Research Article

Digital Media Usage and Individual Well-being: Evidence from the China Family Panel Survey

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Abstract

Previous studies rarely explored either the non-linear effect of time or the mechanism of purpose and reference as contextual factors that affect individual well-being. This study was conducted to examine the relationship between digital media usage and the levels of subjective well-being by using data from the China Family Panel Studies. The multiple linear regression model was applied to this research. The results showed screen time within 18 hours per week had a positive impact on subjective well-being for the sample (n = 8,531). Any screen time over 18 hours per week had a negative impact. Digital media usage for work and social activities was found to be related to subjective well-being (p < 0.05). The usage for consumption was associated with lower levels of subjective well-being (p < 0.05). The effect of digital media on individual well-being is dependent on time control, the gratification of personalized needs in the process of use, and the reference frame in the pseudo environment.

The pursuit of happiness is an eternal topic for human beings. According to the *World Happiness Report*, there are large gaps in happiness between countries. Although the comprehensive national power of China has been growing, the happiness of Chinese people has not been steadily improved. The period from 2017 to 2020 witnessed a decline in Chinese subjective well-being from 79 to 94 in the ranking of the happiness index of the world [1]. Then the latest data show for the 2020-2024 country rankings, in which China's ranking has risen from 94 to 60 [2]. Meanwhile, the rapid growth of Internet use — combined with the use of other Information and Communication Technologies (ICTs), such as personal computers and mobile devices are potentially harmful or helpful to people's psychological well-being. There are 1092 million Internet users and 77.5% Internet penetration according to the *53rd China Statistical Report on Internet Development* [3]. It is worth mentioning that people are becoming posthuman. The posthuman view configures human beings so that they can be seamlessly articulated with intelligent machines [4].

Technology cybernetics alarm people that media has become an extension of us, which changes our ideology and behavior.

These arguments should be reappraised profoundly on the impact of ICTs on human beings. The dilemma of whether digital media are improving or diminishing subjective well-being has been intriguing researchers and the public for decades [5]. Previous research has provided technology access is positive for well-being in general [6], but other surveys suggested accessing modern information technologies had a negative impact on subjective well-being [7]. Our lifestyle implies a new way of combining ethical values with the well-being of an enlarged sense of community [8]. Being digitalized in networking has a significant impact on individual perception and judgment of life. It is necessary to measure subjective well-being under the current media technology environment.

We engage in critical discussions of the key impacts and factors arising from the scale and speed of digital media development on individual and human well-being, drawing

on a **multidisciplinary perspective of society, psychology, and communication,** as well as on both theoretical and empirical research.

Digital media use time and subjective well-being

Subjective well-being is defined as a person's cognitive and affective evaluations of his or her life as a whole [9]. Media constructs the situation through the choosing, processing, and reporting of information, changing people's cognition and evaluation. Although media technology is evolving, its impact on subjective well-being continues. The theoretical arguments outlined earlier stand in sharp contrast with regard to their implications as to how time spent online may relate to life satisfaction.

Active Internet user manage their time more effectively and/or create networks and virtual communities that enhance perceived social support, help to reduce stress, and aid in obtaining self-verification, as suggested by Robinson, et al. [10]; [11], then we can expect that increased time online should be associated with increased life satisfaction and decreased loneliness. In contrast, data collected from adult U.S. residents revealed that time spent browsing the web is positively correlated with loneliness and negatively with life satisfaction [12] . Empirical research on 500 students showed that heavy digital media users were less happy compared to light users [13].

Furthermore, excessive amounts of time spent online was an important sub-dimension of problematic Internet use measurement [14] and Internet addiction test [15]. In the early days of Internet development, scholars paid attention to the disorder of physical and mental nature caused by Internet addiction [16,17]. More recent studies posed questions about the relationship between problematic media use, addiction, and subjective well-being [18-22]. In addition, excessive digital media use increases the risk of psychological problems [23] .

