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The Impact of Internet Use on the Subjective Age of Older Adults: A Cross-Sectional Empirical Study

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Abstract: Subjective age, referring to an individual's self-perception of aging, serves as a significant indicator of active aging. Against the backdrop of population aging and the increasing digital engagement of older adults, examining how internet use influences subjective age carries important contemporary relevance for promoting active aging. Drawing on data from the 2020 China Longitudinal Aging Social Survey (CLASS), this study employs ordinary least squares (OLS) regression to demonstrate that internet use exerts a significant negative effect on subjective age among older adults, meaning that internet users report feeling younger than their non-user counterparts. Furthermore, through stepwise regression, the study confirms the mediating roles of occupational engagement and social adaptation in the relationship between internet use and subjective age. These findings highlight the need to accelerate the development of an age-friendly digital ecosystem with supportive institutional frameworks, lower barriers to internet access, and foster a younger subjective age among older adults, thereby contributing to the proactive response to population aging.

Keywords: Internet use; Subjective age; Older adults

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1. Background

Population aging has become a major social phenomenon that countries worldwide cannot overlook. As a country with a large population, China has experienced an accelerated aging process in recent years, with the proportion of older adults in the total population continuing to rise. This trend poses unprecedented challenges to China's economic and social development. In this context, issues related to active aging have become a focus of attention across various sectors of Chinese society. Within the aging process, subjective age—as a key indicator of active aging—holds greater predictive value for individual development and socialization among older adults compared to chronological age. Therefore, an in-depth exploration of the factors influencing subjective age in older adults not only represents an effective pathway for implementing active aging strategies but also constitutes an important

direction for theoretical inquiry.

Alongside the accelerated digital transformation of society, internet adoption among older adults has been increasing. Compared to younger groups, older adults generally start using the internet later in life. Digital engagement, represented by internet use, has opened new practical avenues for China's national strategy to address population aging. However, research in this area remains in its early stages in China. There is still a lack of systematic and in-depth exploration regarding the mechanisms through which internet use affects subjective age in older adults, as well as potential variations across different demographic groups.

Therefore, using data from the 2020 China Longitudinal Aging Social Survey (CLASS2020), this study examines the current state of subjective age among older adults and investigates the impact of internet use on subjective age. It further explores variations in this mechanism across different groups and analyzes the mediating roles of social adaptation and occupational engagement in the relationship between internet use and subjective age.

2. Literature review and research hypotheses

2.1. The concept and status of subjective age

Subjective age typically refers to the age an individual perceives and identifies with. It represents a person's subjective assessment of their own chronological age and serves as a key indicator for measuring individual development in later life, correlating with numerous markers of successful aging [1]. It reflects an individual's subjective feelings about aging and age-related processes [2]. Compared to chronological age, subjective age carries greater social, psychological, and cultural significance [3]. Research on subjective age in Chinese academia started relatively late and remains limited. Studies are primarily concentrated in fields such as psychology, gerontology, and sociology, mainly focusing on older adults, with little exploration of other age groups.

Existing research indicates variations in subjective age across different age groups. Most adolescents perceive themselves as older than their chronological age, while most adults in early adulthood feel younger than their actual age [4]. Older adults, in the later stages of life, typically report a subjective age younger than their chronological age. The discrepancy between chronological and subjective age becomes more pronounced with advancing age among older adults [5]. Chinese older adults generally report a subjective age lower than their chronological age, although notably, the gap between actual and subjective age is smaller among Chinese seniors compared to other populations [6–7].

2.2. The impact of internet use, occupational engagement, and social adaptation on subjective age among older adults

Internet use reshapes older adults' perception and identification with their own age through multiple pathways, finding that internet use significantly reduces the subjective age of older adults, with moderate users reporting an average subjective age 1.5 years younger. Wang et al. further indicated that internet use lowers subjective age by enhancing sense of social worth, improving self-rated health, increasing instrumental activity capacity, and alleviating depressive symptoms [8]. Qiu and Zhou suggested that deeper engagement and embeddedness in internet use among older adults more readily fosters positive perceptions of aging, with this effect being particularly pronounced among rural, younger-old, and unpartnered older adults [9]. Zhang et al. proposed that internet use helps older adults establish positive perceived age, felt age, and aging age, and that men are more likely than women to develop a positive subjective age under the influence of internet use [10].

