

The Potential Role and Effectiveness of Telehealth for Healthcare-deprived or Low-resource communities globally

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ABSTRACT

During and following the COVID-19 pandemic, the use of telehealth has been greatly increased due to its effectiveness in providing contactless healthcare. Telehealth has particularly shown promise in reaching people who cannot access in-person healthcare due to reasons including but not limited to scarcity of nearby medical centers, lack of transportation, and lack of finances. This systematic review evaluates experimental and review articles to determine the global impact and effectiveness of telehealth practices. The results of this review demonstrated that telehealth has greatly improved accessibility to care by promoting remote healthcare and facilitating easy access to information through e-record systems. Telehealth has also made improvements in quality of care for underserved populations and in closing the healthcare gap between urban and rural patients. Telehealth has been particularly beneficial in areas such as cancer screenings, chronic condition management, addressing acute medical emergencies, and pediatric care. However, research has also found that while telehealth can close mobility and transportation gaps, disparities due to insufficient internet, lack of access to devices, and language barriers continue to persist. Overall, this review has determined that telehealth has significant benefits for improving access to and quality of medical care, especially for people in rural or underserved areas. However, it is important to address continuing disparities through further research such as by exploring training for healthcare professionals and investigating how to close telehealth-related barriers for certain demographics such as older adults and racial and ethnic minorities.

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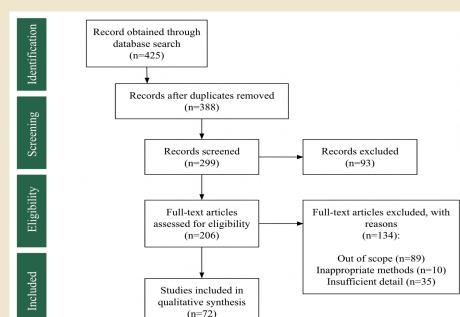
INTRODUCTION

The COVID-19 pandemic has changed the landscape of healthcare delivery worldwide, fostering the expansion of telehealth. Telehealth utilization represents an adaptation to the challenges of providing continuous healthcare amidst restrictions on physical mobility and social distancing. The pandemic have thrust telehealth to the forefront, showcasing its potential to bridge gaps in access to healthcare services. The shift towards telehealth has opened new avenues for patient care, extending the reach of medical services to populations that previously faced substantial barriers to access. This review aims to assess the global impact and effectiveness of telehealth practices during and following the pandemic, evaluating its role in enhancing accessibility, quality of care, and its potential in mitigating healthcare disparities.

By analyzing scholarly articles, it seeks to understand how telehealth has improved healthcare accessibility and quality, especially for those previously hindered by distance, transportation issues, or financial limitations, while also acknowledging ongoing disparities such as internet access, device availability, and language barriers. The review intends to offer insights into telehealth's benefits and areas requiring further research to enhance its equity and effectiveness across all demographics.

METHODS AND MATERIALS

Articles discussing the effects of telehealth on healthcare-deprived and low-resource communities were collected and screened through Rayyan. A systematic review was then conducted to filter through various study methods and variables to determine relevancy to the research topic.