We know that digital media use time plays a different role in happiness under different circumstances based on previous works. However, these studies do not provide much attention to time flow. The sensation of subjective well-being of digital media users would be changed. Therefore, the current study presents hypothesis 1, as follows:

Hypothesis 1: Digital media use time has a non-linear effect on subjective well-being.

Different purposes and subjective well-being

Early in the Internet revolution, Kraut, et al. [24] proposed two plausible and theoretically interesting mechanisms to explain how digital media could affect well-being.

The displacement hypothesis proposed that online communication would reduce digital media users' psychological well-being, because it would replace spending time in face-to-face social activities, thereby reducing the quality of these relationships. In contrast, the stimulation hypothesis stated that people using the Internet are substituting poorer quality

social relationships for better relationships, especially for distant parents, siblings, or friends.

A third hypothesis addresses the inconsistency by proposing that the effects of media differ based on their needs or motivations. Katz, et al. [25] pointed out media consumption was purposive, and that users actively sought to fulfill their needs via a variety of uses. Since the use and gratification model (U&G) was developed, it provided a new perspective for communicative effects research. U&G is still widely applicable and active in the digital environment [26,27].

A large body of literature suggests digital media can meet different needs, so as to affect the perception of well-being. Firstly, digital media as a learning source can help users understand unclear societal events [28] and gain knowledge [29,30]. Secondly, digital media as an auxiliary tool for work can compensate perceived stress of commuters [19], provide more opportunities for job seekers [31,32], and help people deal with things more effectively. Thirdly, digital media provides technical support for social interaction. Different online communication media are used for communicating with different types of people (or, more precisely, within different kinds of relationships) and, in turn, will affect relationships and well-being [5,33]. Fourthly, online entertainment will offer different experiences of happiness. Leisure use of social media or entertaining oneself with games is a way for psychological relaxation or causing mental disorder [34,35]. Fifthly, online consumption experiences are an important source of well-being [36,37] . Specially, shopping online was gradually infiltrated into the daily lives of everyone.

With the coming of economic globalization and the information explosion era, digital media is well known for its powerful function and has come into every field of human society. It is playing an increasingly important role in our daily lives. In China, for example, digital media promotes the development of consumption, employment, education, entertainment, and communication, which has improved the modernization level and material living standard.

There was, however, no comprehensive analysis of the relationship between multiple digital media use purposes and subjective well-being in the existing research. In our study, five types of purposes and the different grades of intensities of digital media use will be considered in relation to the situation in China.

Hypothesis 2: Subjective well-being is associated with the purposes and frequencies of digital media usage.

User characteristics, references, and subjective well-being

During the last few decades, life satisfaction has been investigated by an impressive number of studies around the world though the associations between various life satisfaction variables and overall life satisfaction are complex. On the one hand, with the aid of macroscopic explanation, cultural and situational factors concerning life satisfaction have been

observed. On the other hand, a microscopic explanation for subjective well-being is personality differences. [38,39].

Nowadays, our lives are being digitalized and networked. It is necessary to take personal characteristics and cultural differences into account in understanding the relationship between digital media use and subjective well-being [40-43]. Different perceptions of the same social fact are derived from different references the actors bring with them and choose (consciously or subconsciously) to use [44]. People live not only in the natural and social environment but also in the pseudo-environment [45]. The Pseudo environment provides people with heterogeneous knowledge and culture, meaning the global population of Internet users has access to diverse reference groups. Social reference theory provides a good perspective to explain and understand the meaning and factors of subjective well-being. These evaluations and cognitive judgments of subjective well-being are determined by the comparative reference a person chooses.

Compared with Western countries, China's cultural background and social structure are different. In the contemporary context, the living environment and reference to Chinese residents have their own characteristics. Overall, this study attempts to establish a more specific and nuanced picture of online time and frequency in relation to subjective well-being levels by using different domains of digital media use and to determine whether there are differences between individuals.

Hypothesis 3: Subjective well-being varies among different digital media user groups with diverse characteristics and references.

Methods

Data source

Data for this study were obtained from the China Family Panel Studies (CFPS) collected in 2018 by the Institute of Social Science Survey (ISSS) of Peking University, China. The CFPS is a near-nationwide, comprehensive, longitudinal social survey that is intended to serve research needs on a large variety of social phenomena in contemporary China.

