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Advantages, Risks, and Safeguards on Digital Engagement to Elderly Mental Health: A Literature Review of China



Abstract: - Recently, China's elderly population has confronted escalating mental health challenges, and prompted immediate interventions. This study roots in an extensive literature review, and explores the potential of digital engagement as a solution. By analyzing the relevant domestic and international publications, the researches delved into the interplay between digital engagement and elderly mental health. Findings indicates that digital platforms play a pivotal role in granting the elderly vital health information and fostering intergenerational communication. The internet notably boosts the elderly's social capital, improves life satisfaction, and defies age-associated productivity misconceptions. However, over-reliance on digital platforms risks reducing personal interactions, further straining their mental health. For optimal mental well-being enhancement via digital tools, a collaborative approach involving the government, community entities, families, and the elderly is paramount. As we leverage these digital advantages, it is crucial to stay vigilant to potential pitfalls, and it aims to a holistic strategy towards elderly mental health.

Keywords: Mental Health, Aging, Elderly people, Digital Engagement, Safeguard Mechanism

I. INTRODUCTION

The "Statistical Bulletin on National Economic and Social Development of the People's Republic of China for 2022" reveals that by the end of 2022, the population aged 60 and above in China reached 280 million, accounting for 19.8% of the total population (Table 1).

Table 1: 2022 Year-End Population and its Composition of China

Index		Year-end Number (10,000)	Proportion (%)
National population		141175	100.0
Among them	Town	92071	65.2
	Village	49104	34.8
Among them	Male	72206	51.1
	Female	68969	48.9
Among them	0-15 years old (including under 16 years old)	25615	18.1
	16-59 years old (including under 60 years old)	87556	62.0
	Age 60 and above	28004	19.8
	Among Age 60 and above: 65 years old and above	20978	14.9

Statues from: Statistical Bulletin on National Economic and Social Development of the People's Republic of China for 2022.

Given the current aging rate, China is projected to enter a moderately aging society by the end of 2023. Moreover, some forecasts suggest that the population aged 60 and above will account for approximately 29.8% in the year of 2035 and also indicates that China's transition would be into a heavily aging society. In 2060, the proportion of elderly is predicted to peak at 41% [1]. As this aging trend intensifies, subtle shifts are discerned in societal development paradigms. These alterations not only reshape the existing economic and social landscape but also present novel challenges for individual psychological well-being.

Rong Jian conducted a meta-analysis on the prevalence of depression among the elderly in China from 2010 to 2019, revealing an alarming rate of 25.55% [2]. A 2020 survey further discloses that among elderly patients aged 65 and above receiving primary care, 20.3% met the diagnostic criteria for depressive disorders [3]. In August 2023, the "China National Mental Health Development Report", a blue paper jointly sponsored by the Institute of Psychology of the Chinese Academy of Sciences and the Social Sciences Academic Press, unveiled the "Mental Health Literacy Survey Report for 2021-2022". The survey delineated that the overall qualification rate for psychological health literacy among the elderly stood at 7.6%, with recognition rates for depressive

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disorders and social anxiety disorders being 24.7% and 55.4%, respectively [4]. Such mental health issues, encompassing depression and anxiety, not only arise substantially impacts on the elderly's quality of life, daily functioning, and suicide rates but also elevate the risk of Alzheimer's disease. This not only severely diminishes their life satisfaction and sense of happiness but also imposes significant economic burdens on families and society at large. Addressing the pressing mental health crisis facing the elderly has thus emerged as a pivotal public health concern in China.

Due to physiological and psychological degeneration, the elderly typically experience profound senses of loss and anxiety, alongside various maladaptive responses. In the face of a rapidly evolving modern society, researchers and policymakers are ceaselessly seeking efficacious strategies to enhance elderly mental health. Numerous studies have attested that the utilization of the internet and information communication technologies significantly benefits self-reported health among residents [5,6], correlating positively with the mental health levels of the middle-aged and elderly [7]. We compared those without internet access, elderly individuals engaging with the internet have witnessed an 18.8% improvement in their psychological well-being [8]. This digital involvement can enhance the elder's convenience in interpersonal interactions, augmenting the frequency of contact with family and friends, and expanding their real-life social networks [9]. This contributes to elevating their social participation levels [10], boosting their happiness indices, mitigating depressive and loneliness levels, and forestalling cognitive decline [11].

