

Original Research

Associations of Social Media Use and Internet Addiction With the Multidimensional Health Among Different Age Groups: A Cross-Sectional Study

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Abstract

Background: Excessive internet and social media use is known to harm mental health, yet most research focuses on adolescents and young adults, leaving the risks for middle-aged and older adults understudied. **Methods:** A total of 2209 valid respondents across different age groups were drawn from the 2017 Chinese General Social Survey. Analysis of variance (ANOVA) and ordinal logistic regression were performed. **Results:** Clear age-related patterns emerged. Young people had the highest Internet addiction scores and social media use scores, followed by middle-aged and older people. In the middle aged group, internet addiction was significantly and negatively associated with multidimensional health, whereas social media showed a significant and positive association. Internet addiction among young people was only significantly negatively associated with physical and mental health. No significant health associations were found among older participants. **Conclusions:** Internet addiction and social media use uniquely impact the multidimensional health of young and middle aged individuals but not those of older adults. Age-specific guidelines for social-media use are necessary to prevent internet addiction, especially among middle-aged populations.

Keywords: social media use; Internet addiction; multidimensional health; young people; middle aged people; older people

1. Introduction

According to the Statistical Report on China's Internet Development Status (Media Forum, 2025), the number of Internet users in China grew exponentially from 620,000 in 1997 to 1108 million in 2023, and the Internet penetration rate reached 78.6%. The Internet and social media have become indispensable infrastructures of modern life, and their impact on individual behavior and mental health has attracted increasing attention (Anter et al., 2025). Social media refers to an Internet- and smartphone-based communication platform that allows users to connect and interact with other users in various ways (Carr and Hayes, 2015). Social media can be used for various purposes, including obtaining health information and promoting and perceiving emotional support for health matters, such as health interventions, health exercises, medical education, and disease outbreak monitoring. However, excessive and dysfunctional social media use may have harmful consequences such as Internet addiction (Fineberg et al., 2022).

The Internet offers a delivery mechanism for potentially addictive activities (Baturay and Toker, 2019). The medical definition of "Internet addiction" has not been widely recognized (Dell'Osso et al., 2021). "Problematic Internet use", "Internet use barriers", "pathological Internet use", and "forced Internet use" are commonly used in research to replace Internet addiction (Starcevic and Bil-

lieux, 2017). The implications of social media and Internet addiction have exhibited heterogeneity across different age groups. In China, for instance, the epidemiological profile of internet addiction among adolescents suggests a more severe trend compared to the global average (Ahmed et al., 2025; Xu et al., 2020), a phenomenon linked to increased risks of depression and anxiety (Keles et al., 2019). Concurrently, middle-aged and older adults, as a growing demographic of users, are revealing distinct patterns of use and associated health consequences, including both positive and negative effects on their mental well-being (Hu and Tan, 2025). At the physiological level, excessive use is consistently linked to health risks such as sleep disturbances and visual fatigue across both age groups (Sun et al., 2022). Collectively, this evidence points to a central thesis: that age is not merely a demographic delimiter but a crucial moderating variable influencing social media use patterns, methods, and their subsequent psychophysiological impacts, operating through various psychological mechanisms (Orben and Przybylski, 2019).

Thus, the following hypotheses are proposed:

Hypothesis 1: There are significant age differences in both social media use and Internet addiction.

Hypothesis 1a1: There is significant age difference in social media use.



Table 1. Survey questions and options for response.

Variables	Questions	Response options
Internet addiction	11 items (Appendix Table 8)	Total score
Social media use	6 items (Appendix Table 9)	Total score
Multidimensional health		
Self-reported health	What do you think of your current health status?	From 1 to 5, “very unhealthy”, “unhealthy”, “general”, “relatively healthy”, and “very healthy”
Physical health	How frequently has your physical health affected your work or other daily activities in the past four weeks?	From 1 to 5, “always”, “often”, “sometimes”, “rarely”, and “never”.
Mental health	How often have you felt depressed or discouraged in the past four weeks?	
Gender	1 = male, 2 = female	
Age	What is your age in years?	
Marriage	1 = Unmarried, 2 = Married, 3 = Divorce, and 4 = Widow	
Educational level	1 = Primary school, 2 = Middle school, 3 = University/College, 4 = Postgraduate	

Note. Through exploratory factor analysis, only one principal component was extracted for both social media use and Internet addiction variables. The Kaiser Meyer Olkin values are all greater than 0.8, and Bartlett’s test of sphericity were significant ($p < 0.001$), indicating the data can be considered continuous variables to analyze.

