

Smartphones and telemedicine for older people in China: Opportunities and challenges

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Abstract

The development of 5G technology has brought major advances and diverse challenges in healthcare services for older people, and access to equitable telemedicine is a high priority. Smartphones are most commonly used device to access the internet and bring the convenience of telemedicine to the user's fingertips. In the period where aging and informatization coexist in China, the role of smartphones in their daily lives, long-term care, and future opportunities and challenges needs serious reconsideration. We provide the latest evidence of smartphone use among the older adults of China and expound on issues about fairness in accessing mobile health, the substantial digital divide, and potential drawbacks of problematic smartphone use.

Keywords

Smartphones, 5G technology, telemedicine, COVID-19, older people

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Rapid development in smartphone-based communication technology has brought major advances in daily living and healthcare for older people. According to the latest reports issued by the China Internet Network Information Center (CINIC), the number of telemedicine users in China had reached 239 million by December 2021, which accounted for 28.9% of total internet users.¹ As a successful practice, applying health codes and itinerary cards effectively improved control of the COVID-19 pandemic and provided individual mobility guidance for the Chinese.² The proportion of Chinese Internet users with ≥ 50 years of age increased from 13.6% in 2019 to 26.8% in 2021.¹ From February 2021, the China Ministry of Industry and Information Technology (CMIIT) released a series of political documents to promote the integration of older people into the internet era. Although the proportion of older smartphone and internet users has increased dramatically, attention toward issues such as impartiality in accessing mobile health, the substantial digital divide, and potential drawbacks of problematic smartphone use need to be looked into. China's national smartphone penetration rate is 68% and ranks 15th in the world. However, this level does not match the larger population size and the aging process of China.¹ Besides, the Global Mobile Market Report 2021 stated that the smartphone ownership rate

among people aged 65 years and over was around 53% and exceeded 95% among the younger and middle-aged population.³ This gap is also significant in European and Asian countries. As aging and informatization coexist, the role of smartphones in long-term care and the daily lives of older people, and future opportunities and challenges need serious reconsideration.

Strengths and opportunities

5G technology has ultrahigh transmission speed, ultralow network latency, and enormous data throughput; thus, it has brought major advancements in healthcare. During the COVID-19 pandemic, digital and intelligent operating modes have broadened the application of telemedicine

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and health management. Smartphones and apps provide extreme accessibility to people needing access to more convenient, low-cost, and effective medical consulting services.⁴ The “Healthy China Actions (2019–2030)” introduces a new concept of “active and healthy aging.” Instead of passively receiving health services from medical institutions, older people will be encouraged to actively pursue healthy lifestyles and seek medical information. Particularly, in the era of 5G communication, health monitoring, remote consultation, and community chronic disease management through smartphones are becoming mandatory for older people. Smartphones and wearable electronic devices can be linked to effectively monitor and manage the health status of older people in real time.⁵ In addition, a variety of apps eases access to social information and helps in timely communication. Smartphones and more advanced technologies promise to address healthcare disparities and assist in health management. In China, short video platforms on smartphones are the new instrument for older people to overcome social isolation and loneliness. Relying on advanced technologies such as 5G communications, artificial intelligence, cloud computing, and intelligent manufacturing are becoming “new productivities” to meet the personalized needs of the older population.

Weaknesses and challenges

The benefits of innovations in mobile communication technology should not exclude specific disadvantaged older groups. However, low education, function impairments, and deterioration in learning abilities can undeniably cause a “digital divide” among older adults. In the UK, 79% of all digitally excluded people are aged 65 years or above.⁶ Similarly, in China, knowledge restrictions, device limitations, and advanced age are the three major reasons that limit internet access.¹ While overall smartphone ownership continues to rise, older people, particularly in rural areas, still dominate the under-ownership rate. Thus, our priority should be to bridge the gap between rapid technology upgrades and the accessibility of equitable telemedicine services. We argue that smartphone-based alternatives to enhance health services and interventions are a valuable way to improve the range and continuity of long-term care for older people. However, China and other countries face the drawbacks of an unbalanced distribution of communication technology resources across regions. By June 2021, China’s rural internet users reached 284 million, which only accounts for 27.6% of the total population.¹ Therefore, narrowing the gap between rural and urban areas through concerted efforts is necessary to achieve digital equity and health equity.

Despite the success with healthcare management, mobile apps have demonstrated poor reach and sustained use. Most older adults download the apps but do not use them or discontinue them shortly. Thus, the increase in utilizing

healthcare-related apps among older smartphone users is a challenge, and this limitation persists even in the younger population. Technology-based avenues such as community education and family monitoring can be considered effective in increasing the proficiency of older people in smartphone use. In addition, mobile phones significantly impact healthcare disparities, so we need to gain a better understanding of older smartphone users’ need for healthcare services and how they search for telemedicine information and other technology resources. Thus, older people should continuously improve their health literacy and awareness, whereas primary care institutions should provide wider access to telemedicine information to disseminate the best resources that would maximize adoption and long-term use.

Furthermore, the negative clinical symptoms caused by problematic smartphone use should also be taken into account. As reported by the CINIC, more than 100,000 older adults surf the internet for >10 h daily.¹ Blue- and short-wave radiation are immediate risk factors that may cause headaches, eye strain, and sleep disorders.⁷ Besides, the association between smartphone addictive behaviors and mental health disorders in older samples has now become an issue and needs to be demonstrated in the future longitudinal studies. Although making the most of big data is contradictory to protecting privacy, network security is also a large challenge for older adults due to their weak judgment of miscellaneous online information. Older adults who lack supervision are more likely to fall victim to pseudoscience scams and compromise their privacy.

Finally, we believe that smartphones cannot completely be a “placebo” of loneliness for older people, and the comfort of browsing through the internet cannot substitute for outdoor activities and family companionship. Future scientific research would help us better understand the perception, attitudes, and demands concerning smartphone use in older people. In addition, longitudinal studies that establish the downside of using smartphones and related adverse health outcomes are urgently required.

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