II. THE OPERATIONAL MECHANISM OF DIGITAL ENGAGEMENT IN IMPROVING PSYCHOLOGICAL HEALTH

With the advancements in Information and Communication Technologies (ICT) and the rise of the digital age, the Internet has not only broadened our channels for information, more crucially, has transformed the methods we engage in social life. People are no longer bound by time and space and can interact, relax, and seek information through the internet. This digital lifestyle is gradually becoming the new norm. Especially in the context of shrinking public spaces and limited physical social venues, social media sites and other online applications have become indispensable in daily life, fulfills people's needs for belonging and social connection and plays a significant role in enhancing life satisfaction, happiness, and reducing levels of depression and anxiety [12]. Elderly individuals, as a group, possibly faced more restrictions in physical interactions, and utilized the internet for socialization. It not only aligns with the needs of a fast-paced, efficient modern society but also serves as an effective method to seek social connections and alleviate emotional loneliness. Consequently, the social model centered around familial relationships has expanded to encompass a broader populace, and closes the relationships between acquaintances and alleviates the feelings of isolation, creates some new opportunities for the psychological well-being and social adaptation of the elderly [13]. Specifically, digital engagement will make some positive impacts on elderly depression by capitalizing on networked gain effects, accumulating online social capital, and alleviating feelings of loneliness.

A. *Digital Engagement for Accessing Health Knowledge and External Information*

Internet usage offers the elderly a variety of cultural entertainment information and enriches their mental and cultural lives, satisfies their spiritual needs, and alleviates their feelings of loneliness even without expanding social interactions.[14] However, many digitally-engaged elderly individuals seek more health information to enhance their medical knowledge and focus on health preservation. They also use this information to enrich conversations with family, adding to their repository of knowledge when interacting with offspring or other relatives, thus, expanding the boundaries of information accessibility for the elderly. Social media platforms, as tools for sharing opinions, insights, experiences, and perspectives, have amplified the elder's capacity to access the information. Digital engagement helps the elderly keep in step with society, fostering productivity and elevating self-worth, leading to self-acceptance and integration into society while overcoming negative emotions [15]. Moreover, according to the Pressure Theory, digital engagement allows individuals to obtain a vast array of information and resources via the internet, enhancing their understanding of society and reducing fears and anxieties associated with various stressors.

B. *Digital Engagement to Strengthen Family Connections*

Interactionist theory posits that loneliness is a negative reflection of a deficient satisfactory social network [16]. Stable contact and interaction between elderly individuals and their core family members are essential [13]. Studies have shown that "strong ties," characterized by mutual trust, stable relationships, and in-depth interaction, can significantly impact both parties involved. Especially, positive inter-generational relationships provide the elderly with crucial emotional support. These "strong ties," with mutual trust and in-depth interaction, have

strong effects on both parties [17], aiding the elderly in enhancing life satisfaction, boosting self-esteem, increasing happiness, and reducing psychological distress and feelings of loneliness [18]. According to the Socioemotional Selectivity Theory, as elderly individuals recognize they are in the latter half of their life journey, they tend to maintain closer social relationships and focus on the emotional benefits they garner [19]. A study has shown that the current survey results of the use of smart products by the elderly show that only social products, such as smart phones, are in high demand [20], because digital tools like communication apps and social media platforms will enable the elderly to maintain frequent contacts and communications with distant family members, fulfilling and preserving familial roles [21], preventing feelings of loneliness stemming from a lack of belonging.

C. *Digital Engagement to Expand Social Networks*

Social capital is widely recognized as a latent resource rooted in social networks and relationships [22]. In the realm of elderly health, social capital is a significant determinant of depression [23], with online social capital showing a strong positive correlation with life satisfaction and happiness, and a marked negative correlation with loneliness and depression [24]. The "networked gain effect" perspective suggests that digital engagement exerts a positive influence on the elder's social interactions, participation, connections, and network expansion [19], enhancing interpersonal connections and maintaining existing relationships while facilitating the formation of new social links, thereby accumulating both online and offline social capital [25]. Through these networks, the elderly could obtain emotional supports and social recognitions, and studies have confirmed that internet usage promotes mental health in the elderly by expanding structural social capital, such as social interactions [26]. Social media platforms influence elderly depression through the chain mediating effect of online social capital and feelings of loneliness [27,28], while the diversity and heterogeneity of social support improve the life satisfaction of the elderly. Elderly individuals with better digital integration are more likely to establish new relationships and expand their social networks through the online platforms. For instance, they can engage with new social members based on personal interests and hobbies, forming connections, and utilizing social reinforcement to enhance online social capital [29], which in turn benefits offline interactions. Moreover, digital engagement enhances the elder's sense of social connection, fostering an awareness of virtual online communities and cultivating a sense of belonging, which contributes to their happiness [30].