Hypothesis 1a2: There is significant age difference in Internet addiction.

For teenagers and college students, social media provides instant socialization, information acquisition, and emotional support, which helps expand interpersonal networks, enhance self-expression, access learning resources, and promote self-identity and emotional regulation (Schwartz et al., 2025). However, excessive or passive browsing can lead to social comparison, appearance anxiety, and decreased self-esteem, resulting in anxiety, depression, sleep disorders, and distraction, thereby increasing the risk of Internet addiction (Hoertel et al., 2025).

For middle-aged and older people, social media can connect their daily lives with social participation.

Resocialization (Dong et al., 2023) significantly alleviates loneliness and enhances their sense of security, belonging, and quality of life (Wang et al., 2025; Yang et al., 2021). However, older people also face the potential risk of Internet addiction, especially in situations where they lack digital literacy or have a single motivation to use it, which may lead to functional addiction and affect their sleep and cognitive functions (Ye et al., 2025).

To date, studies have mainly focused on the factors influencing social media use and Internet addiction, as well as their impact on specific mental and physical health. However, such studies have primarily targeted teenagers and college students (Keles et al., 2019), while ignoring the problem of Internet addiction among middle-aged and older people (Xue and Liu, 2024). Compared to teenagers, adults have a broader social circle, greater freedom to use the Internet, and generally own smartphones. Therefore, adults’ social media use and Internet addiction require more attention.

Thus, the following hypotheses are proposed:

Hypothesis 2: Internet addiction and social media use are associated with the multidimensional health across different age groups.

Hypothesis 2a1: Internet addiction is associated with the multidimensional health of young people.

Hypothesis 2a2: Social media use is associated with the multidimensional health of young people.

Hypothesis 2b1: Internet addiction is associated with the multidimensional health of middle-aged people.

Hypothesis 2b2: Social media use is associated with the multidimensional health of middle-aged people.

Hypothesis 2c1: Internet addiction is associated with the multidimensional health of older people.

Hypothesis 2c2: Social media use is associated with the multidimensional health of older people.

Therefore, the age difference between social media use and Internet addiction, as well as their multidimensional impact on physical and mental health, deserves systematic and cross-age empirical studies.

This not only fills the gap in research on Internet addiction among middle-aged and older people but also provides empirical evidence for formulating targeted interventions in the digital age. The results can provide theoretical support and practical guidance for public health departments, community service institutions, and digital health platforms to implement precise prevention and intervention strategies for different age groups.

2. Materials and Methods

2.1 Participants

The data were obtained from the 2017 Chinese General Social Survey (CGSS-2017). Since 2003, the survey team has conducted annual questionnaire surveys in 125 counties (districts), 500 streets (townships and towns), 1000 neighborhood (village) committees, and over 10,000 households in China. Multi-order stratified probabilistic sampling was applied to collect data systematically and comprehensively from multiple levels of society, communities, families, and individuals to summarize the trends of social change in China. The CGSS-2017 survey data contain a valid sample of 12,582, including core modules, social networks, online society, household questionnaires, and other modules, with a total of 783 variables. These survey data on residents' preferences for social media use support the empirical analysis of this study. To ensure the scientificity of the data analysis, samples with missing key variables were excluded, and 2209 sets of valid data were obtained. The 2209 responders of different ages were selected as effective participants, including three age groups: 828 young people (≤ 35 years), 1218 middle-aged people (36–64 years), and 163 older people (≥ 65 years).

2.2 Measures

The questionnaire examined demographic information, multidimensional health, social media use, and Internet addiction (Table 1), as detailed below.

2.2.1 Demographic Information

The demographic information in the questionnaire includes age, gender (female/male), marital status (unmarried/married/divorce/widowed), and educational level (primary school/middle school/university or college/postgraduate).

2.2.2 Multidimensional Health

Participant's multidimensional health comprises three dimensions: self-reported health, physical health, and mental health (Tian and Chen, 2022). Specifically, in the CGSS-2017, self-reported health was evaluated by the question: "What do you think of your current health status?" There were five response options, assigned values ranging from 1 to 5: "very unhealthy", "unhealthy", "general", "relatively healthy", and "very healthy". Physical health and mental health were assessed through the following questions: "How frequently has your physical health affected your work or other daily activities in the past four weeks?" and "How often have you felt depressed or discouraged in the past four weeks?" Both questions included five response options, assigned values from 1 to 5: "always", "often", "sometimes", "rarely", and "never".