This survey was administered in 25 provinces/ municipalities/ autonomous regions, through a random sampling technique. The sampling process focused on the economic and non-economic welfare of Chinese residents, as well as many research topics including economic activities, education acquisition, family relations and family dynamics, population migration, physical and mental health, etc.

The ISSS staff carried out an investigation by implicit stratification, multi-stage, multi-level with probability proportionate to size sampling, which was authoritative and scientific. Extensive information is collected through computer-assisted face-to-face interviews of family members. The CFPS included five main types of questionnaires: community questionnaire, family member questionnaire, family questionnaire, adult questionnaire, and children's

questionnaire. In this current research, we used the most recent adult questionnaire data.

Measures

Dependent variables: The self-report method was a popular way to measure subjective well-being, which has been applied in previous studies in China. For example, J. Wang, et al. [46] chose one question from the Chinese General Social Survey 2015 and S.J. Sun, et al. [47] chose several questions from China Health and Nutrition Survey 2006.

Following the CFPS2018 survey questionnaire, we used the question "How happy do you feel?" to measure the subjective well-being of the individual. The response options were scored on a 10-point scale, ranging from extremely unhappy to extremely happy, and are taken as ordinal. The answers and response range were applied to measuring the well-being of a nationally and regionally representative sample of the Italian population [48].

Independent variables: Personal Strategies for digital media use include time, purpose, and frequency of work, study, social, and entertainment, respectively. We chose the open question "How many hours do you spend on the Internet in your spare time every week?" to record online time. Because the original response is from 0 to 168 hours, which is the approximate value and the values are not all integers. We coded media usage times based on quartiles to clearly describe the time span, as follows: 0 = Time≤5, 1 = 5<Time≤10, 2 = 10<Time≤18, 3 = Time>18.

Using the questions "In general, the frequency of study/ work/social/entertainment/consumption through the Internet?" to measure the purposes and intensities. The responses were coded as follows: 1 = almost every day, 2 = three or four times a week, 3 = one or time a week, 4 = two or three times a month, 5 = once a month, 6 = once several months, and 7 = never. We reverse-encoded the frequency variable to ensure that the increase in the value was consistent with the growth of the frequency.

Control variables: The demographic variables in the questionnaire included age, gender, hometown, education, after-tax income, marital status, and health problems. Based on previous studies, these demographic variables were also important in explaining subjective well-being [49]. Age and after-tax income were continuous variables. Gender, Hometown, and marital status were nominal variables. Education (1-8) as an ordinal variable represented the improvement of education level. Health problem (1-5) is an ordinal variable. The higher the value, the more health problems.

Statistical analyses

Statistical model: The relationship between digital media and subjective well-being was modelled on different methods: structural equation modeling [47] and regression model [46]. Methodologically, the U&G rested on the assumption that people were aware of their needs and able to identify their sources of satisfaction [25]. Taking the character of the explanatory variables into consideration, the multiple linear regression

model was suitable for this research. Statistical analyses were conducted by Stata version 14.0 for Mac. We estimated the subjective well-being in China using the following model:

$$SWB = \beta 0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 controli + \varepsilon i$$

Descriptive statistics: After removing cases with severe missing data on most key variables in our later analyses, a sample size of 8,531 was obtained. T-test and chi-square test were used for the comparison between females and males on demographic variables. The mean and standard deviation of each variable and their gender difference comparison are shown in Table 1.

All samples in the study range in age from 16 to 84 and comprised about 42.56% females and 57.44% males. The percentage of rural residents accounts for 68.35%, which is more than twice that of urban. The male's average age (M=39.55, SD=10.91) and after-tax income (M=3,983.31, SD=4,992.11) are higher than those of women. While, in terms of health problems, the score of females (M=2.90, SD=1.07) is higher than males (M=2.76, SD=1.07). There is a slight difference in education level and marital status between females and males. The average scores of the female are 3.52 (SD=1.46) and 2.01 (SD=0.55) respectively compared with the average scores of the male are 3.56 (SD=1.30) and 1.95 (SD=0.5) respectively.