D. *Opportunities for Labor and Re-employment*

Post-retirement, elderly individuals often witness a marked decline in societal involvement. Vulnerable elderly individuals, whose resources have dwindled, faced heightened life fragility, leading to potential social isolation and resultant loneliness. Economic security can mitigate such loneliness as it offers compensation and coping capabilities during challenging times [13]. Hence, many elderly individuals, who either can not or do not wish to maintain familial contacts or partake in social interactions, express a desire to re-enter the workforce. The evolving and intricate operating modes of modern society have diversified human behavioral patterns. However, these modes have also erected numerous barriers and thresholds for the elderly, obstructing their synchronous progress with society, accessing employment opportunities as an example. Nonetheless, as a contemporary communication medium, internet usage promotes economic participation among the elderly. Its dual functionalities of fostering social capital and re-employment incentives significantly elevate the likelihood of the elderly re-entering the workforce [31], facilitating their "re-socialization," allowing them to lead fulfilling lives full of value and indirectly safeguarding them against feelings of loss-and bolstering their mental health.

III. COMPREHENSIVE EXAMINATION OF THE POTENTIAL PITFALLS OF DIGITAL ENGAGEMENT

In the field of digital engagement's correlation with mental health, existing literature mainly focuses on the effects of Internet usage. Some studies have examined social software such as Facebook, Skype, and WeChat [32]. It is important to note that the internet usage, electronic payments, broadband utilization, and digital education are just some forms of digital engagement [33]. There is a demand for a more holistic exploration of the comprehensive psychological impacts resulting from varying degrees of digital engagement. While promoting the positive effects of digital engagement on mental health, it is essential to be aware of its associated challenges and pitfalls.

Firstly, the substitution theory suggests that Internet usage takes away opportunities for face-to-face interactions. Some studies indicate that the relationship between the frequency of Internet use and its impact on elderly people's health and social participation is not linear. In other words, more frequent online activity does not result in better outcomes [34]. Excessive Internet usage may result in online activities replacing or even crowding out offline physical activities. The Internet's "human-machine" and "human-machine-human" interaction modes

have significantly satisfied elderly people's social needs, leading them to reduce their offline social activities voluntarily [14]. And excessive Internet usage consumes time that elderly individuals might otherwise spend communicating with offline family and community members, resulting in the weakening of their real-world social networks. This could lead the elderly individuals towards offline social isolation and marginalization [35]. In terms of social participation, excessive online time can crowd out elderly people's offline community activities [36], subsequently lowering their sense of community belonging and their level of social participation.

Secondly, Mobile phone addiction, depression, information overload, cognitive failure and other problems may have adverse effects on individual mental health. To be specific, one is that excessive use of electronic products may lead to weakened self-control among elderly users, leading to psychological problems such as depression or anxiety. For example, the short video that automatically plays will produce continuous high-intensity stimulation of the central nervous system, increase the user's sense of pressure and fatigue, and make people feel uneasy in the long run. Second, intelligent algorithms constantly push information to users that they are interested in, resulting in an "information cocoon" that may make elderly users form extreme cognition, and even cause group bias, squeeze the space of mainstream values, and eventually lead to social problems. For example, long-term concentrated push of violent content will not only cause elderly users to "desensitize" to violence, but also reduce the level of empathy and the tendency of close social behavior. Third, if the algorithm stigmatizes the elderly or pushes age discrimination, if the elderly do not know why and how to complain about feedback, they may be invisibly under psychological pressure and slowly accumulate and cannot vent.

Thirdly, the limitations of online communication, characterized by the inability to fully convey non-verbal cues such as body language, facial expressions, and tone of voice, reduce the depth and intimacy of individual social interactions. This shortfall in communication quality hinders the establishment of meaningful connections and inhibits genuine engagement within broader societal contexts. As a consequence, the prevalence of online interactions can contribute to increased feelings of loneliness, as the nuanced aspects of face-to-face communication that foster emotional closeness and understanding are inadequately replicated in digital exchanges [37].

