

Social Media Use, Social Interaction in Reality and Youth Health —— Empirical Analysis based on CGSS Data

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Abstract: Health is the basis for the progress of social civilization. In today's era, social media is developing rapidly, and with its widespread popularity among youth groups, scholars have begun to worry about the impact of social media use on youth health. This article uses data from the 2017 China General Social Survey to explore the impact of social media use on youth health and the mediating effect of social interaction in reality. It was found that social media use significantly and positively increased youth social interaction in reality and health; youth social interaction in reality significantly and positively increased health; and social interaction in reality played a partially mediating role in the positive effect of social media use on youth health.

Keywords: Social Media Use, Social Interaction in Reality, Youth Health, Mediation Effect

1. Introduction

Health is an eternal topic of human survival and development, which is closely related to people's study, work and life. Health is also an inevitable requirement for the promotion of all-round human development, a basic condition for social and economic development, and an important symbol of national prosperity and national wealth and strength^[1]. Youth health is the foundation of youth development, as well as the sustainable development of the country and society. In recent years, youth health has gained increasing attention and importance globally. In the Global Strategy for Women's, Children's and Adolescents' Health (2016-2030) released by the United Nations, for the first time in history, adolescents are at the core of the global strategy, along with women and children. In 2017, the World Health Organization developed the Global Accelerated Action for Adolescent Health, marking the importance of adolescent health in global public health. In April 2017, the Central Committee of the Communist Party of China (CPC) and the State Council issued and implemented the Medium- and Long-term Youth Development Plan (2016-2025), which included youth health as one of the ten key areas of youth development, indicating that the awareness of youth health in society has also been raised to a new level. In 2018, the World Psychiatric Association (WPA) set the theme of World Mental Health Day as "Mental Health of Young People in a Changing World", aiming to draw the attention of the whole society to the mental health of youth. It can be seen that both in China and abroad, the physical and mental health of youth has become a very important issue.

There are many factors that affect the health of youth, especially in the modern era of highly developed Internet and information technology, therefore the impact of social media should not be overlooked. The Global Digital Overview 2022 report shows that as of January 2022, global social media users are well over half of the world's total population, with an average of more than one million new social media users per day in the past year. According to the 49th Statistical Report on the Development Status of the Internet in China released by the China Internet Network Information Center (CNNIC), the size of China's Internet users has reached 1.032 billion, with an Internet penetration rate of 73.0%, of which the size of users of instant messaging applications has reached 981 million, accounting for 99.2% of the overall size of Internet users^[2]. The use of social media occupies a central position in people's daily life. Social media is widely popular among youth groups because of its fusion of social attributes and media attributes, which can meet diverse social needs. For example, in 2010, a study of young people over the age of 18 showed that 73% used Facebook, while 47% and 14% used MySpace and Collage's, respectively^[3]. By 2018, a study of college students showed that WhatsApp had become one of the most important social media platforms^[4]. A study in the United States showed that in 2015, 90% of 18-29 years old were already using social media platforms^[5].

Chinese scholar surveyed college students in nine universities in 2018 and found that college students use social media such as WeChat, Weibo, and QQ with high frequency and for a long time^[6]. A study by Pouwels et al. found that adolescents generally have multiple social media accounts and spend most of their time on social media each week^[7]. This shows that social media has become fully integrated into youth everyday life.

At the same time, the question arises as to what effect the development and use of social media has on the health of youth. However, existing research on the effects of social media use on youth health is inconsistent, with both optimistic findings of positive effects and skeptical claims of negative effects. Some researches showed that social media use can increase social support and online social capital, thereby promoting mental health^[8-9]. Other researches found that very frequent social media use can lead to decreased sleep quality as well as disturbed levels of sleep patterns, which can be harmful to people's mental health and well-being^[10-11]. This article argues that this is actually a question of perceptions of the impact of social media use on health from different perspectives, with the former focusing on whether social media use affects youth health and the latter on whether the intensity of social media use affects youth health.

While the above literature has drawn some basic conclusions about the relationship between social media use and health, there is still less exploration of the mediating mechanisms of how social media use affects health. Humans are social animals, and social interactions affect both physical and mental health. It has been shown that social interaction in reality can help people accumulate social networks, seek emotional support, and relieve psychological stress in a timely manner, thereby promoting health^[12]. Social interaction in reality can also improve health by increasing social contact and enhancing psychological capital levels^[13]. Has the increasing development of social media weakened people's social interaction in reality? What role does social interaction in reality play in the impact of social media use on health levels? These questions are worth further investigation. Given that the main force of social media use is currently the youth, this study uses The 2017 China General Social Survey data to examine the relationship between social media use, social interaction in reality and health, taking the youth group as an example. Specifically, this survey examines the following questions: Does social media use weaken social interaction in reality? How does social media use affect youth health? What role does social interaction in reality play in this effect? The innovation of this article is that, in the context of global concern for youth health, exploring the relationship between social media use and youth health has obvious reference value for how to use social media to improve youth health. At the same time, in the context of less academic attention to social interaction in reality, it is important to study the role of social interaction in reality in the relationship between social media use and youth health, in order to improve the mechanism of the effect of social media use on health, and to supplement the existing theories and bring new thinking.

