which will delay progress. In addition to lack of access, fear of progress will undoubtedly impede social workers efforts, spurring on technological incompetence (Katatikarn 2023; Kolmar 2023). Finally, the cost is often exorbitant, and populations experiencing social injustices will likely find these devices cost prohibitive. For example, Apple's new Vision Pro spatial computer headset will launch in 2024 at \$3,500 USD ("apple.com," 2023).

The solutions that emerging technologies present far outweigh the challenges surrounding access, cost, and fear. With Apple's release of the Vision Pro having a strong potential to popularize spatial computing, while at the same time offering a secure, safe, and confidential AI interface, these challenges are likely to be addressed. For social workers, the potential to use technology to correct social injustices is boundless. As these technologies begin to offer a more intuitive and realistic environment, interventions will feel natural, and in some cases, potentially rival traditional modalities. Further, as these technologies are miniaturized and seamlessly integrated into our ecosystems, ailments, social injustices, and disabling conditions will be more easily corrected or bypassed altogether (Bensmaia et al., 2023; Pohlmeyer et al., 2017). And while exorbitant costs remain a factor, determined technologically competent social workers will utilize skills and assets to offset costs. For example, tech savvy youth researchers are already publishing three-dimensional (3D) printer blueprints for AI assisted "brain controlled" prosthetics that could normally cost consumers upwards of \$500,000 USD. This 3D printer technology will allow tech-savvy social workers to build them for as little as \$300 USD (Osbourne, 2022).

Findings and Implications

Emerging technologies offer solutions to some of the problems associated with modern technologies. Problems such as a lack of comfortability with using less intuitive interfaces stand to be addressed by emerging technologies that can fully and more realistically immerse the client in a virtual environment where clinical and generalist practice social work interventions can be delivered. Some of the inherent risks, such as reduced privacy, consent, and confidentiality will also get better as security conscious companies like Apple shift their focus to spatial computing, offering features such as end to end encryption, frequent firmware updates, and multiple biometric security features.

The implications for emerging technologies are broad and include reducing barriers to mental health services, providing a more intuitive and realistic experience, and mitigating the impact of disabling conditions. Reducing barriers to mental health services is but one example. With over 95% of patients reporting barriers to services, affordability and access are still issues. Additionally, over 25 million marginalized Americans living in rural areas experience lack of access as a barrier to treatment (NAMI, 2023). Further statistics demonstrate that as many as 8 million deaths a year are attributed to untreated mental health issues (Coombs et al., 2021; Walker et al., 2015). Emerging technologies can also help to mitigate disabling conditions, including physical disabilities. There are over 2 million amputees in America alone, 36% of which suffer from mental health issues. A fraction of this population consists of veterans with co-morbidities associated with depression ("acl.gov," 2023). Emerging technologies not only bridges the gaps between the client and clinical social worker, they can also provide opportunities to clients via innovative limb replacement options such as advanced cybernetic prosthetics. For many of these Americans, emerging technologies will come to act as efficacious interventions whereby more realistic and intuitive service modalities are utilized. Future research in social work should focus on innovative technological interventions that can mitigate serious disabling conditions, and the plethora of social issues where emerging technologies can intersect and intercede social injustices.

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