Therefore, this study proposes:

H1: Internet use has a significant negative effect on the subjective age of older adults.

The subjective age of older adults is influenced by social participation. Social engagement can lead older adults to perceive themselves as younger. Higher frequency and greater diversity of participation are associated with a lower subjective age. Engaging in grandchild care may also contribute to a reduced subjective age [11]. In the Chinese context, Cheng & Jiang both concluded that a higher degree of social participation is associated with a younger subjective age among older adults [12]. Wang et al. emphasized that moderate social participation, including occupational and economic engagement, positively influences older adults' subjective age identity [8].

Research on the impact of social adaptation on subjective age is limited. Lu and Zhang suggested that the level of social adaptation effectively promotes social participation among older adults, thereby contributing to the construction of a positive subjective age [13]. Zhang et al. pointed out that social adaptation plays a mediating role in the relationships between internet use and perceived age, felt age, and aging age, indirectly affecting subjective age through social adaptation [10].

Therefore, this study proposes:

H2: Occupational engagement mediates the relationship between internet use and the subjective age of older adults.

H3: Social adaptation mediates the relationship between internet use and the subjective age of older adults.

3. Methods

3.1. Data sources

The data used in this study were drawn from the 2020 China Longitudinal Aging Social Survey (CLASS2020), which employed a multistage stratified sampling design. The original survey comprises 11,398 respondents aged 60 and above. It includes measures of internet use, occupational engagement, social adaptation, subjective age, and other relevant variables. To ensure consistency in sample size across all variables, cases with missing values on the variables included in this analysis were removed. The final analytical sample consists of 9,406 older adults.

3.2. Variable definition

Drawing on previous studies examining factors influencing subjective age among older adults, this study includes individual characteristics, economic characteristics, and health characteristics as control variables. See **Table 1** for details.

Table 1. Variable definition

Variables	Definition	Mean±SD
Subjective age	Continuous variable [range: -45, 35]	-3.06±6.39
Internet use	No = 0; Yes = 1	0.29±0.45
Occupational engagement	Not engaged = 0; Engaged = 1	0.24±0.42
Social adaptation	Scale score obtained by summing relevant items	25.19±7.13
Chronological age	60–74 = 1; 75–89 = 2; 90 and above = 3	1.29±0.47
Gender	Female = 0; Male = 1	0.51±0.50
Hukou	Agricultural = 0; Non-agricultural = 1	0.48±0.50

Table 1 (Continued)

Variables	Definition	Mean±SD
Marital status	Without spouse = 0; With spouse = 1	0.754±0.43
Education	Primary or below = 1; Junior high = 2; Senior high or above = 3	1.48±0.69
Personal annual income	0–1,000 yuan = 1; 1,001–5,000 yuan = 2; 5,001–10,000 yuan = 3; 10,001 yuan and above = 4	1.80±1.09
Pension insurance	No = 0; Yes = 1	0.78±0.42
Self-rated economic status	Worse = 1; Similar = 2; Better = 3	2.07±0.53
Number of chronic diseases	Scale score obtained by summing relevant items	1.79±1.46
Self-rated health status	Unhealthy = 1; Fair = 2; Healthy = 3	2.34±0.72
Mental health	Scale score obtained by summing relevant items	19.92±3.60

3.3. Econometric equation

Consistent with the measurement level of the explanatory variables, this study employs an ordinary least squares (OLS) regression model to analyze the impact of internet use on the subjective age of older adults, using SPSS 26.0. The econometric equation is specified as follows:

$$SA = \alpha + \beta iu + \gamma control + \varepsilon$$

where SA represents the subjective age of older adults, iu denotes internet use, control refers to the set of control variables included in the analysis, α is the constant term, β and γ are the regression coefficients for internet use and the control variables, respectively, and ε denotes the error term.

