

# The Impact of the Digital Divide on the Mental Health of Older People

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**Abstract.** The speed of aging in China has accelerated in recent years, and social problems have continued to increase due to the large base of the total aging population. Numerous scholars have focused on the issue of enhancing the well-being index of the elderly while studying the model of aging. By summarising the literature of the last ten years, the author have categorized and collated the discussions related to the digital divide and the psychological health of the elderly in this research direction. The results show that the sources of psychological problems of the elderly caused by Internet information and digital devices in the digital age include individual factors, family environment factors, and so on.

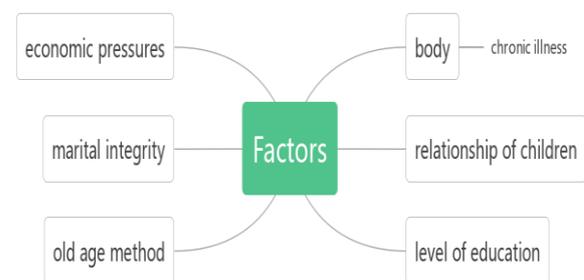
## 1 Introduction

According to the data of the seventh census of China, the population aged 60 and above was 264,019,000, accounting for 18.70% of the population, of which 190,635,000, or 13.50%, were aged 65 and above. Compared to the sixth census in 2010, the aging of the population has intensified, with the proportion of people aged 60 and above rising by 5.44 percentage points and the proportion of people aged 65 and above rising by 4.63 percentage points. With social progress and the development of the times, China, as a country with a large population, is inevitably entering the age of aging. Against the backdrop of the continuous renewal of various policies and forms of elderly care, the issue of the mental health of the elderly has entered the public eye. After a survey of elderly people in Beijing, it was found that about one-fifth (19.05%) of the elderly were in a state of mild depression, and nearly one-tenth (12.17%) were in a moderate to a high level of depression. Further analysis revealed that there were no significant differences in depression scores between older people of different genders, educational levels, marital status, and family structures. This implies that the occurrence of depression is very common and may infringe on the mental health of every elderly person [1]. In the context of the times, technology is inseparably linked to people's daily lives. Some elderly people do not know how to access the Internet or use smartphones, and they encounter inconvenience in the daily travel, medical treatment, and consumption scenarios, making it difficult for them to fully enjoy the convenience brought by intelligent services, and the "digital divide" faced by the elderly is increasingly prominent [2]. Learning and using new technologies is a huge challenge for older people, and this can also cause psychological problems for them. This paper, therefore, synthesizes the literature and

research to analyze the impact of the digital divide on older people's mental health about to with concerning personal health factors, social influences, and residential patterns.

## 2 Main body

The digital divide can be understood as the inequality between incoming and outgoing information, and it is particularly pronounced for older people. There is a significant gap between older people's access to and use of ICTs and ICT literacy and that of younger people. In practice, these gaps also affect the physical and mental health of older people all the time.



**Figure 1.** Factors affecting the mental health of older adults (credit: original)

One of the most common features of the physical condition of older people is a chronic illness. The lack of knowledge about chronic illnesses leads to fear in older people, and the long-term nature of chronic illnesses, with their recurring and uncontrollable nature, as well as their complications, and the fact that non-pharmacological treatment requires a certain degree of cooperation and self-discipline, all of which can lead