2.2.3 Internet Addiction

Internet addiction was measured using the China Internet Addiction Scale (Chen et al., 2003), which consists of 11 items rated on a 5-point Likert scale, from 1 ("strongly disagree") to 5 ("strongly agree") (Appendix Table 8). Each item's score ranged between 1 and 5. The scores of the participants' eleven items were summed to form an Internet addiction score. The total score ranged from 11 to 55. Higher scores indicate greater Internet addiction. The scale had good internal consistency. Cronbach's alpha for this study was 0.869, and that for the Kaiser-Meyer-Olkin scale was 0.882.

2.2.4 Social Media Use

The use of social media was measured through a 6-item, 5-point Likert scale that investigated respondents' participation in a series of online activities over the past year, with response categories from 1 ("never") to 5 ("always") (Appendix Table 9). Each item's score ranged between 1 and 5. The scores of the six items were added to obtain a social media use score. The total score ranged from 6 to 30. Higher scores indicate greater social media use. Cronbach's alpha for this study was 0.805, and that for the Kaiser-Meyer-Olkin scale was 0.821.

2.3 Data Analysis

Ordinal logistic regression, generalized ordinal logistic regression and analysis of variance, descriptive statistics (mean, SD, frequency, and proportion) were performed using SPSS v20 (IBM, Armonk, NY, USA) as well as. The validity of an ordinal logistic regression model is contingent upon the proportional odds assumption, which is formally tested using the Test of Parallel Lines. A non-significant result ($p \geq 0.05$) indicates that this assumption holds, meaning the relationship between the predictors and the outcome is consistent across all levels of the ordinal variable. In this case, the ordinal logistic regression is the suitable model.

Table 2. Demographic characteristics.

Characteristics	Total n = 2209		Young people (≤ 35 years) n = 828		Middle-aged (36–64 years) n = 1218		Older people (≥ 65 years) n = 163	
	Frequency	Proportion (%)	Frequency	Proportion (%)	Frequency	Proportion (%)	Frequency	Proportion (%)
	Gender							
Male	1107	50.11	413	49.9	613	50.3	81	49.7
Female	1102	49.89	415	50.1	605	49.7	82	50.3
Age								
Minimum	18	–	18	–	36	–	65	–
Maximum	86	–	35	–	64	–	86	–
Marriage								
Widow	59	2.67	2	0.2	24	2.0	33	20.2
Divorce	73	3.30	16	1.9	50	4.1	7	4.3
Married	1696	76.78	472	57.0	1109	91.1	115	70.6
Unmarried	381	17.25	338	40.8	35	2.9	8	4.9
Educational level								
Postgraduate	40	1.81	26	3.1	13	1.1	1	0.6
University/College	666	30.15	348	42.0	284	23.3	34	20.9
Middle school	1250	56.59	409	49.4	732	60.1	109	66.9
Primary school	253	11.45	45	5.4	189	15.5	19	11.7

Table 3. Age differences in social media use and internet addiction.

Characteristics	Young people (≤ 35 years)	Middle-aged (36–64 years)	Older people (≥ 65 years)	Total
Number	828	1218	163	2209
Internet addiction score	32.25 \pm 7.79	27.82 \pm 7.83	24.55 \pm 7.95	29.24 \pm 8.20
Social media use score	20.38 \pm 3.93	16.83 \pm 4.64	14.63 \pm 5.05	17.80 \pm 4.82

Table 4. Analysis of variance of social media use and internet addiction across age groups.

Analysis of variance	Groups	Effect size (η^2)	MD	SE	<i>p</i>	95% CI	
Internet addiction (Bonferroni)		0.091					
	Young people		4.434	0.352	<0.001	3.590	5.28
	Middle-aged						
	Young people		7.700	0.670	<0.001	6.090	9.31
	Older people						
	Middle-aged		3.266	0.652	<0.001	1.700	4.83
	Older people						
Social media use (Welch)		0.160					
	Young people		3.549	0.191	<0.001	3.102	3.996
	Middle-aged						
	Young people		5.749	0.418	<0.001	4.761	6.736
	Older people						
	Middle-aged		2.200	0.417	<0.001	1.215	3.185
	Older people						

Note. The *p* value was obtained using analysis of variance. MD, mean difference; SE, standard error; 95% CI, 95% confidence interval. For Internet addiction, $p > 0.05$ was found in Levene test, thus the Bonferroni test was used. Conversely, due to $p < 0.05$ in Levene test, the Welch test was used in social media use dimension.