4. Results

4.1. Baseline regression analysis, robustness checks, and heterogeneity analysis

Model 1, which included only the control variables, shows that the model as a whole is statistically significant. Specifically, regarding individual characteristics, the regression coefficients for the age groups 75–89 and 90+ are significantly negative, indicating that older seniors report a younger subjective age. Older adults with non-agricultural household registration also report a younger subjective age. Among economic characteristics, participation in pension insurance and self-rated economic status both have a significant positive effect on subjective age. For health characteristics, the number of chronic diseases, self-rated health status, and mental health significantly influence subjective age: a higher number of chronic diseases and poorer self-rated health and mental health are associated with an older subjective age. Model 2 introduces the core explanatory variable, internet use, while retaining the control variables. The model remains statistically significant overall, with the adjusted R^2 increasing to 0.058, indicating improved explanatory power compared to Model 1. Internet use has a significant negative effect on the subjective age of older adults, meaning that older adults who use the internet report feeling younger than their chronological age compared to those who do not use the internet.

Table 2. Baseline regression analysis (OLS)

Variables	Subjective age	
	Model 1	Model 2
Internet use		-0.758*** (-4.618)
Controls	Yes	Yes
constant term	-2.449*** (-5.201)	-2.549*** (-5.415)
Adj.R^2	0.056	0.058
Samples	9406	9406

*** $P < 0.001$; ** $P < 0.01$

Furthermore, robustness checks were conducted using variable substitution. Specifically, chronological age and personal annual income were transformed from categorical to continuous variables, and the baseline regression model was re-estimated. The adjusted R^2 after substitution increased compared to the original model, and the negative effect of internet use on subjective age remained statistically significant at the 1% level (beta = –1.091, t = –6.687). These results confirm the reliability of the baseline regression findings, supporting Research Hypothesis.

To further explore the heterogeneous effects of internet use on subjective age across different groups, subgroup analyses were performed based on residence area, gender, and educational attainment.

Regarding residence area, compared to urban older adults who do not use the internet, those who use the internet report a subjective age that is significantly younger by 0.833 years (t = –4.022, $P < 0.001$). In terms of gender, the negative effect of internet use on subjective age is significantly stronger among women than among men ($P < 0.001$), with the absolute value of the regression coefficient for women approximately 1.65 times that for men ($beta_1 = –0.962$, $beta_2 = –0.584$; $t_1 = –3.950$, $t_2 = –2.624$).

In summary, internet use has a significant negative effect on the subjective age of older adults. Older adults who use the internet report a significantly younger subjective age compared to those who do not.

4.2. Examination of the underlying mechanisms

To investigate the internal mechanisms through which internet use influences the subjective age of older adults, this study employs Baron and Kenny's causal steps approach to construct separate mediation models for occupational engagement and social adaptation. PROCESS (Model 4) was used to test the significance and type of the mediation effects, calculate the proportion of the indirect effects, and analyze the mechanistic roles of occupational engagement and social adaptation.

As shown in **Table 3**, after controlling for the study's covariates, Model 3 indicates that internet use has a significant negative effect on the subjective age of older adults. Model 4 shows that internet use has a significant positive effect on occupational engagement, meaning that older adults who use the internet report higher levels of occupational engagement. Model 5 shows that after including both internet use and occupational engagement, the negative effect of internet use on subjective age remains significant at the 1% level, and occupational engagement exhibits a significant positive predictive effect on subjective age—higher occupational engagement is associated with an older subjective age. Model 6 indicates that internet use has a significant positive effect on social

adaptation, meaning that internet users report significantly higher levels of social adaptation. Model 7 shows that after including social adaptation, the direct effect of internet use on subjective age remains significant at the 1% level, while social adaptation has a significant negative predictive effect on subjective age—higher social adaptation is associated with a younger perceived subjective age. Hypotheses 2 and 3 are preliminarily supported.

Table 3. Examination of the underlying mechanisms

Variables	Subjective age	Occupational engagement	Subjective age	Social adaptation	Subjective age
	Model 3	Model 4	Model 5	Model 6	Model 7
Internet use	-0.758*** (-4.618)	0.041*** (4.112)	-0.782*** (-4.766)	0.585** (3.119)	-0.716*** (-4.377)
Occupational engagement			0.594*** (3.520)		
Social adaptation					-0.071*** (-7.899)
Controls	Yes	Yes	Yes	Yes	Yes
constant term	-2.549*** (-5.415)	0.231*** (8.014)	-2.686*** (-5.690)	23.334*** (43.326)	-0.892 (-1.735)
Adj.R^2	0.058	0.201	0.059	0.010	0.064
Samples	9406	9406	9406	9406	9406