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to adverse emotions and lower levels of psychological resilience [3]. Within the last decade, there have also been several some many online medical advice websites such as Dr. Chunyu and Health and Wellness, as well as mobile phone software to help older people develop good medication-taking habits. While providing the elderly with their convenience, children can also keep track of their health and medication taking in real-time by linking their accounts and other means. But the reality is that for some elderly people, buying electronic products such as mobile phones can cause financial burdens and bring psychological pressure; and the fact that they do not know how to use them after purchase can also cause a certain amount of anxiety. There are also some elderly people who, after mastering how to use them, will ask for medical advice through informal means such as search engines when they are unwell, wondering if they are ill and creating adverse psychological problems such as health anxiety. The second factor is marital integrity. Older people who lack a partner are relatively more likely to feel lonely and anxious, lacking someone who can accompany them and understand them, and someone who can share the responsibilities and duties of the family. For older people whose marital relationships remain, on the other hand, a good marital relationship helps to alleviate external and intra-familial stress, and in various ways can alleviate negative emotions such as loneliness, anxiety, and depression. However, a decline in marital quality and the occurrence of marital conflict may lead to changes in the physiological functioning of the individual, and a decline in the function of the immune system inducing cardiovascular disease and potentially turning into a chronic disease, which can have a significant damaging effect on the body and mind [4]. The third factor is the level of education of the elderly themselves. The impact of education level on the elderly is generally reflected in two aspects: elderly people with higher education levels have the higher cognitive ability and health awareness, and can also enrich themselves through electronic devices, reading books, newspapers and participating in activities such as senior citizen universities, to better cope with difficulties. Elderly people with lower education level are limited by their cognitive level, have poorer ability to judge things and accept new things, and are prone to low self-esteem, loneliness and other, and their enjoyment of life is more limited [5]. In modern society, the use of mobile phones and the Internet are closely related to people's clothing, food, housing and transport. Older people have different levels of education, which leads to different levels of acceptance and learning ability for each older person, so older people can take on different levels of stress in the learning process. A final factor is the financial situation of older people. Economic status is related to many aspects of older people's lives, including food, clothing, housing, health care, and family relationships. Research into inequalities in older people's health based on social stratification theory has found that socioeconomic status and economic income show a positive effect on physical and mental health in old age. Older people with higher economic income have more health inputs and thus their physical and mental health improves [6]. Overall, there

are many factors affect the mental health of older people, which in turn affects their physical health, so it is important to maintain a positive and an optimistic outlook for older people.

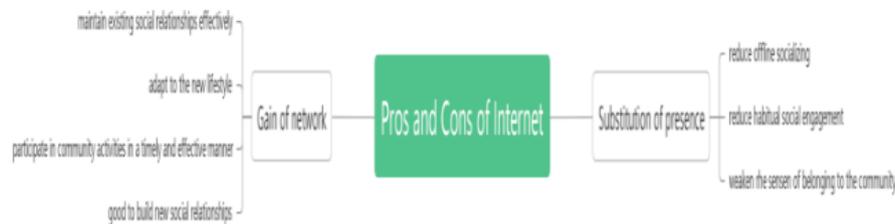


**Figure 2.** Caring for the elderly group [7]

In Yuyin Zhang et al.'s study, for example, there are three types of residence: "living alone in an empty nest", "living together in a separate nest" and "living together in a nest". These refer to those who do not live with their children and are not visited by them regularly, those who do not live with their children but are visited by them regularly, and those who live with their children, respectively. He explored the differences in the quality of life of older people with the three different types of residence. The results showed that the quality of life was highest for those who lived in the same nest, second highest for those who lived in separate nests and lowest for those who lived alone in an empty nest [8]. Firstly, it is necessary to analyze the concepts of 'living alone' and 'living in separate nests'. As human beings live in groups, communication and support are prerequisites for maintaining physical and mental health. Living alone is an increasingly common phenomenon in today's society and can lead to a reduction in social activities, a lower quality of life, an increasing sense of isolation, and a significantly lower sense of security and well-being. In addition to the physical deterioration of the elderly, living alone for long periods can also damage their mental health and increase the risk of psychosocial problems such as depression and dementia in older people [9]. For those who live alone in an 'empty nest', the lack of communication with their children can lead not only to loneliness but also to depression and self-doubt. This can lead to depression and self-doubt, and if the elderly continue to be in this mood, it can lead to other physical reactions, such as insomnia, anorexia, and low immunity, which can lead to chronic diseases. With the intervention of electronic products nowadays, mobile phones and computers allow the elderly to get in touch with their loved ones in time when they miss them, enrich their entertainment life and keep abreast of real-time information, all of which can effectively alleviate their sense of loneliness. Children can also keep an eye on the safety of the elderly through smart home appliances or smart home assistants, so that if they have a fainting spell, coma or stroke, they can be sent to the

doctor in time to reduce the risk of life and complications and save lives. But for the elderly living alone today, the

use of the Internet is a double-edged sword. The specific impact aspects are shown in the figure below.