2. Literature review

Social media is described as "online social network used to disseminate information through online social interactions"^[14]. Essentially, it is an assembly of Internet-based applications, which allow users to talk, share information, provide feedback and network^[15-16]. The popular social media abroad are Facebook, Twitter, Instagram, Snapchat, LinkedIn, and in China are Weibo, WeChat, Tik Tok, QQ. Young people are often exposed to a large number of social media channels, engaging in various forms of information browsing and searching, interactive social interaction and individual experience sharing, all of which have a continuous and complex impact on their psychological state^[17].

Currently, domestic and international academic studies on the relationship between social media use and health include positive effect theory, negative effect theory, and indirect effect theory. First, scholars who hold the positive effect theory believe that social media enlarge social support network, enhance public perceptions of health and motivate them to adopt or change health behaviors^[18-20]. Social media can help youth groups strengthen their social connections and broaden their social relationships. Especially for young people with mental illness or experiencing negative emotions, social media is an important channel to find peers, share emotional experiences, seek outside support, and gain self and group identity^[21]. Studies have also found that using social media can reduce feelings of isolation, and get help to address mental health issues online on the other^[22]. Based on the study above, social media can be an important resource to enhance youth mental health. However, there are some scholars who support the negative effect theory, arguing that the use of social media can create tremendous anxiety in the face of the sheer volume of information and is detrimental to people's mental health^[23]. Popular social media platforms can create potential situations where individuals may be

victimized by negative comments or posts. Other finding suggests that very frequent social media use exposes people to chronic cyberbullying, displaces sleep or physical activity, and poses a threat to health^[24]. Furthermore, indirect effect theorists argue that social media use has no direct effect on health, but is essentially a function of social support^[25]. The majority of current national and international research still favors the positive effects theory, with the negative effects theory reflecting more on the overuse of social media. Other research suggested that the effects of social media use on adolescents' and young adults' health and well-being may depend on the specific way in which youth engage with the medium. In view of the above discussion, research hypothesis 1 is proposed.

H1: Social media use has a significant positive effect on youth health.

Social interaction refers to the mutual social activities of material and spiritual exchanges between people under certain socio-historical conditions^[26]. The relationship between social interaction in reality and personal health has been extensively analyzed in the past 20 years by domestic and international studies. A rich social life keeps a person's psychological stress under control. A famous experiment by Sheldon Cohen of Carnegie Mellon University, designed to examine the correlation between health status and social connections, showed that people with more social connections were less likely to have the flu. Other foreign scholars have found that inadequate social ties or social isolation have a negative impact on mental health^[27]. Social interactions can foster the development of social norms, support behaviors that promote health and limit unhealthy habits^[28]. An individual's mental state is significantly associated with an individual's informal social interactions and formal group participation^[29]. Domestic scholars have also found that benign social interactions and harmonious interpersonal relationships can continuously promote the development of human beings and society, and positive and healthy social interactions can promote people's physical and mental health. Social interactions enhance health by increasing social capital and self-organized group interactions in social interactions play a positive role in alleviating depressive states^[30-31]. It has also been found that social interaction in reality is an important factor influencing the level of health of individuals, and the frequency of interaction with neighbors is more likely to affect a person's well-being, and thus a person's health, than the frequency of interaction with relatives^[32]. The above discussion confirms that social interaction in reality has a positive effect on personal health, research hypothesis 2 is proposed.

H2: Social interaction in reality has a significant positive effect on youth health.

