

Digital barrier and depressive disorders in older Chinese adults: Policy implications

Yanling Qi,^{1,2} Xingyu Hu,¹ Ying Yao,³ and Changwei Li^{4,*}

¹Zhou Enlai School of Government, Nankai University, Tianjin 300350, China

²Center for Data Science in Health Policy and Healthcare Management, Nankai University, Tianjin 300350, China

³Tianjin Medical University General Hospital, Tianjin 300052, China

⁴Department of Epidemiology, O'Donnell School of Public Health, University of Texas Southwestern Medical Center, Dallas TX 75390-9096, US

*Correspondence: changwei.li@utsouthwestern.edu

Received: November 25, 2024; Accepted: April 13, 2025; Published Online: April 15, 2025; <https://doi.org/10.59717/j.xinn-med.2025.100127>

© 2025 The Author(s). This is an open access article under the CC BY license (<https://creativecommons.org/licenses/by/4.0/>).

Citation: Qi Y., Hu X., Yao Y., et al. (2025). Digital barrier and depressive disorders in older Chinese adults: Policy implications. *The Innovation Medicine* 3:100127.

Depression is a significant and growing health concern worldwide, and this burden is particularly heavy among older Chinese adults. As China's population ages, rates of depression in this demographic are rising. Research indicates that social isolation, physical health issues, and limited mental health resources exacerbate depressive symptoms in older adults, with rural and low-income populations being especially vulnerable.¹ Given the impact of depression on quality of life and healthcare needs, strategies for reducing depressive symptoms in older adults are essential. Recent studies suggest that social media use may support mental health in older adults, aligning with established depression prevention strategies and addressing specific challenges faced by the older Chinese population.^{2,3} This commentary summarized burdens of depressive symptoms in older Chinese adults and provided policy recommendations on using social media to reduce depression symptoms in this population (Figure 1).

THE BURDEN OF DEPRESSION AMONG OLDER CHINESE ADULTS

Depression among older Chinese adults poses a significant public health challenge, considering China's rapidly aging population. In the recent national survey, 36.0% of the middle-aged and older Chinese adults suffer from depressive symptoms.³ Women, people living in rural areas, and those of

western provinces were particularly affected.³ Factors such as increased life expectancy, social changes, and limited access to mental health resources have contributed to a high prevalence of depressive symptoms in this group. In rural areas, limited healthcare access, geographic isolation, and separation from family due to urban migration intensify feelings of loneliness and depression. Depression in older adults is linked to both physical and mental health deterioration, affecting their quality of life and placing strain on healthcare systems and caregivers.² With growing recognition of these issues, it is crucial to explore accessible and culturally relevant approaches to depression prevention, including the role of digital resources like social media.

SOCIAL MEDIA AND DEPRESSION PREVENTION IN OLDER ADULTS

Current strategies for depression prevention focus on enhancing social connections, fostering engagement in activities, and improving access to mental health information. Social media aligns closely with these strategies and can provide older adults with accessible tools for mental health support.

Social Connectedness: Social isolation is a primary risk factor for depression among older adults, and prevention strategies emphasize the importance of maintaining strong social connections. Social media enables people to stay connected with family, friends, and community members, which is