**Figure 3.** Network gain and presence substitution [10]

For elderly people living in a 'nest', the companionship and care of their children can help to alleviate loneliness and anxiety, as well as provide good financial support and daily care. However, to a certain extent, there are also some negative effects, such as arguments between children and the elderly over different living habits, different parenting attitudes between the two generations, and differences in household expenses. These problems can also invariably increase the anxiety and stress of the elderly. It is a common phenomenon that young people tend to be addicted to electronic devices such as mobile phones and tablets, and even if they live together, they seldom communicate with the elderly and care about their lives. Faced with this situation the elderly can easily feel powerless and depressed, causing psychological stress. Wearable devices and smart environmental aids are also extremely helpful for older adults. Both technologies can help informal caregivers or formal caregivers better monitor changes in physical indicators and the safety of older adults. If an elderly person is not feeling well, they can provide timely feedback to their caregivers to take telemedicine or open a green channel to apply for medical assistance to prevent further deterioration or even death. If an elderly person is too far away from home, caregivers can be alerted in time to prevent them from getting lost. There are many similar practical applications that demonstrate the benefits of wearable devices and smart environmental aids for independence and autonomy and safety monitoring in the later years of life. However, due to the digital divide, there are many problems with the use of these two technologies. For example, whether seniors can properly wear wearable devices, whether they know how to turn on smart devices, and whether caregivers can properly use these monitoring devices. All of these issues can cause psychological anxiety and stress and frustration in older adults.

The overall digital literacy of older people is low, with a decreasing trend at the "access level", "use level" and "knowledge level". Research on the digital divide shows that, despite the obvious growth of "silver-haired Internet users" in China, there is still a large group of elderly people who are hovering at the edge of the digital society due to the differences in access to information infrastructure and digital literacy ability, forming an

access gap, usage gap and knowledge gap for the elderly [11]. To build a more inclusive digital society in the face of rapid digitalisation and a radically changing digital social environment, people should focus on exploring age-friendly development solutions that integrate individuals, families and society, reduce the blunting of older people's sense of access and the erosion of their sense of relative deprivation, and prevent the tendency of digital marginalisation of older people [12]. Digital products are a double-edged sword for older people. While they can facilitate and entertain their daily lives, the potential dangers cannot be underestimated. The largest groups targeted by online fraud are teenagers and older people, and Ross (2014) documents six key areas in which older people are more vulnerable to fraudsters, such as slower cognitive processing and increased trust [13]. Junhai Liu, a professor at the Law School of the Renmin University of China, said that the elderly are vulnerable to online fraud due to multiple factors. On the one hand, the elderly have a single channel to obtain information, are slow to adapt to new technologies and new business models such as online payment, and have very limited knowledge of the latest fraudulent techniques; on the other hand, they are particularly eager for health and wellness, emotional communication and pension money appreciation, which provide opportunities for fraudsters to take advantage of. These characteristics provide an opportunity for scammers to take advantage of the scams. When older people are exposed to online scams, they will not only suffer financial losses, but also psychological trauma such as depression, anxiety and self-blame, and in serious cases, they may think and act lightly. Experts in the industry say that there is not an insurmountable gap between digital technology and the elderly, but on the contrary, convenient digital technology can help the elderly to better participate in social activities, bring into play the wisdom of past experiences, improve the quality of life of the elderly, and turn the "digital divide" into "digital feedbacks"[14]. As digital changes lives, it is also important to pay attention to whether digital brings about a positive psychological impact on older people. This is not only a matter for older people to improve their own discernment and resilience, but also a matter for triple monitoring and management by family, society and the state.

### 3 Conclusion

This article is a synthesis of recent literature on the mental health of older people and the impact of the digital divide on older people, and is based on the author's own compilation and understanding of these two components. This review only synthesizes the findings of several papers, without specific statistics on experimental samples and experimental data. For example, I can conduct a field survey in terms of statistics on the psychological stress of the elderly caused by the digital divide, by distributing questionnaires and experimenting with elderly people in a community or hospital. A more specific design of research methods could be used in subsequent studies to derive new theoretical studies supported by a large sample through questionnaires or other forms of surveys. In the future the authors would like to continue to study in depth the positive effects and drawbacks of digital information on the integration of health care and wellness, or to focus more on the role of smart devices in guiding caregivers of the semi-disabled or disabled elderly.

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