Different scholars have different views on the issue of how social media use affects social interaction in reality. Some scholars believe that the use of the Internet and social media has weakened social interaction in reality and created a sense of distance and isolation among people^[33]. Social interactions on mobile social media weaken the emotions in the network, make people ignore real-life social objects, lack learning social skills, and therefore can have an impact on social interaction in reality^[34]. However, there are some scholars who take a positive view of the issue. Michael Kearney and his research team tracked a group of social media users from 2009 to 2011 and found that changes in social media use did not lead to changes in face-to-face social interaction. Professor Jeffrey Hall from the University of Kansas found that people are actually able to comfortably distinguish between using social media and having social interaction in reality^[35]. It has also been suggested that people use the Internet to develop online virtual social networks only as a symptom, but primarily to maintain social networks in reality^[36]. Social media platforms offer near continuous opportunities to connect and interact with others, regardless of time of day or geographic location, facilitating social interaction in face-to-face settings^[37]. The use of social media also helps to strengthen already existing social networks, such as Facebook and Twitter, and can keep offline networks expanding through online communication^[38]. It is also believed that based on the connectivity of society, people who obtain health information on the Internet will disseminate it through virtual and real social networking, which in turn plays a positive role in the management of residents' health^[39]. Thus, it can be seen that social interaction in reality can be used as a mediating variable for social media use to influence individual health. Social media broadens the platform of people's social interaction, and this communication and interaction convenience will eventually bring benefits to social interaction in reality, and also help people to obtain, communicate, and receive information about health, thus improving health. Combining the above arguments, research hypotheses 3 and 4 are proposed.

H3: Social media use has a significant positive effect on social interaction in reality.

H4: Social interaction in reality plays a mediating role between social media use and youth health.

3. Methods

3.1 Data

We used data from the 2017 China General Social Survey (CGSS). The CGSS is the first national, comprehensive and continuous large-scale social survey project in China, jointly conducted by Renmin University of China and the China Survey and Data Center. The 2017 CGSS data cover variables such as social media use, health status and real-life social status needed for the study of this paper, and the survey sample covers most provincial administrative regions, which is authoritative and representative. As this study focused on youth groups, and previous research indicates that 45 years old is usually an important marker for the middle-aged and young people, we selected the age group of 18-44 years old for the study, and removed non-youth data, irrelevant, missing values and outliers to obtain a total of 4427 valid samples.

3.2 Variable description

(1) Dependent variable: Health level. Health can be measured by objective and subjective indicators, and this study uses self-assessed health status to measure health, which is in line with the definition of health by the World Health Organization (WHO, 1946), which means "not only the absence of disease or physical fitness, but also physical and mental health, as well as social well-being and perfection"^[33].

(2) Independent variable: Social media use. Social media use is measured by the frequency of social activities and self-presentation on social media. Social activities refer to communication with people through Email, QQ, WeChat, Skype, etc. Self-display refers to recording and sharing one's mood on platforms such as WeChat friend circle, QQ space, and Weibo.

(3) Intermediary variable: Social interaction in reality. Social interaction in reality is mainly characterized by the frequency of interaction. Referring to the existing research literature, the frequency of interaction with friends and neighbors in the questionnaire was selected as the observed significant variable of social interaction in reality.

4. Data analysis and results

4.1 Reliability and validity analysis

Cronbach a index, composite reliability (*CR*), factor loading, and average variance extracted (*AVE*) were used to evaluate the reliability and validity of the measurement model. Referring to the criteria proposed by Hair, Ringle, & Sarstedt (2013), a reliability coefficient greater than 0.7 indicates good reliability; between 0.35 and 0.7, acceptable; and below 0.35, poor reliability. Table 1 shows that the *Cronbach a* values ranged from 0.441 to 0.581, indicating satisfactory reliability. The validity tests included content validity and construct validity tests. The CGSS questionnaire was validated by experts, and the data had high content validity. The *KMO* coefficients of social media use and social interaction in reality were both around 0.5, which was acceptable. The sample data distribution passed the Bartlett's sphericity test, allowing for factor analysis. The factor loadings for both variables were found to meet the criterion of greater than 0.7. Construct validity includes convergent validity and discriminant validity. The convergent validity of the scale can be tested by the mean variance extracted values. The *C.R.* values and *AVE* values of the model were also greater than 0.6, indicating that the convergent validity of the measurement model was acceptable. The correlation coefficient of the two variables, 0.031, whose square is smaller than the mean variance extracted value, indicates a good differential validity.

Table 1: Results of reliability and validity analysis.

| Variable | <i>Cronbach's a</i> | <i>C.R.</i> | <i>AVE</i> | <i>KMO</i> | Bartlett | Factor loading |
|-------------------------------------|---------------------|-------------|------------|------------|--------------------|--------------------------|
| Social interaction in reality (SIR) | 0.441 | 0.785 | 0.646 | 0.500 | 394.134 (0.000) | SIR1 0.804 SIR2 0.804 |
| Social media use (SMU) | 0.581 | 0.827 | 0.706 | 0.500 | 818.609 (0.000) | SMU1 0.840 SMU2 0.840 |