RESULTS

Authors	Year	Title	Journal	Type of Study	Main Findings
Ramirez, et al.	2020	Telemedicine in Minority and Socioeconomically Disadvantaged Communities During COVID-19 Pandemic	NCBI	Literature Review	The study found that culture plays a significant role in influencing attitudes towards telehealth and virtual medical services. Other, minorities facing disadvantages choose telehealth over in-person medical care due to the convenience and cost-effectiveness of telehealth. Patients from lower-income backgrounds are more likely to seek in-person medical care at clinics or hospitals.
Rush, et al.	2022	Health Use for Enhancing the Health of Underserved Populations: A Systematic Mixed Studies Review	NCBI	Systematic Review	The study found that telehealth is effective for enhancing health outcomes in underserved neighborhoods. The findings suggest that telehealth can be used as a cost-efficient method of providing health care services when compared to traditional in-person medical appointments.
Ramsey, et al.	2023	Children with Uncontrolled Asthma in Underserved Neighborhoods: Needs Assessment and Telemedicine Intervention	NCBI	Literature Review	Statistics indicate that between 60% to 70% of children with asthma make their in-person medical appointments because of transportation problems or family-related issues. Nevertheless, the use of Telehealth has enabled more of these children to receive medical treatment without leaving their homes.
Jaffe, et al.	2020	Health Inequities in the Use of Telehealth in the United States in the Era of COVID-19	NCBI	Literature review	The research article highlights that the majority of Telehealth users were individuals seeking mental health support. Furthermore, it was discovered that residents of rural areas are less inclined to utilize Telehealth services compared to their urban counterparts. Telehealth has been found to be a cost-effective method of providing surgical surge, with Telehealth outpatient appointments experiencing an 84% increase.
Schwartz H Lee	2014	Telehealth: Seven Strategies To Successfully Implement Technology And Transform Health Care	Health affairs	Literature Review	7 methods that are necessary to the success of telehealth in the modern age: Understanding patient and provider expectations, utilizing telehealth from traditional medical settings, establishing clear communication, utilizing technology to reduce cost, mindful of space, redesigning care to improve value in health care, being bold.
Kosman A, Marples, et al.	2022	The Telehealth Divide: Who Are the Underserved and What Can Be Improved?	JABFM	Systematic Review	The pandemic forced telehealth to be adopted into society and this article examines the racial disparities on waittimes, visits, drug safety and medical education.
Glassman Paul	2012	Technology to Improve Oral Health for Vulnerable and Underserved Populations	Journal of Dental Research Association	Literature Review	Teletechnology has enhanced the ability of the oral health delivery system to treat vulnerable and underserved populations.
Ghaderi Sud	2020	Understanding the Use of Telemedicine in Underserved Hispanic Border Communities: Cross-Sectional Study	Journal of Medical Internet Research	Systematic Review	Attitudes towards Telemedicine were measured by those at the Texas-Mexico border by a series of questions. Findings indicate that Telemedicine literacy will foster positive feelings people have towards Telehealth.
Jewitt Patricia, et al.	2021	Teleheatlh: Reducing or Increasing Cancer Care Disparities?	Journal of Clinical Oncology	Systematic Review	Systematically reviewing telehealth visits of cancer patients of varying ethnicities and socioeconomic status, the study found that Telehealth can reduce cancer care disparities.
Flack Paul, et al.	2004	Addressing Mental Health Needs of the Rural Underserved	Contemporary Family Therapy	Literature Review	The results suggest that mental health services can be effectively delivered using existing education technology to underserved rural populations. Rural communities have unique barriers to accessing mental health care, some of which can be addressed by using telemedicine. Telemedicine can be used to provide mental health services to rural areas.
Marin P James, et al.	2015	Addressing health disparities in rural communities using telehealth	Pediatric Research	Literature Review	The results of this literature review demonstrate that Telehealth can improve patient satisfaction and reduce costs. Modes of care that use Telemedicine have the potential to address pediatric specialists' geographic, maldistribution and access disparities in the quality of care to kids in underserved areas.
Bailey E James, et al.	2021	Early Patient-Centered Outcomes Research Findings on Telemedicine in Primary Care: A Systematic Review	Journal of medical internet research	Literature Review	By reviewing telehealth studies focus on disparities the findings suggest that disparities are present in rural and underserved areas. Telemedicine can be used to improve patient-provider connection.
Chambers Ruth, et al.	2012	A Cross-sectional Survey and Qualitative Study of Telemedicine in Primary Care: What do patients think?	BMJ	Systematic Review	Patient satisfaction with a Telehealth device was determined. A cross sectional study found that patients were satisfied with the use of a Telehealth device. Telemedicine devices were satisfied and found the system easy to use, it allowed for schedule flexibility and increased telemedicine education in general population.
Ahmed, et al.	2015	Portable Health Clinic: A Telemedicine System for Underserved Communities	SpringerLink	Original research	The Portable Health Clinic (PHC) is a mobile telemedicine system designed for underserved populations with non-communicable disease and the aging population. The PHC is a mobile telemedicine system designed for underserved populations. It is easy to use, understand, and set up. It can deal with communicate diseases, and its EHRs are specific to its system.
Sammy Le and Avish Agarwal	2021	The Application of Telehealth to Remote and Rural Areas with Chronic Neurological Conditions	Wiley	Original research	All participants in this study (rural-located Australians) stated that they would prefer to receive medical care via telemedicine. For remote areas, telemedicine is a cost-effective way for metric measures (visual quality, comfort, privacy, etc.). A majority of people believe that Telehealth may be beneficial for patients who have chronic conditions but do not require physical re-examination.
Hochman, et al.	2000	Cardiogenic shock complicating infection-endocarditis: management and outcome. What else should we empirically resuscitate? Oct 2000	Elsevier	Original research	Point-of-care echocardiograms and digital electrocardiograms were conducted on an emergency basis in Zimbabwe using patient point-of-care smartphones. The data was sent to the United States for interpretation. Thus, Telehealth was used to identify cardiovascular disease in a high-risk, underserved population.
Thota, et al.	2020	Telehealth in a Sustainable Population Health Strategy to Improve the Quality of Health Care in Rural Utah	ASCO	Original research	Telehealth benefits rural communities by saving patient time and money allowing them to receive medical care without traveling long distances. Telehealth can also help to focus care on local communities.
Vadheim, et al.	2017	Telehealth delivery of diabetes prevention programs in rural communities	Oxford Academic	Original research	Telehealth programs have the potential to reduce the need for staffing, training, and technology maintenance. Coordination between healthcare workers and administrators is essential.
Moffatt and Eley	2010	The reported benefits of telehealth for rural Australians	CSIRO Publishing	Original research	Telehealth has the potential to reduce a lack of access to healthcare, specifically in rural Australia. Practitioners will likely need to update in order to properly implement telehealth services.

DISCUSSION

The latest study underscores the positive impacts of telehealth utilization within communities, especially those catering to healthcare-deprived or low-resource demographics. However, it also brings attention to pertinent issues, particularly from an economic standpoint, as the costs of essential telehealth equipment pose a significant challenge.

By addressing these challenges directly, it can be ensured that telehealth's influential promise is fulfilled, resulting in more equitable access to healthcare services for all individuals, regardless of geographical location or socioeconomic status.

CONCLUSIONS

Telehealth initiatives have demonstrated significant strides in extending their reach to underserved populations, including lower-income communities, the elderly, and regions within developing nations where technology adoption remains sparse. Health care professionals advocate for Telehealth, asserting that the caliber of care delivered via this digital platform is commensurate with that of traditional in-person consultations. Its applicability ranges from chronic disease management to acute emergency situations, enhancing accessibility and quality of healthcare services. Moreover, with the improved accessibility of medical information through research programs like INVEST clinical trials and initiatives like GIVE, remote healthcare services are expanding. For example, a study conducted revealed that more than half of children who suffer from asthma fail to attend their in-person medical appointments due to transportation difficulties. Telehealth has played a crucial role in overcoming these financial and logistical obstacles, enabling families globally to access medical care from a physician without the burdens that traditionally hinder patient care. The findings from scholarly articles provide insightful and quantitative evidence on Telehealth's positive effect on various communities, such as low-income families and the elderly.