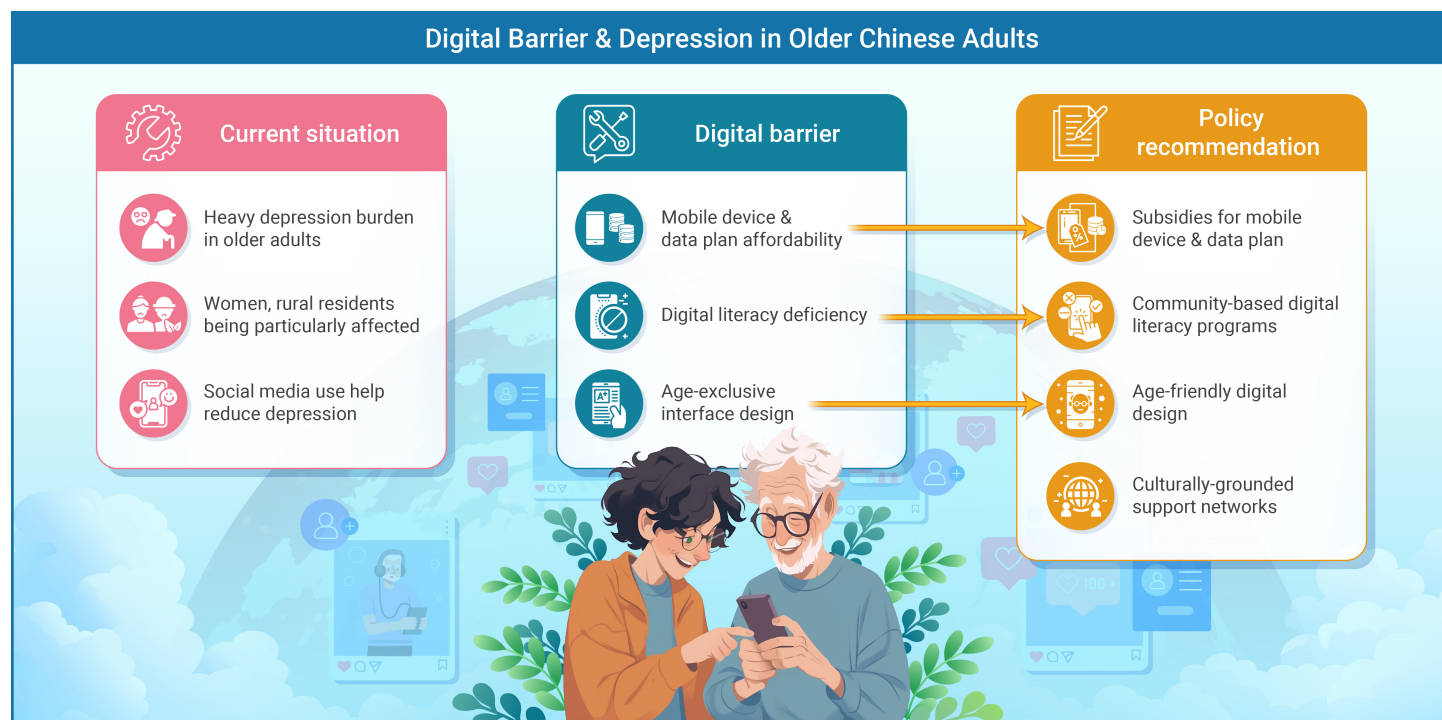


Figure 1. Digital barrier and depression in older Chinese adults.

essential for emotional well-being.

Engagement in Meaningful Activities: Depression prevention strategies for older adults emphasize engagement in meaningful activities that provide mental stimulation. Social media platforms offer older adults access to interest-based groups, virtual classes, and community activities that keep them

mentally active and engaged. These interactions help prevent cognitive and emotional decline, supporting mental well-being and resilience.

Access to Health Information: Improved access to health information is a core component of depression prevention. Social media provides a platform where people can find information about mental health resources, health tips,

and wellness communities. They can also connect with peers facing similar health challenges, which reduces the stigma of discussing mental health concerns and encourages positive health-seeking behaviors.

EVIDENCE FROM STUDIES ON SOCIAL MEDIA AND MENTAL HEALTH

Studies from China support the use of social media to prevent and manage depression among older adults. Older adults who use social media report lower levels of loneliness and greater life satisfaction, especially in rural and economically disadvantaged areas.^{2,3} A study published in *Translational Psychiatry* revealed that social media use was associated with a 24% reduced likelihood of developing depressive symptoms over a two-year period.³ Moreover, older adults experiencing depressive symptoms had a higher probability of improvement if they used social media, suggesting its potential as a mental health resource.³

Another study in *eClinicalMedicine* found that older adults who actively use digital platforms may delay cognitive decline and improve mental health by staying socially and mentally engaged.² Social media enable them share life updates and receive encouraging feedback, strengthening social connections and meaningful interactions. These connections are particularly important in China, where strong family ties form a deeply rooted cultural value, yet physical separation from family can heighten a sense of loneliness.

CHALLENGES IN A DIGITAL SOCIETY

In China, rapid transition to a digital society presents challenges for older adults. Lack of mobile devices and/or affordable data plans prevent many from accessing social media and essential services such as healthcare, shopping, and transportation, potentially increasing social isolation and depressive symptoms.

Lacking digital literacy is another challenge for older adults. Multi-step processes, such as linking bank cards, sending money or verifying identities via facial recognition, overwhelm seniors. Fear of irreversible errors further discourages engagement. These struggles erode self-confidence, fostering feelings of incompetence that correlate with higher depression rates among digitally excluded seniors.

Further, age-exclusive designed digital interfaces, such as small text, low-contrast colors, and complex navigation menus, limit older adults' access to online services and social networks. Age-related vision or cognitive challenges make digital interaction frustrating, leading to the abandonment of using electronic devices. These issues amplify anxiety about mistakes and deepen social isolation by excluding seniors from virtual interactions.

This digital divide is particularly pronounced in rural and low-income populations, who face heightened barriers to mental health and social inclusion in a digitizing society. Addressing these digital barriers is essential to allowing older adults to leverage social media for both mental health and social participation in the digital economy.