Lastly, the development of Internet applications and the design of inclusive digital application scenarios inadequately consider the unique needs of the elderly. A lack of information technology literacy further hinders the elderly's social adaptability in the digital age, leading to negative psychological experiences such as anxiety, depression, and loneliness. Specifically, some scholars have raised concerns about the impact of electronic products on the mental health of older people from the perspective of education and urban-rural heterogeneity, arguing that Internet use and digital participation will widen the health gap between different groups of older people [38]. Taking smartphone use as an example, the higher the level of education, the greater the positive impact of the Internet on the subjective health of the elderly. From the perspective of urban and rural areas, the positive impact of Internet use on the degree of psychological depression of the elderly also mainly affects the urban elderly. Differences in the use of Internet functions provide a possible explanation for this, as older people in urban areas are more likely to use the health-promoting functions of the Internet than older people in rural areas, thus improving their health [39]. The health promotion effects of the Internet first require "access" to the Internet, that is, the infrastructure, physical conditions, cultural literacy, economic conditions and personal willingness to use the Internet. According to the statistical survey on the development of China's Internet in 2022, 13.6% of non-netizens do not use the Internet because they do not have access to Internet equipment such as computers. For the elderly, there are differences in whether the region has the infrastructure conditions for using the Internet, whether the health and economic conditions can support the leisure time and cost of using the Internet, and the degree of personal acceptance of the Internet as a new thing, so that the elderly will eventually use the Internet. Older persons with different health conditions are more likely to be unable or unwilling to pay for devices such as smartphones and to use the Internet, as older persons with health disadvantages often incur higher medical care costs; They may also be unable to use the Internet due to physical limitations and other disorders; They may also be reluctant to accept and learn to use the Internet because of their older age, or even resist the Internet because of their personal views. As a result, older people with health disadvantages are less likely to use the Internet than older people with health advantages. Enjoying the digital health dividend brought by the Internet also requires Internet "skills" related to health improvement. In terms of health benefits, Internet skills can be regarded as a series of abilities that users can use the Internet to search and choose health-related information, and to improve their behavior habits, health conditions, etc., thus promoting the improvement of their health level. This skill not only includes basic cultural knowledge such as writing, but also includes the use of equipment to search, access, storage and other operations, and also includes the ability to obtain health-related

information and services after processing into the promotion of personal health level. Older persons at health disadvantage are often less socially resourced and less educated, and are more likely to be illiterate and lack basic Internet skills; even with the same access and frequency to the Internet, there is less access to health-enhancing information and less ability and possibility to use digital resources to improve one's own health. Internet use significantly widens health disparities among men, younger age groups, and older people in urban and eastern regions [40].

IV. MULTI-AGENCY COLLABORATION TO ENSURE ELDERLY MENTAL HEALTH

Through the concerted efforts of the nation, communities, families, and individuals in strengthening the social networks and social capital of the elderly, we can bolster their mental health levels and improve their quality of life.

A. Nation

Enhancing the mental health indicators of the elderly is a daunting task [41]. There is still insufficient understandings in our country about the significance of mental health "deprivation". The 2019 "Guidelines on Establishing and Improving Elderly Health Service Systems" first mentioned the importance of elderly mental health, perfecting early prevention and intervention mechanisms for mental disorders like depression and anxiety, and implementing mental health assessments and follow-up management. Yet other regulations and policies, such as the "Law on the Protection of the Rights and Interests of the Elderly" and the "National Medium and Long-term Plan for Actively Responding to Population Aging," have not formally addressed the issue of elderly mental health [42]. Firstly, legislation needs to be strengthened to emphasize elderly mental health. When formulating eldercare-related policies, emphasis should be on improving the elderly's mental life, emotional support, mental health, and elderly services [43]. It is also vital to establish and improve standards and industry guidelines for elderly mental health services, focusing on basic principles, ethical norms, assessment indicators, and service standards [44]. Furthermore, a comprehensive big data platform capturing important demographic variables and regional characteristics for elderly psychological features and health indices should be established to develop measurement tools tailored to the psychological health issues of China's elderly population. Immediate implementation is needed for services like emotional support and family relationship adjustment for the elderly [45]. Lastly, to avoid age discrimination in digital development, the digital R&D team should include a proportion of elderly designers to fully understand the psychological needs of the elderly. In order to avoid the widening of the development gap of digital engagement in different regions, the state should regulate infrastructure and other aspects. For areas with poor popularity of digital products, it should pay attention to the construction of Internet infrastructure in economically underdeveloped areas and improve the coverage quality on the basis of improving the Internet coverage. Promote the development of inclusive education for the elderly, improve the use of the Internet skills of the elderly, improve the level of educational human capital for the elderly and reduce its differences, and narrow the widening effect of the Internet on the mental health inequality of the elderly. In order to improve the digital literacy of the elderly, preferential policies for reducing and reducing the cost of using the Internet and its equipment should be implemented in the short term. In the long term, it is necessary to improve the national pension security level and tilt it toward the less developed areas, and improve the multi-pillar sustainable pension security system to reduce the pressure on the elderly to access digital products and have an opportunity for continuous digital literacy improvement. It is possible to improve the mental health of the elderly.