4.2 Gender differences in social media use, social interaction in reality, and health

The results of the independent samples t-test showed that there was a significant difference between social media use and social interaction in reality by gender, with females scoring higher on social media use than males and males scoring higher on social interaction in reality than females, while there was no significant gender difference in health self-assessment scores. (Table 2)

Table 2: Test for differences in gender for each variable($M \pm SD$).

| | Social media use | Social interaction in reality | Health |
|----------|------------------|-------------------------------|------------------|
| male | 6.92 \pm 0.968 | 5.35 \pm 1.788 | 4.04 \pm 0.908 |
| female | 7.01 \pm 0.947 | 5.29 \pm 1.858 | 3.95 \pm 0.908 |
| <i>t</i> | 2.994** | -1.165* | -3.332 |

Notes: Levels of significance: *10 %, **5 %, and ***1 %.

4.3 The mediator effect of social interaction in reality in social media use and health

The correlation analysis of the three variables of social media use, social interaction in reality, and health, as shown in Table 3, showed a significant positive correlation between the three.

Table 3: Correlation analysis of the variables.

| Construct | $M \pm SD$ | Social media use | Social interaction in reality | Health |
|-------------------------------|------------------|------------------|-------------------------------|--------|
| Social media use | 6.97 \pm 0.958 | 1 | | |
| Social interaction in reality | 5.32 \pm 1.825 | 0.031* | 1 | |
| Health | 3.99 \pm 0.908 | 0.084** | 0.056** | 1 |

Notes: Levels of significance: *10 %, **5 %, and ***1 %.

To explore the mediating role of social interaction in reality between social media use and health, the mediating effect was tested using model 4 in the SPSS macro program PROCESS prepared by Hayes, using the bias-corrected percentile Bootstrap method test, with 5000 replicate samples and 95% confidence intervals calculated, as shown in Tables 4 and 5.

After controlling for gender, the results found that: social media use had a significant positive predictive effect on health, and when the mediating variable social interaction in reality was put in, social media use still had a significant positive predictive effect on health. Social media use had a significant positive predictive effect on social interaction in reality, and social interaction in reality also had a significant positive predictive effect on health, indicating that social interaction in reality partially mediated the relationship between social media use and health. The results of the mediation effect value analysis showed that the direct effect of social media use was 0.0805, while the indirect effect of social interaction in reality was 0.0016, accounting for 1.95% of the total effect.

Table 4: Mediated effects model for social interaction in reality.

| Construct | Health | | SIR | | Health | |
|-----------|------------|-----------|---------|----------|------------|-----------|
| | β | <i>t</i> | β | <i>t</i> | β | <i>t</i> |
| Gender | 0.0981 | 3.6001*** | 0.0692 | 1.2585 | 0.0964 | 3.5381*** |
| SMU | 0.0821 | 5.7780*** | 0.0603 | 2.1055* | 0.0805 | 5.6722*** |
| SIR | | | | | 0.0259 | 3.4816*** |
| <i>R</i> | 0.0999 | | 0.0362 | | 0.1126 | |
| <i>F</i> | 22.2827*** | | 2.8951* | | 18.9331*** | |

Notes: Levels of significance: *10 %, **5 %, and ***1 %.

Table 5: Total, direct and mediated effects.

| Construct | Effect | BootSE | BootLLCL | BootULCL | Ratio |
|-----------------|--------|--------|----------|----------|--------|
| Total effect | 0.0821 | 0.0142 | 0.0000 | 0.0542 | |
| Direct effect | 0.0805 | 0.0142 | 0.0000 | 0.0527 | 98.05% |
| Indirect effect | 0.0016 | 0.0009 | 0.0000 | 0.0037 | 1.95% |

Notes: Levels of significance: *10 %, **5 %, and ***1 %.

5. Discussion

This paper examines the impact of social media use on youth health and the mediating effect of social interaction in reality by using CGSS2017 data as a research sample. This study draws the following conclusions: First, social media use significantly and positively improves youth social interaction in reality and health. On the one hand, social media use can help youth groups enhance social connections, broaden social relationships, and achieve the expansion of offline networks maintained through online communication; on the other hand, it can also reduce the cost of obtaining and disseminating health information to youth and promote health levels. Second, youth social interaction in reality significantly and positively improves health. Social interaction in reality improves the level of social support of individuals and plays the role of psychological capital, which brings positive impact on health. Third, social interaction in reality partially mediated the positive impact of social media use on youth health. Social media use facilitates individual information and emotional communication, which eventually returns to social interaction in reality and promotes the development of social networks, which in turn exert psychological regulation mechanisms to influence individual health. The results of the study are consistent with the proposed hypotheses, providing a new reference for the ongoing investigation of the effects of social media use on health and its mechanisms of action.

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