POLICY RECOMMENDATIONS FOR ENHANCING DIGITAL ACCESS

The following policy recommendations focus on access to mobile devices, digital literacy training, and older adult friendly social media designs. A targeted implementation of these policies may help reduce digital barriers and improve mental health for older Chinese adults.

Subsidies for mobile devices and data plans

Government subsidies for mobile devices and data plans, modeled after the 2021 U.S. Affordable Connectivity Program (ACP), could help address affordability barriers for older adults in rural or low-income areas, allowing them to access social media and essential services. The ACP provided monthly subsidies of \$30-75 for internet services to low-income households, prioritizing seniors and rural populations. By 2023, over 20 million Americans have gained internet access through this program.⁴ By prioritizing low-income and rural communities, these subsidies could enable more older adults to connect with loved ones, participate in social activities, and reduce loneliness.

Community-based digital literacy programs

Digital literacy programs, supported by community centers, libraries, and senior centers, could empower older adults to engage in online activities confidently and securely. Shanghai has piloted the *Digital Partner Program* (<https://www.sscdi.cn/index.php?catid=38>), which uses digital technology to improve the quality of life for seniors. This program calls for volunteers to help older adults learn to use social media and digital products. Although

evaluation of the *Digital Partner Program* is not available, a similar case study among low-income residents of the Curry Senior Center demonstrated that providing digital products, along with training on using the internet and joining social media significantly reduced loneliness and improved self-efficacy and self-rated health.⁵ These programs also offer an opportunity to educate older adults on identifying misinformation and using social media responsibly.

Creating age-friendly digital environments

Technology companies should consider the needs of older adults when designing digital interfaces. Developers must prioritize inclusive design principles, such as streamlined interfaces, enlarged fonts, and intuitive navigation tailored to older users. Implementing "senior modes" with simplified features could further reduce technical friction, enabling consistent platform engagement and fostering mental well-being through social connectivity.

Providing culturally relevant content and support groups

Chinese people, particularly older adults, often have negative stereotypes and social distance from those with mental illness. Therefore, only a fraction of patients with such conditions sought medical care. As a culturally sensitive approach, social media interventions, such as online supporting groups and knowledge and coping skills can protect privacy, reduce stigma, and represent a novel intervention for mental health. Furthermore, traditional family structures emphasize intergenerational care, yet urbanization has fragmented these networks, leaving rural seniors isolated. Culturally tailored content in local dialects or promoting intergenerational learning programs could encourage older adults to participate more actively, fostering a virtual community that provides social support and reduces depression.

CONCLUSION

Social media use among older adults in China holds promise for promoting mental well-being. Rapid urbanization and transition towards a digital society presents additional challenges, isolating those without access to digital resources. Targeted policies, such as subsidies for mobile devices, digital literacy programs, age-friendly design, and intergenerational mentorship, can help bridge this gap, supporting mental health efforts among China's aging population. Future research should prioritize longitudinal studies to assess the long-term impact of digital inclusion initiatives on mental health trajectories among older adults. Meanwhile, comparative analyses of policy implementation models (e.g., urban vs. rural subsidy frameworks, government-led vs. community-driven training programs) could further clarify context-specific strategies for China's heterogeneous aging population. Finally, interdisciplinary collaborations spanning public health, technology design, and cultural anthropology will be critical to addressing these gaps and ensuring that digital innovations resonate with the lived experiences of older adults in China.

REFERENCES

- Wang J., Mann F., Lloyd-Evans B., et al. (2018). Associations between loneliness and perceived social support and outcomes of mental health problems: A systematic review. *BMC Psychiatry* **18**:156. DOI:10.1186/s12888-018-1736-5
- Yan R., Liu X., Xue R., et al. (2024). Association between internet exclusion and depressive symptoms among older adults: Panel data analysis of five longitudinal cohort studies. *EClinicalMedicine* **75**:102767. DOI:10.1016/j.eclinm.2024.102767
- Qi Y., Zhang C., Zhou M., et al. (2024). Association between social media use and depressive symptoms in middle-aged and older Chinese adults. *Transl. Psychiatry* **14**:430. DOI:10.1038/s41398-024-03142-0
- Commission FC. (2023). 20+ Million Households Enroll in ACP. <https://www.fcc.gov/document/20-million-households-enroll-ACP>.
- Richards T. A., Oman D., Dimartino A., et al. (2024). A technology-based intervention impacts quality of life for low-income older adults by reducing loneliness and improving healthcare self-efficacy and self-rated health. *J. Appl. Gerontol.* DOI:10.1177/07334648241289928.

FUNDING AND ACKNOWLEDGMENTS

This study is supported by the Fundamental Research Funds for the Central Universities (#340-63243029). The funder had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.

DECLARATION OF INTERESTS

The authors declare no competing interests.