B. Community

The community is the primary realm where the elderly extend from private family life to public life [46]. A sense of belonging in the community is a significant factor in promoting elderly happiness [47]. The community management model has the advantage of being close to the masses [48], and informal interactions with friends and neighbors facilitate a strong sense of social embedding and belonging [49]. Community interactions help establish digital social circles among peers, ushering in a new era of digital emotional communication for the elderly. Hence, firstly, community resources should be mobilized, integrating resources, increasing the accessibility of social activities, organizing various social events, community organizations, and clubs to enhance the elderly's social opportunities [50]. Secondly, accelerate the construction of an elderly-friendly digital application environment in the community, increasing the elderly's social participation and enhancing their social networks. Lastly, community mental health services must be comprehensively improved. Additionally,

encouraging elderly universities, elderly associations, and eldercare institutions to organize various social activities can help integrate dispersed elderly individuals into groups.

C. Family

Real-life interactions and digital reciprocation within the family is regarded as a driving force for the elderly to actively adapt to the digital age, serving as effective means to foster interpersonal emotional connections, bridge intergenerational gaps, promote intergenerational cultural exchanges, and strengthen digital era family support. Lima Silva et al. used the FAD (Family Assessment Device) scale to measure family function, finding that the lack of family support is a risk factor for worsening depression in the elderly [51]. Therefore, it is essential to harness the functions of the family to maintain and promote elderly mental health, especially as physiological functions decline with age, leading to feelings of loneliness [52]. In the Chinese cultural contexts, family networks are pivotal social networks for the elderly, and relationships with spouses and the number and support of children are significantly related to elderly mental health [53]. Improving family support is vital for promoting the physical and mental health of the elderly [14]. Due to their growth environment, children play a unique role in digital participation. According to theory of socioemotional selectivity, social interest and social attachment evolve throughout life [54]. Kinship dominates personal meaning and emotional support in later life [55]. In particular, the level of interaction with children plays a crucial role in maintaining the mental health of older people [56]. But this does not mean that children are required to live together, because not living with children sometimes allows the elderly to enjoy sufficient freedom to make friends. As long as the children's "digital feeding" is played to achieve good intergenerational interaction, help the elderly master the skills and essence of digital participation, avoid network traps, and supervise and prompt the elderly's improper digital participation, it can benefit a lot.

D. Individual

A healthy lifestyle requires a collective effort between individuals and society [57]. Encouraging older adults to expand their digital engagement involves various individual strategies that can significantly contribute to their mental well-being. Beyond simply enlarging their social connections, it's essential for seniors to challenge stereotypes, confront fears, and actively communicate with others. Moreover, they should embrace digital exploration by learning to navigate the online world and utilize smart technologies strategically. To enhance digital participation, older individuals should prioritize selecting high-quality information sources and platforms that cater to their interests and needs. By doing so, they can effectively elevate their mental health indicators and foster a sense of connection and empowerment. Additionally, collaborating with family, community resources, and national initiatives can provide valuable support and guidance in navigating digital tools, ensuring that seniors remain engaged and mentally resilient in today's technologically driven society.