Results

Correlation analysis of subjective well-being, digital media use, and demographic variables

The result of bivariate correlation analysis indicates that a higher subjective well-being level is significantly associated with the frequency of study, work, socialization, and consumption, as well as education, after-tax income, and health problems (Table 2). As can be seen in Table 3, the subjective well-being scores of the female (M=7.48, SD=1.93) and the male (M=7.49, SD=1.96) are approximately the same across our sample. The average score of subjective well-being of urban residents (M=7.61, SD=1.75) is stronger than that of rural residents (M=7.43, SD=2.03). Among the five marital states investigated, the married group is the happiest, while the widowed group is the least.

Assessment of the factors related to subjective well-being

We examined the role of digital media use time in explaining subjective well-being as well as the relationship between the frequency of digital media use for various needs and subjective well-being by conducting multiple regression analyses. As reported in Table 4, a series of regressions were computed to determine if digital media use frequency across the various domains could predict the level of subjective well-being.

The results indicate that the digital media use time is positively associated with the level of satisfaction. The digital media use frequencies of work and social contact have a significant and positive impact on subjective well-being ($p < 0.05$). However, the frequency of consumption notably and negatively influences subjective well-being ($p < 0.05$). There are remarkable and positive relations between the after-tax income and subjective well-being. Personal perceived well-being increases with the improvement of income. While health problem significantly and negatively correlates with subjective well-being. Personal perceived well-being declines with the increase in problem level. Hometown and marital status are important factors in individual happiness. Being married ($p < 0.01$) rather than unmarried, divorced, or widowed is strongly associated with higher subjective well-being. In contrast, people with widowed ($p < 0.01$) have the lowest level of subjective well-being.

Based on the results of multiple regressions, we investigated a further measure of excessive digital media use consistently reporting the adjacent value (Table 5). The square coefficient of digital media use time variable is negative and significant ($p < 0.05$) related to subjective well-being according to model 1. The coefficients of the three categorical variables in model 2 are 0.12, 0.18, and 0.13 respectively, and all pass the significance test.

Discussion

The results demonstrated that the impact of online time is not stable, which has changed over time. We calculated that the axis of symmetry is about 2. The figures of model 1 shown in Table 5 indicated that screen time within 18 hours per week

Table 1: Description of demographic variables with gender comparisons.

Variable	Total (N=8,531)	Female (N=3,631)	Male (N=4,900)	Gender Comparison Statistics	
	M±SD / f (%)	M±SD / f (%)	M±SD / f (%)	t/x²	p
Age	39.13±10.49	38.56±9.86	39.55±10.91	-4.41	<0.001
Education	3.54±1.37	3.52±1.46	3.56±1.30	-1.32	0.19
After-tax Income	3,432.63±4,387.94	2,689.49±3,263.33	3,983.31±4,992.11	-14.45	<0.001
Health Problem	2.82±1.07	2.90±1.07	2.76±1.07	5.84	<0.001
Hometown	1.63±0.93	1.65±0.93	1.62±0.93	1.05	0.30
Rural	5,832 (68.35)	2,461 (28.84)	3,371 (39.51)		
Urban	2,701 (31.65)	1,171 (13.72)	1,530 (17.93)		
Marital Status	1.98±0.57	2.01±0.55	1.95±0.58	75.51	<0.001
Unmarried	981 (11.50)	306 (3.59)	675 (7.91)		
Married	7,189 (84.25)	3,182 (37.29)	4,007 (46.96)		
Cohabiting	30 (0.35)	7 (0.08)	23 (0.027)		
Divorced	245 (2.87)	88 (1.03)	157 (1.84)		
Widowed	88 (1.03)	49 (0.57)	39 (0.46)		

had a positive impact on subjective well-being for the sample. Any screen time over 18 hours per week had a negative impact. Model 2 in Table 5 further proved that with the increase in online time, subjective well-being showed a trend of rising first and then declining. Within 10-18 hours of digital media use every week, the subjective well-being of the audience was the strongest. Our findings explained that the influence of digital media use time on happiness is nonlinear, which confirmed Hypothesis 1 (Figure 1).