However, a significant test result ($p < 0.05$) signifies a violation of the assumption, rendering the ordinal model inappropriate. Under such circumstances, alternative models,

such as the generalized ordinal logistic regression, which relaxes this constraint, should be employed.

Table 5. Associations of internet addiction and social media use with the multidimensional health of young people (≤ 35 years).

Characteristics	Self-reported health			Physical health			Mental health		
	(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)		
Internet addiction	-0.01	0.99 (0.98–1.01)	0.442	-0.04	0.96 (0.94–0.98)	<0.001	-0.03	0.97 (0.95–0.99)	<0.001
Social media use	0.02	1.02 (0.98–1.06)	0.290	0.04	1.04 (1.00–1.08)	0.050	-0.02	0.98 (0.81–1.19)	0.831
Gender (Ref: Male)	0.06	1.06 (0.82–1.38)	0.637	-0.09	0.92 (0.70–1.20)	0.528	-0.23	0.80 (0.65–0.98)	0.085
Marriage (Ref: unmarried)									
Widow	0.51	1.67 (0.18–15.63)	0.654	1.39	4.02 (0.30–53.02)	0.291	1.23	3.41 (0.27–43.26)	0.383
Divorce	0.34	1.41 (0.15–13.03)	0.036	1.44	4.20 (0.32–54.85)	0.274	-0.15	0.86 (0.33–2.25)	0.766
Married	-0.47	0.62 (0.06–6.85)	0.228	0.91	2.48 (0.16–37.80)	0.514	0.15	1.16 (0.89–1.53)	0.265
Educational level (Ref: primary school)									
Postgraduate	-0.72	0.49 (0.19–1.23)	0.128	-0.84	0.43 (0.17–1.08)	0.079	0.75	2.11 (0.87–5.11)	0.130
University/College	0.41	1.50 (0.73–3.08)	<0.001	0.43	1.54 (0.72–3.31)	0.269	1.08	2.95 (1.61–5.42)	0.001
Middle school	0.71	1.60 (0.78–3.28)	<0.001	0.57	1.77 (0.83–3.80)	0.143	0.93	2.53 (1.42–4.52)	0.002
Parallel test (<i>p</i>)		0.013			0.042			0.498	

Note. The Test of Parallel Lines is used to evaluate the proportional odds assumption for ordinal logistic regression. If the test is non-significant ($p \geq 0.05$), the assumption holds, and ordinal logistic regression is appropriate. Conversely, if the test is significant ($p < 0.05$), generalized ordinal logistic regression should be used instead.

3. Results

3.1 Demographic Characteristics

Among the 2209 participants (Table 2), the proportions of males (50.11%) and females (49.89%) were equal. A total of 55.14% were middle-aged and 76.78% were married. Regarding educational level, 56.59% had a middle school education, and 30.15% had a university/college education.

3.2 Age Differences in Social Media Use and Internet Addiction

As shown in Table 3, young people had the highest Internet addiction scores and social media use scores, followed by middle-aged and older people. As shown in Table 4, analysis of variance revealed significant differences in social media use ($p < 0.001$) and Internet addiction ($p < 0.001$) among the three age groups through pairwise comparisons.

Thus, the result supports Hypothesis 1.

3.3 Associations of Internet Addiction and Social Media Use With the Multidimensional Health

3.3.1 For Young People (≤ 35 Years)

As shown in Table 5, Internet addiction had negative significant associations with physical health [OR = 0.96, 95% CI = 0.94–0.98, $p < 0.001$] and mental health [OR = 0.97, 95% CI = 0.95–0.99, $p < 0.001$] of young people (≤ 35 years). Young people's social media use was not significantly associated with multidimensional health. In short, Internet addiction was significantly negatively associated with the multidimensional health of young people. Higher Internet addiction was associated with poorer physical and mental health among young people.

Thus, the results do not support Hypotheses 2a1 and 2a2.