V. CONCLUSION

Following their integration into digital participation trends, elderly individuals in China can enhance their mental well-being through various avenues. Access to health consultations and up-to-date news online empowers them to better manage their health and stay informed, contributing positively to their mental outlook. Additionally, digital platforms offer opportunities to strengthen familial and societal connections, reducing feelings of isolation and fostering a sense of belonging. Ever the less, there are potential drawbacks to excessive digital technology usage, notably a decrease in face-to-face interactions which are vital for emotional fulfillment and social bonding. Therefore, it's crucial to adopt a balanced approach that maximizes the benefits of digital engagement while mitigating its negative impacts. This necessitates collaborative efforts among individuals, families, communities, and policymakers to ensure that digital integration supports, rather than replaces, traditional forms of social interaction. By prioritizing this balanced strategy, we can safeguard the mental health of the elderly, harnessing the advantages of digital participation while preserving the essential human connections that are fundamental to their overall well-being.

REFERENCES

- [1] Du Peng & Li Long, (2021) Long-term Trends Projection of China's Population Aging in the New Era, *Journal of Renmin University of China*, 35(1), 96-109.
- [2] Rong Jian, Ge Yanhong, MENG Nana, et al., (2020) Prevalence rate of depression in Chinese elderly from 2010 to 2019: a meta-analysis, *Chinese Journal of Evidence-based Medicine*, 20(1), 26-31.

- [3] Zhong Baoliang, Ruan Yifan, et al., (2020) Prevalence and recognition of depressive disorders among Chinese older adults receiving primary care: A multi-center cross-sectional study, *Journal of Affective Disorders*, 260, 26-31.
- [4] China's national conditions, Blue Book Report | Mental Health Literacy Survey Report 2021-2022, NetEase (14 August 2023), <https://www.163.com/dy/article/IC3F45KL0534695U.html>.
- [5] Lu Jiehua, Wang Bin, (2020) The Influence Mechanism of Internet Use on Residents' Self-rated Health: A Study Based on Data from the 2016 China Household Tracking Survey, *Journal of Sun Yat-sen University(Social Science Edition)*, 60(3), 117-127.
- [6] Jin Yongai & Zhao Menghan, (2019) Internet Use and the Elderly's Active Aging in China——A Study Based on 2016 China Longitudinal Aging Social Survey, *Population Journal*, 41(6), 44-55.
- [7] Agnes Szabo, Joanne Allen, et al., (2019) Longitudinal analysis of the relationship between purposes of internet use and well-being among older adults, *Gerontologist*, 59(1), 58-68.
- [8] Wang Lianjie, (2018) The mechanism of influence of Internet use on physical and mental health of the elderly: An empirical analysis based on CGSS (2013) data, *Modern Economic Research*, 4, 101-108.
- [9] Chen Xin, (2020) Research on the Influence and Difference of Internet Usage on Social Isolation of the Elderly, 42(9), 53-59.
- [10] Michael T. Braun, (2013) Obstacles to social networking website use among older adults, *Computers in Human Behavior*, 29(3), 673-680.
- [11] Janelle W. Myhre, Matthias R. Mehl & Elizabeth L. Glisky, (2017) Cognitive benefits of online social networking for healthy older adults, *Journals of Gerontology Series B: Psychological Sciences and Social Sciences*, 72(5), 752-760.