*** $P < 0.001$; ** $P < 0.01$

5. Conclusions

The proportion of internet use among older adults remains relatively low. Their subjective age tends to be younger than their chronological age, with an average difference of approximately three years. Internet use exerts a significant negative effect on the subjective age of older adults; those who use the internet report a significantly younger subjective age compared to non-users. This study employed multiple linear regression analysis and conducted robustness checks using variable substitution, confirming that the negative impact of internet use on subjective age is robust. Furthermore, heterogeneity tests based on residence area, gender, and educational attainment revealed that the effect of internet use on subjective age is more pronounced among urban older adults and older women.

Both occupational engagement and social adaptation play partial mediating roles in the relationship between internet use and subjective age. Using stepwise regression, this study found that internet use has a significant positive effect on occupational engagement. Older adults who use the internet show higher levels of occupational engagement than non-users, while occupational engagement itself has a significant positive effect on subjective age. The indirect effect of internet use on subjective age through occupational engagement is significant, accounting for 3.298% of the total effect and demonstrating a suppression effect. Simultaneously, internet use has a significant positive effect on social adaptation, whereas social adaptation has a significant negative effect on subjective age. Social adaptation serves as a significant negative mediator between internet use and subjective age, accounting for 5.541% of the total effect, indicating a partial mediation role.

Disclosure statement

The author declares no conflict of interest.

References

[1] Montepare JM, 2009, Subjective Age: Toward a Guiding Lifespan Framework. International Journal of Behavioral Development, 33(1): 42–46.

[2] Kotter-Grühn D, Kornadt AE, Stephan Y, 2015, Looking beyond Chronological Age: Current Knowledge and Future Directions in the Study of Subjective Age. Gerontology, 62(1): 86–93.

[3] Kaufman G, Elder Jr GH, 2003, Grandparenting and Age Identity. Journal of Aging Studies, 17(3): 269–282.

[4] Westerhof GJ, Wurm S, 2015, Longitudinal Research on Subjective Aging, Health, and Longevity. Annual Review of Gerontology and Geriatrics, 2015(35): 145–165.

[5] Kastenbaum R, Derbin V, Sabatini P, et al., 2019. "The Ages of Me": Toward Personal and Interpersonal Definitions of Functional Aging 1. Being and Becoming Old. Routledge, London, 71–85.

[6] Zhao MH, Yang F, 2020, Differences in the Subjective Age of Chinese Older Adults and Its Determinants. Population Journal, 42(2): 41–53.

[7] Huang TT, Li Y, Wang DH, 2017, Influence of Subjective Age on Quality of Life in Older Adults: Mediation of Depression and Anxiety. Chinese Journal of Clinical Psychology, 25(1): 127–131.

[8] Wang R, Li T, Li G, 2021, Social Participation Patterns and Its Influence on Age Identity of the Chinese Elderly. Population and Development, 27(6): 151–161.

[9] Qiu K, Zhou YT, 2025, How Does the Integration of the Internet Shape Attitudes Towards Aging: An Empirical Analysis and Mechanism Verification Based on CLASS2020 Data. Population and Society, 41(5): 115–124. https://doi.org/10.14132/j.2095-7963.2025.05.010

[10] Zhang YY, Jiang M, Xie DH, 2024. Internet Use, Social Adaptation, and Subjective Age. Journal of Intelligent Society, 3(4): 55–76.

[11] Bordone V, Arpino B, 2022, Is there a Rejuvenating Effect of (Grand) Childcare? A Longitudinal Study on German Data. The Journals of Gerontology: Series B, 77(2): 446–455.

[12] Cheng XF, Jiang QB, 2019, The Impact of Caring for Grandchildren on Grandparents' Age Identity. Population Journal, 41(3): 63–76.

[13] Lu JH, Zhang YX, 2024, The Influence of Living Arrangements on Social Participation among Older Adults: An Analysis Based on the Mediating Effect Mechanism. Journal of Fujian Provincial Committee Party School of CPC (Fujian Academy of Governance), 2024(1): 106–117. https://doi.org/10.15993/j.cnki.cn35-1198/c.2024.01.015