3.3.2 For Middle-Aged People (36–64 Years)

As shown in Table 6, there were significant negative associations of Internet addiction with self-reported health ($p < 0.001$), physical health ($p < 0.01$) and mental health ($p < 0.001$) among middle-aged people. In contrast, there were significant positive associations of social media use with self-reported health ($p < 0.001$), physical health ($p < 0.001$) and mental health ($p < 0.01$) among middle-aged people. Thus, Internet addiction and social media use were significantly associated with the multidimensional health of middle-aged people. Specifically, higher Internet addiction was associated with poorer multidimensional health, and greater social media use was associated with better multidimensional health.

Thus, the results support Hypotheses 2b1 and 2b2.

3.3.3 For Older People (≥ 65 Years)

As shown in Table 7, Internet addiction and social media use were not significantly associated with the multidimensional health of older people ($p > 0.05$). Thus, Internet addiction and social media use were not associated with the multidimensional health of older people.

Thus, the results do not support Hypotheses 2c1 and 2c2.

4. Discussion

This study yielded two main findings concerning the impact of social media use and Internet addiction on multidimensional health among different age groups in China. First, significant age differences were identified in the

Table 6. Associations of internet addiction and social media use with the multidimensional health of middle-aged people (36–64 years).

Characteristics	Self-reported health			Physical health			Mental health		
	(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)		
Internet addiction	-0.05	0.95 (0.93–0.96)	<0.001	-0.06	0.95 (0.93–0.96)	<0.001	-0.05	0.95 (0.94–0.96)	<0.001
Social media use	0.20	1.23 (1.20–1.26)	<0.001	0.23	1.25 (1.22–1.29)	<0.001	0.17	1.19 (1.16–1.21)	<0.001
Gender (Ref: Male)	-0.46	0.63 (0.51–0.79)	<0.001	-0.41	0.66 (0.53–0.83)	<0.001	-0.36	0.70 (0.56–0.86)	<0.001
Marriage (Ref: unmarried)									
Widow	-0.24	0.79 (0.30–2.04)	0.621	-0.07	1.07 (0.41–2.83)	0.885	-0.51	0.60 (0.23–1.57)	0.299
Divorce	-0.24	0.79 (0.36–1.75)	0.561	0.49	1.43 (0.63–3.28)	0.394	-0.56	0.57 (0.26–1.28)	0.174
Married	0.27	1.31 (0.70–2.46)	0.398	0.29	1.76 (0.91–3.40)	0.095	0.28	1.32 (0.70–2.47)	0.392
Educational level (Ref: primary school)									
Postgraduate	-1.116	0.33 (0.12–0.91)	0.033	1.59	0.20 (0.07–0.63)	0.006	-0.32	0.73 (0.24–2.18)	0.570
University/College	-0.473	0.62 (0.42–0.92)	0.017	1.38	0.67 (0.45–1.01)	0.058	-0.36	0.70 (0.48–1.02)	0.064
Middle school	-0.384	0.68 (0.50–0.93)	0.015	1.19	0.81 (0.59–1.11)	0.192	0.13	1.14 (0.84–1.54)	0.395
Parallel test (<i>p</i>)	<0.001			0.003			0.466		

Note. The Test of Parallel Lines is used to evaluate the proportional odds assumption for ordinal logistic regression. If the test is non-significant ($p \geq 0.05$), the assumption holds, and ordinal logistic regression is appropriate. Conversely, if the test is significant ($p < 0.05$), generalized ordinal logistic regression should be used instead.

Table 7. Associations of internet addiction and social media use with the multidimensional health of older people (≥ 65 years).

Characteristics	Self-reported health			Physical health			Mental health		
	(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)			(B, OR, 95% CI, <i>p</i>)		
Internet addiction	-0.02	0.98 (0.94–1.02)	0.414	-0.02	0.99 (0.95–1.03)	0.658	-0.01	0.99 (0.95–1.03)	0.616
Social media use	0.20	1.22 (0.83–1.81)	0.548	0.30	1.36 (0.92–2.01)	0.321	0.01	1.01 (0.94–1.08)	0.864
Gender (Ref: Male)	-0.51	0.60 (0.33–1.09)	0.110	-0.17	0.84 (0.47–1.52)	0.637	0.01	1.00 (0.56–1.80)	0.996
Marriage (Ref: unmarried)									
Widow	-0.20	0.82 (0.20–3.39)	0.781	-0.57	0.57 (0.12–1.86)	0.477	-0.50	0.61 (0.16–2.25)	0.452
Divorce	-0.89	0.41 (0.06–2.82)	0.349	-2.79	0.06 (0.01–0.85)	0.007	0.37	1.45 (0.66–3.18)	0.657
Married	-0.08	0.92 (0.24–3.55)	0.905	-0.51	0.60 (0.14–2.69)	0.509	-0.90	0.41 (0.09–1.85)	0.160
Educational level (Ref: primary school)									
Postgraduate	1.10	3.02 (0.10–91.03)	0.478	-0.65	0.53 (0.02–12.77)	0.772	-0.21	0.81 (0.03–21.61)	0.900
University/College	0.68	1.98 (0.61–6.49)	0.191	0.16	1.17 (0.38–3.61)	0.636	0.07	1.08 (0.05–25.45)	0.415
Middle school	0.07	1.07 (0.41–2.84)	0.799	0.20	1.23 (0.48–3.14)	0.616	0.29	1.34 (0.06–32.04)	0.576
Parallel test (<i>p</i>)	0.209			0.997			0.003		