- [12] Zahra Vahedi & Lesley Zannella, (2019) The association between self-reported depressive symptoms and the use of social networking sites (SNS): A meta-analysis, *Current Psychology*, 40, 2174-2189.
- [13] Wu Lin & Zhang Liqin, (2022) The level and function of digital technology to relieve mental loneliness of the elderly, *Journal of Central China Normal University (Humanities and Social Sciences)*, 61(1), 182-188.
- [14] Tang Dan, Zhang & Kun Qi Xinru, (2022) The Impacts of Internet Use on Social Networks and Loneliness among Older Adults: A Study Based on the Purposes of Internet Use, *Population Research*, 46, 88-101.
- [15] Zhao Jianguo & Liu Ziqiong, (2020) The Impact of Internet Use on the Health of the Elderly, *Chinese Journal of Population Science*, (5), 14-26 +126.
- [16] L. Dong & B. B. Bradford, (2014) Self-disclosure on social networking sites, positive feedback, and social capital among Chinese college students, *Computers in Human Behavior*, 38, 213-219.
- [17] Chen Shihua & Huang Shengquan, (2015) Close relatives are Worse than Distant neighbors: The New paradigm of human relations in the Internet Age, *Modern Communication (Journal of Communication University of China)*, 37(12), 129-132.
- [18] Yang Jingjing & Zheng Yong, (2010) Intergenerational relationship: a new perspective of mental health research in the elderly, *Chinese Journal of Gerontology*, 30(19), 2875-2878.
- [19] Du Peng & Wang Bin, (2020) How Does Internet Use Affect Life Satisfaction of the Chinese Elderly? *Population Research*, 44(4), 3-17.
- [20] Zhu Xiao, (2024) A Research on the Demand and Use of Smart Products of the Elderly, *Population and Society*, 40(1), 38-53.
- [21] Meng Lun, (2013) Network communication compensates for the absence of family roles for the elderly, *Journalism and Mass Communication*, 7, 3-8.
- [22] Nan Lin, Karen S. Cook & Ronald S. Burt, (2001) Social Capital: Theory and Research, *Aldine De Gruyter*, p. 3-29.
- [23] Sibylle Puntischer, Christoph Hauser, et al., (2015) The impact of social capital on subjective well-being: A regional perspective, *Journal of Happiness Studies*, 16, 1231-1246.
- [24] An Rongjin, Jiang Yongzhi & BAI Xiaoli, (2020) The Relationship between Adolescent Social Network Use and Loneliness: Multiple Mediators of Online Positive Feedback and Positive Emotions, *Chinese Journal of Clinical Psychology*, 28(4), 824-828 +833.
- [25] Meng Jingbo, Lourdes Martinez, et al., (2016) Research on social networking sites and social support from 2004 to 2015: A narrative review and directions for future research, *Cyberpsychology, Behavior, and Social Networking* 20(1), 44-51.
- [26] Yu K, Wu S, Chi I, (2021) Internet Use and Loneliness of Older Adults Over Time: The Mediating Effect of Social Contact. *J Gerontol B Psychol Sci Soc Sci*, 76(3):541-550.
- [27] Liu Dong, Sarah E. Ainsworth & Roy F. Baumeister, (2016) A meta-analysis of social networking online and social capital, *Review of General Psychology*, 20(4): 369-391.
- [28] Niu Gengfeng, Shi Xiaohan, et al., (2021) The Association between Social Networking Site Use and Older Adults' Depression: The Effects of Online Social Capital and Loneliness, *Chinese Journal of Clinical Psychology*, 29(5), 1055-1059.
- [29] Anabel Quan-Haase, Guang Ying Mo & Barry Wellman, (2017) Connected seniors: How older adults in East York exchange social support online and offline, *Information, Communication & Society*, 20(7), 967-983.
- [30] Sum S, Mathews R, Pourghasem M, Hughes I, (2009) Internet use as a predictor of sense of community in older people, *Cyberpsychol Behav*, 12(2): 235-239.