Indeed, many advantages of digital media cannot be ignored, such as the ability to search for information, to assist in work assignments and daily activities, as well as provide multiple communication channels. Digital media with unprecedented development has brought great convenience and efficiency, which not only raise the material living standard but also improves subjective well-being. However, increased addiction to media, reduces sleep time and quality as well as non-screen activities, such as outdoor activities and cultural activities, which can negatively influence individual physical and mental health [50,51]. Without a doubt, if people suffer from chronic sub-health problems, their subjective well-being will be reduced.

Furthermore, we tested predictions about the direction of the relationships between the purposes and intensity of digital media use and subjective well-being. Hypothesis 2 derived support for three different directions. The first prediction posited that digital media use for work and social contact

Table 4: Multiple regressions of digital media usages on subjective well-being with all control variables (N = 8,531).

Variables	Model 1 Coef. (t)	Model 2 Coef. (t)	Model 3 Coef. (t)
Digital Media Use Time	0.05 (2.89) ***	0.03 (1.52)	0.04 (2.27) **
Freq for Study		0.01 (0.50)	-0.00 (-0.01)
Freq for Work		0.03 (3.32) ***	0.02 (2.25) **
Freq for Socialization		0.02 (1.80) *	0.03 (2.20) **
Freq for Entertainment		0.01 (0.88)	0.01 (0.88)
Freq for Consumption		-0.01 (-0.66)	-0.03 (-2.22) **
Age			0.00 (0.14)
Gender (Male)			-0.02 (-0.54)
Education			0.02 (1.23)
After-tax Income			0.04 (3.25) ***
Health Problem			-0.41 (-21.04) ***
Hometown (Urban)			0.12 (2.29) **
Marital Status			
Married			0.76 (10.68) ***
Cohabiting			0.44 (1.27)
Divorced			-0.70 (-5.15) ***
Widowed			-0.83 (-3.86) ***
Constant	7.41 (218.01) ***	7.13 (84.75) ***	7.31 (40.22) ***
R^2	0.001	0.004	0.09

Note: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 5: The nonlinear effect of digital media use time on subjective well-being (N = 8,531).

Variables	Model 1 Coef. (t)	Model 2 Coef. (t)
Digital Media Use Time	0.17 (2.59) ***	
Digital Media Use Time^2	-0.04 (-2.00) **	
Digital Media Use Time (0= "Time≤5")		
5<Time≤10		0.12 (2.09) **
10<Time≤18		0.18 (2.89) ***
18 <Time		0.13 (2.11) **
Freq for Study	-0.00 (-0.04)	-0.00 (-0.04)
Freq for Work	0.02 (2.28) **	0.02 (2.28) **
Freq for Socialization	0.03 (2.08) **	0.03 (2.08) **
Freq for Entertainment	0.01 (0.78)	0.01 (0.78)
Freq for Consumption	-0.03 (-2.18) **	-0.03 (-2.18) **
Control Variable	Yes	Yes
Constant	7.31 (40.18) ***	7.31 (40.17) ***
R^2	0.09	0.09

Note: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 2: Bi-variate analyses of subjective well-being and main independent variables (N = 8,531).

Variables	Subjective Well-being	
	r	p
Digital Media Use Time	0.03	0.004
Freq for Study	0.04	<0.001
Freq for Work	0.06	<0.001
Freq for Socialization	0.04	<0.001
Freq for Entertainment	0.03	0.006
Freq for Consumption	0,03	0.007
Age	-0.03	0.012
Education	0.06	<0.001
After-tax Income (RMB)	0.07	<0.001
Health Problem	-0.22	<0.001

Table 3: Correlation analyses of subjective well-being and demographic variables with comparison (N = 8,531).