Note. The Test of Parallel Lines is used to evaluate the proportional odds assumption for ordinal logistic regression. If the test is non-significant ($p \geq 0.05$), the assumption is met, and the model is appropriate. Conversely, if the test is significant ($p < 0.05$), the assumption is violated, and a generalized ordinal logistic regression should be used instead.

prevalence of both Internet addiction and social media use. The analysis revealed that young people demonstrated the highest severity of Internet addiction and social media use, followed by middle-aged. Older adults consistently demonstrated the lowest engagement in both domains.

Different age groups use various social media platforms to establish meaningful connections globally, maintain close contact with loved ones, and engage in extensive online communication with friends, acquaintances, and professional peers to increase interactions with others and enhance social support (Chen et al., 2022). However, ex-

cessive use of the Internet leads to the neglect of interpersonal relationships, work, and normal daily life, which can easily lead to addiction to the Internet (Young, 2007). The adolescent population is the “hardest hit area” for Internet addiction, who are always at the highest risk of Internet addiction (Ye et al., 2022). Their use behavior primarily focuses on entertainment, particularly online gaming; nearly half of the Internet-addicted teenagers report playing online games as their main reason for going online. Whether it is the addiction rate or the resulting mental health risks (Dubey et al., 2025), the situation faced by Chinese

Table 8. Internet addiction questionnaire.

What extent does the following description fit your own actual situation?	Scores
1. I am spending more and more time online compared to before.	
2. When I feel down, I go online, so I feel better.	
3. I often spend more time online than planned.	
4. My daily life has been affected due to Internet use.	5-point Likert scale:
5. My work has been affected due to Internet use.	● Ranging from 1 for “strongly disagree” to 5 for “strongly agree”.
6. I have become even more distant from the people around me due to Internet use.	● The each item score varies between 1 and 5.
7. If I don’t go online for a while, I’ll be restless.	● The total score varies between 11 and 55.
8. I have less and less time to go out due to Internet use.	● The higher the score, the more the Internet addiction.
9. My vision has deteriorated due to Internet use.	
10. My shoulders and neck pain due to Internet use.	
11. My family complained that I spent too much time online.	

Table 9. Social media use questionnaire.

How often have you been online in the past year due to the following reasons?	Scores
1. Social activities (e.g., communicating with others through email, QQ, WeChat, Skype, etc.)	5-point Likert scale:
2. Self-presentation (e.g., using WeChat Moments, QQ Space, Weibo as platforms for self-presentation to record and share one’s emotions)	● Ranging from 1 for “never” to 5 for “always”.
3. Online actions (e.g., defending one’s own rights or seeking justice for others through the Internet)	● The each item score varies between 1 and 5.
4. Leisure entertainment (e.g., games, music, videos, etc.)	● The total score varies between 6 and 30.
5. Obtaining information (e.g., seeking for information, browsing news, etc.)	● The higher the score, the more social media use.
6. Business transactions (e.g., online transfer, payment and shopping, etc.)	

teenagers is more severe than in many regions in the world (Zhang et al., 2025). Recent research further reveals that adolescents with mental health symptoms use social media for a longer period, averaging nearly 50 minutes more per day, and are more likely to fall into a cycle of comparison with others and excessive attention to online feedback, which exacerbates their addiction risk (Fassi et al., 2025).