- [31] Lu Mingyang, Peng Xizhe & Lu Menghua, (2020) The Effect of Internet Use on Employment of the Elderly, *Economic Perspectives*, 10, 77-91.
- [32] Zhao Xinyi, Han Xiao & Liang Xingkun, (2022) Association between WeChat Use and Depressive Symptoms among Older Adults in China: The Mediating Role of Social Participation, *Information Science*, 40(10),82-89.
- [33] Yang Yang, Fan Rui & Jiang Jialing, (2022) Can digital participation improve the happiness of low-and middle-income families? -- Empirical research based on CHFS data, *Fujian Forum (Humanities and Social Sciences Edition)*, 9, 39-53.
- [34] Jin Yongai & Zhao Menghan, (2019) Internet Use and the Elderly's Active Aging in China——A Study Based on 2016 China Longitudinal Aging Social Survey, *Population Journal*, 41(6), 44-55.
- [35] Paula J. Gardner & Tom Kamber, (2012) “Getting turned on”: using ICT training to promote active ageing in New York city, *Journal of Community Informatics*, 8(1).
- [36] Xu Zhaoran, Hu Anan & Huang Lihua, (2018) Research on the Influence of Elderly's Internet Service Usage Behavior on Social Engagement:The Moderating Effects of Loneliness and Offline Relatedness, *China Journal of Information Systems*,19, 27-38.
- [37] Stephanie Stockwell, Brendon Stubbs, et al., (2021) Internet use, social isolation and loneliness in older adults, *Ageing & Society*, 41(12), 2723-2746.
- [38] Lu Jiehua, Wang Bin, (2020)The Influence Mechanism of Internet Use on Residents' Self-rated Health: A Study Based on Data from the 2016 China Household Tracking Survey, *Journal of Sun Yat-sen University(Social Science Edition)*,60(3), 117-127.
- [39] Ran Xiaoxing, Hu Hongwei. (2022) "Urban-Rural Disparity, Digital Divide and Health Inequality in Old Age", *Population Journal*, 44(3), 46-58.
- [40] Ma Jialei, Song Jiaying, Gao Chuansheng, (2023) The impact of Internet Use on health inequalities in older people: 'digital divide' or 'digital dividend'? -- The moderating effect of human capital and social capital, *Lanzhou Academic Journal*, 11,130-146.
- [41] Li Qiang, Xu Gang & Zhang Zhen, (2019) Loneliness and Its Correlates Among the Aged People Living Alone in Urban Areas, *Journal of East China Normal University(Humanities and Social Sciences)*, 51(3), 160-171+177.
- [42] Xu Jiarui & Shao Cen, (2021) How can unhappy seniors be happy, *Chinese Social Sciences Today*, 2021-12-08(005).
- [43] Qu Xiaomin, (2016) The Influence Mechanism of Social Support on Life Satisfaction of the Elderly——Introduce Physical Health and Mental Health as Mediation, *Population Journal*, 38(2), 49-60.
- [44] Fu Hong & Chen Qingrong, (2015) Positive Aging: Research and Practice of the Mental Health of Elderly from a Global View, *Studies of Psychology and Behavior*, 13(5), 713-720.
- [45] Yu Guoliang, (2022) Research on mental health problems in the aged: characteristics, influencing factors and development trend, *Chinese Journal of Social Sciences*, 2022-08-18(007).
- [46] Zhu Kaiwen & Wang Yongyi, (2023) Fracture and Reshaping: Emotional Governance in an Aging Society, *Nanjing Journal of Social Sciences*, 4, 82-90.
- [47] Zhang Zhen & Zhang Jianxin, (2017) Perceived residential environment of neighborhood and subjective well-being among the elderly in China: A mediating role of sense of community, *Journal of Environmental Psychology*, 51, 82-94.
- [48] Rong Zhi, (2021) We will upgrade the modernization of community-level governance while moving down the focus of overall promotion, *Governance*, 27, 41-44.
- [49] Ye Jing & Zhang Xufan, (2021) Studying on The Influence of Social Participation on The Well-being Of The Elderly From The Perspective of Resilience, *Chinese Health Service Management*, 38(4), 317-320.
- [50] Peng Dingping & Ding Feng, (2020) Social Participation, Social Trust and Elderly Physical and Mental Health: Empirical Analysis Based on 2015 CGSS Data, *Journal of North Minzu University (Philosophy and Social Science)*, 1, 91-98.
- [51] Vanessa de Lima Silva, Caroline Addison Carvalho Xavier de Medeiros, et al., (2017) Quality of life, integrative community therapy, family support, and satisfaction with health services among elderly adults with and without symptoms of depression, *Psychiatric Quarterly*, 88, 359-369.
- [52] Zhao Han, Xiang Yuan & Pei Lijun, (2021) Research on the Association between the Elderly's Multidimensional Social Participation as well as the Elderly's Family Communication and the Risks of Depression Occurrence, *Population and Development*, 27(3), 110-122.
- [53] Sun Weiwei & Shi Danni, (2020) The Effect Mechanism of Social Support and Mental Health of Rural Elderly, *Sociological Review of China*, 8(4), 77-87.
- [54] Laura L. Carstensen, Derek M. Isaacowitz & Susan T. Charles, (1999) Taking time seriously. A theory of socioemotional selectivity, *American Psychologist*, 54(3), 165.
- [55] Li Liming, Yang Mengyao & Li Xiaoguang, (2020) Multiple Social Networks and Subjective Well-being in Urban China:Findings from JSNET Panel Data 2014-2016, *Sociological Review of China*, 8(2), 61-73.
- [56] Li Zhiyi & Yang Mengyao, (2021) Internet use and depressive symptoms among Chinese older adults: the mediation and suppression effects of social capital, *Frontiers in Psychology*, 12, 729-790.
- [57] Mu Guangzong, (2018) Health for all, regardless of age: Healthy aging from an aging perspective, *Population and Development*, 24(1), 11-13.