Variables	Subjective Well-being		
	M±SD	t/F	p
Gender	7.49±1.95	-0.26	0.791
Female	7.48±1.93		
Male	7.49±1.96		
Hometown	7.49±1.95	-4.15	<0.001
Rural	7.43±2.03		
Urban	7.61±1.75		
Marital Status	7.49±1.95	66.68	<0.001
Unmarried	7.05±1.99		
Married	7.61±1.88		
Cohabiting	7.20±2.17		
Divorced	6.18±2.30		
Widowed	5.77±2.69		

would increase subjective well-being with increasing online frequency. The second prediction posited exactly the opposite: that digital media use for consumption would decrease subjective well-being with increasing online frequency. The third prediction suggested that there was no obvious influence on subjective well-being with the increase in the frequency of online study and entertainment examined here.
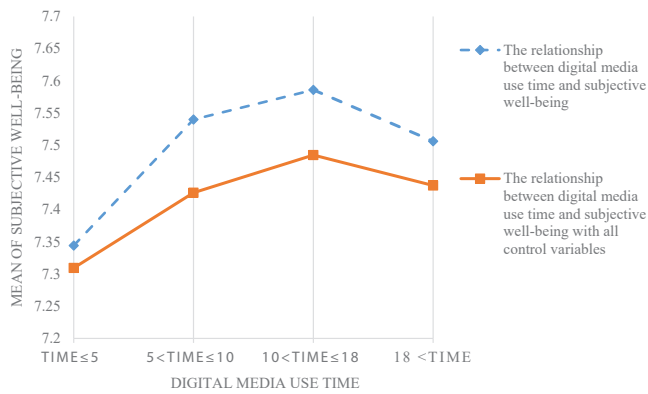
Figure 1: Intraoperative image, Complete section of the pancreas body.

We suggest two potential explanations for this variation including endogenous and exogenous mechanisms. The explanation of the endogenous mechanism could be that audiences have various needs in all aspects of their life, which can be gratified by choosing and using different kinds of media and the types of content that satisfy their psychological well-being. The degree of subjective well-being depends on the characteristics of the user and a comparison of living environment and social status [46,52-54]. The explanation of the exogenous mechanism could be that what audiences see in the pseudo-environment internalizes new experiences, which become their reference system in the pseudo-environment. We focus on the nature of the relationship between situations and how judgments are made through reference [44,55]. It would be unwise to consider any of these as existing in isolation.

More specifically, digital media plays an important role in the social and work fields in a fast-paced modern life. Digital media forms bonds between families, friends, and Colleagues. People are motivated to use social media supported by mobile Internet to establish social networks in order to connect with each other and maintain existing relationships. A longitudinal study in China shows that the use of the Internet can expand the channels of real interpersonal communication, give people the opportunity to build multiple interpersonal relationships, form rich social networks, and obtain more social capital, so as to enhance their sense of happiness [56]. The individual could make full use of the texts, pictures, emoticons, and short videos online to improve the effectiveness of instant communication. Multiple ways of communication decrease loneliness, while happiness and satisfaction with life may increase [57]. The other facet, digital media use is associated with subjective well-being through the mediation of social capital [58,59]. Building social trust and social support on social media increases life satisfaction and decreases depression [60,61]. Referring to the number of comments, likes, followers, and shares on social media, audiences are more likely to feel subjective well-being from interpersonal interaction on the Internet circumstances.

In the first aspect of online work, it is convenient for job seekers to get information on digital media. Using digital media to respond to a situation of unemployment may help individuals improve their well-being [31]. The second aspect, online work provides staff with flexibility in time and place. The evidence showed that longer commute time is associated with lower levels of both life satisfaction and happiness [62]. Working from home can improve the balance between work and life as well as the subjective well-being of employees [63]. Digital media changes the user's perception of time and space. When referring to network attributes, Internet service eliminates the differences in office locations and pays more attention to the effective use of time. Especially when people have to work at home due to environmental pollution or epidemic prevention, using the Internet can not only ensure work efficiency, but also protect themselves. When the Covid-19 pandemic forced many employees to telework, a prove from Chile showed that a positive effect of work from home on life satisfaction [64].