In contrast, adults have the highest social media use, but their behavior is more instrumental and social. Their motivations for using social media are diverse and include maintaining relationships with family and friends, obtaining information, career development, and work communication. Although it is frequently used, its addictive behavior is relatively hidden, functioning more as a means of integration into life and work. The social media use rate among older adults is the lowest. Older people primarily use social media to stay in touch with friends and family and relieve loneliness, but there are also phenomena such as addiction to short videos, live streaming, and grabbing red envelopes. Underlying demands are often a sense of loneliness and a desire to be seen (Chen and Schulz, 2016).

Second, social media use and Internet addiction were significantly associated with the multidimensional health of middle-aged people, but not with the multidimensional health of young and older people. Studies have shown that social media use and Internet addiction have a significant double-edged sword effect on the health of middle-aged people. On the one hand, excessive or compulsive use can create a vicious cycle of “stress avoidance deeper addiction” due to information overload and social pressure, exacerbating anxiety and depression (Plackett et al., 2023), which is consistent with the results of this study. On the other hand, moderate use plays the role of a “social buffer”. Active participation in social media can reduce the risk of new-onset depression by 24% within two years and significantly increase the probability of individuals with existing depressive symptoms transitioning to a non-depressive state (Qi et al., 2024). Unfortunately, neither social media use nor Internet addiction is significantly associated with the multidimensional health of young and older people. It may be that older people use less social media compared to middle-aged and young people, and their Internet addiction is not as severe. In short, the use of social media is con-

tinuously increasing globally, while in China, social media use is spreading to all age groups, with rapid growth in older adults. In response to Internet addiction, China favors a holistic, guidance-based approach that emphasizes social intervention, family education, and digital literacy (Wang et al., 2024). Conversely, Western nations are gravitating toward stricter legislation.

Limitations

This study has some limitations. First, the data were sourced from the CGSS-2017. Although CGSS-2017 may limit the timeliness and relevance of the findings, particularly in a context where digital platforms and user behaviors change quickly, it is currently the most comprehensive dataset on the impact of social media use and Internet addiction on the health of different age groups in China. Subsequent annual investigations by CGSS-2017 did not involve this aspect. Second, while using single items to measure multi-dimensional health raises potential reliability and validity concerns, the indicators employed in this study are well-established. They have been extensively used in the China General Social Survey (CGSS) and other large-scale surveys, with prior research confirming their validity. This single-item format is an inherent limitation of the CGSS questionnaire; as we used its public database, we could not modify these pre-established indicators. Therefore, we adopted these widely validated measures. Third, Internet addiction scores among different age groups were measured using an 11 item Likert scale without categorizing the severity of Internet addiction. Four, the data for this study were obtained from CGSS-2017 self-reported questionnaire, which may have caused some bias. However, the heterogeneity of findings provides a reference point for studying how social media use and Internet addiction are associated with multidimensional health across different age groups, especially among middle-aged and older adult groups.

5. Conclusions

This study used data from 2209 participants of the CGSS-2017 categorized into three age groups: young, middle-aged, and older adults. The results revealed significant age-related disparities in Internet addiction and social media use. Young adults exhibited the highest levels of Internet addiction and social media engagement, followed by middle aged and older people. For middle-aged people, lower Internet addiction and higher social media use were significantly associated with better multidimensional health. However, internet addiction was significantly negatively associated with physical and mental health only among young people, and not among older participants. Considering the distinct age-related patterns in social media engagement and Internet addiction, a stratified strategic approach is advisable. For adolescents, the focus should be on reinforcing preventive anti-addiction mechanisms and

enhancing digital literacy to cultivate responsible online conduct. For the middle-aged demographic, it is crucial to advocate for platform architectures that facilitate profound social connectivity while offering integrated mental health support. For older adults, bridging the digital divide through accessible skills training and the development of age-appropriate applications is paramount. These initiatives must be supported by comprehensive government regulations, robust public health education, and collaborative governance framework to collectively foster a digitally healthy society.

Availability of Data and Materials

The Data was from the public database, openly accessible at <http://cgss.ruc.edu.cn/>. The data that support the findings of this study is available on request from the corresponding author.

Author Contributions

YJ designed the study and drafted the manuscript. JC acquired, analyzed the data, prepared all tables, and reviewed the manuscript. YJ and JC wrote the main manuscript and prepared all tables. Both authors read and approved the final manuscript. Both authors have participated sufficiently in the work and agreed to be accountable for all aspects of the work.

Ethics Approval and Consent to Participate

Not applicable.

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Conflicts of Interest

The authors declare no conflicts of interest.

Appendix

See Tables 8,9.

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