It is inevitable for audiences to be alarmed by the negative impact on consumption. Internet advertisement information and promotional activities are drawing in more consumers. However, language and rhetoric in commercial propaganda are both exaggerated and embellished. For example, models in the picture of the Internet environment always show the idealization of clothing. Users' expectations are higher because they refer to the beautified information. When there is a gap of expectation-confirmation between the ordering and fulfillment stages, their satisfaction and repurchase intention will decrease [65,66]. At present, online live shopping is very popular in China. The product promotion mode of video interaction is more likely to make people impulsive to buy than the web of pictures and words. Impulsive buying behaviors could be harmful to an individual's well-being, ill-being, and to society as regards overconsumption and sustainability [67].

Socio-demographic characteristics were compared among the user groups. After-tax income, health problems, hometown, and marital status are shown to greatly affect subjective well-being, supporting Hypothesis 3. This is because we should take the real environment and the pseudo environment into consideration. On the one hand, users have different characteristics in real life. They select media and content arising from social roles and individual dispositions in order to satisfy clusters of needs [2]. On the other hand, when these characteristics are connected to the Internet, they trigger a chain reaction. These variables will become user labels under the big data algorithm. That means users are personally and digitally engaged in the digital technology, they will actively or passively access the reference to comparison. Users depend on people and things around them and the situation happened to them developing realistic reference analysis [68]. The users' subjective well-being will change under the reference provided by the Internet information subscribed based on their own needs or recommended by the media algorithm.

Our research provides specific time management guidance for governments and individuals. Our results have several implications for future research on media effects. With the increase in people's demand for digital media, the turning point of online time that affects subjective well-being might change as well. Furthermore, this study performs a

theoretical framework combining user character and needs, media usage and roles, subjective well-being, and references system and forming the interaction between real life and network environment. We consider not only the influence of independent variables on dependent variables but also the relationship between mechanisms.

It is necessary to comprehensively consider the network environment and hardware devices for digital media research. China's Internet infrastructure is in good condition. Some data shows that Chinese netizens can have smooth internet access. For example, the total number of mobile phone base stations in China is 11.62 million, the number of Internet broadband access ports is 1.136 billion, and the accumulated construction of 3.377 million 5G base stations [3]. Internet users in China use multiple devices to access the Internet. The proportion of Chinese netizens using mobile phones to access the internet has reached 99.9%. The proportion of using desktop computers, laptops, televisions, and tablets to access the Internet is 33.9%, 30.3%, 22.5%, and 26.6%, respectively [3]. Although China's Internet access environment is in good condition, it is inevitable that there will be emergencies, like the inability to access selected websites. These temporary issues will not affect the overall perception of happiness among Chinese users. However, our research still has some limitations and cannot completely avoid some complex factors, such as the inability to ensure that the hardware of the users is on the same standard. Outdated

Hardware or hardware incompatibility with updates may bring a bad user experience, which will be investigated in future research [69].

Conclusion

In this article, we examined the influence of digital media use time and five categories of needs on subjective well-being based on cross-sectional data of CFPS. Empirically, hypothetical and theoretical models were validated and corrected by regression equations. Related mechanisms and heterogeneous effects on different groups of people were also explored. The effect of digital media use on individual subjective well-being was found to be dependent on time control, the gratification of personalized needs in the process of media use, and the reference frame in the pseudo environment.

The users succeed in utilizing the online time, which is helpful for improving subjective well-being. These findings support the utility of and need for specific rather than general digital media research. Users can take advantage of the benefits of digital media in social and work fields to improve their subjective well-being and avoid the reverse effect of bad consumption experience on subjective well-being.

Last, we note that digital media usage is highly complex, and so generalizations should be tempered with the recognition of many exceptions. Directions for future research clarifying the mediators of the media in subjective well-being, technology development, and user service are suggested. In addition, technology is always changing media types and communication

models, therefore the classifications of media types in the literature reviewed were quite coarse. In order to adapt to the changing and developing of the media, it is necessary to adjust the research on the relationship between individual well-being and media usage.

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