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The Current Status of Internet Fiction Addiction among Chinese Middle School Adolescents and Its Association with Self-Efficacy and Boredom Proneness

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Abstract: With the widespread utilization of the Internet, symptoms associated with Internet Fiction addiction are increasingly prevalent among Chinese netizens. This addictive behavior not only poses risks to personal well-being and emotional stability but also jeopardizes physical health. However, the relevant studies remain scarce and the definition of IFA is controversial. In order to address this gap, a questionnaire survey was conducted on 412 Chinese middle school students to investigate their levels of Internet Fiction addiction, self-efficacy, and boredom proneness. The findings reveal a significant positive correlation between Internet Fiction addiction and boredom proneness while no significant correlation is observed between IFA and self-efficacy. This discrepancy may be attributed to the fact that heightened levels of boredom proneness contribute to mood fluctuations, increased indulgence in daydreaming activities, as well as a distorted perception of time -- all factors that exacerbate the symptoms associated with Internet fiction addiction. The study further investigated risk factors for Internet fiction addiction among Chinese middle school students, enhancing research in this area and providing a reference for the prevention and correction of this issue.

Keywords: Internet fiction addiction, boredom proneness, self-efficacy, adolescents

1. Introduction

The Internet is becoming important for people's lives because of technological development. In China, the internet penetration rate reached an astonishing 76.4% by 2023 [1]. Internet addiction, also known as Pathological Internet Use (PIU), is a recognized concept that gained official recognition from the American Psychological Association in 1997, as proposed by Goldberg [2]. As a subclass of Internet addiction, Internet fiction addiction(IFA) has similar characteristics to Internet addiction. As a new phenomenon emerging from the secondary development of traditional novel literature on the Internet platform, in recent years, the reader and creator group of Internet fiction has also expanded rapidly. According to the data of the prior report, the number of users of Internet fiction in China has reached 528 million, accounting for 49% of the overall Internet users [1]. However, there are few studies on Internet fiction at present, which may be due to the concealment of Internet fiction addiction symptoms. Due to the low cost of online reading and the lack of attention to compulsive reading behavior itself, this phenomenon has not received enough attention. In fact, excessive reading of

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Internet fiction may indeed have some problems, such as body damage caused by maintaining reading posture for a long time without movement, insufficient sleep time caused by reading Internet fiction before going to bed, loss of interpersonal communication, and some negative emotions such as anxiety and depression [3]. Due to the insensitivity and difficulty of intervention in Internet fiction addiction, it is more important to understand the causes and mechanisms of Internet fiction addiction, which can help people better understand themselves as well as prevent and control the addiction phenomenon.

Self-efficacy refers to an individual's confidence and belief in their ability to achieve specific behavioral goals in a particular domain. In his book, Bandura provided a comprehensive exploration of self-efficacy based on his own research. That of others, advocating that self-efficacy involves not only an individual's estimation or confidence in their future performance of a specific activity but also directly influences their functioning within the dynamic psychological process of engaging in that activity. Self-efficacy manifests itself through four intermediary processes: choice, thinking, motivation, and psychosomatic reactions. It is worth noting that self-efficacy does not exist in isolation but is shaped by past experiences or information. Bandura identified four primary sources of information that contribute to the development and reinforcement of self-efficacy. These sources provide individuals with valuable insights and feedback, which in turn influence their self-efficacy beliefs [4]. Previous studies have established a noteworthy negative correlation between self-efficacy and social networking addiction among Chinese college students [5]. Considering the characteristics of self-efficacy in Internet addiction research and social networking addiction research, this paper will further explore whether self-efficacy is related to IFA.

What's more, the relationship between Internet Fiction addiction and boredom proneness(BP) will also be discussed. Boredom is a prevalent and ubiquitous emotional experience among human beings, often likened to one of the plagues of modern society. It is generally perceived as an emotional state characterized by unpleasant feelings, lack of stimulation, and low physiological arousal. When individuals experience boredom, they are susceptible to various stress-related issues and health problems. Research consistently demonstrates that boredom has a positive relation with addictive behaviors such as Internet addiction, adolescent delinquency, and job burnout [6,7]. Based on the characteristics of boredom, researchers have classified it into two types: state boredom and trait boredom. State boredom refers to a temporary feeling of monotony caused by a lack of external stimuli in a particular situation. On the other hand, trait boredom, also known as "chronic boredom" or "indifferent boredom," is a stable personality trait that does not change across time and situations. Research on boredom proneness is an important part of trait boredom [7]. High levels of boredom proneness tend to encounter more frequent episodes of tedium compared to those with lower levels, and frequent occurrences can lead to adverse consequences such as poor academic performance and engagement in risky behaviors [6]. Given the well-established correlation between boredom proneness and Internet addiction as well as its significant predictive value for adolescents' dependence on smartphones, this study aims to further explore the relation between BP and Internet fiction addiction based on previous research and proposes these three hypotheses:

Hypothesis 1: A significant positive correlation between Internet fiction addiction and boredom proneness can be observed.

Hypothesis 2: A significant negative correlation exists between Internet fiction addiction and self-efficacy.

Hypothesis 3: A significant negative correlation can be observed between boredom proneness and self-efficacy.

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2. Methods

2.1. Participants

A convenient sampling method was conducted for subject recruitment to select 420 participants from three middle schools in Suzhou. All participants were administered a unified questionnaire. Some questionnaires were excluded due to incomplete information. A number of 412 valid answers were collected, yielding an effective rate of 98.10%. The mean age of the subjects was 16.58 years old, with 107 males (25.97%) and 305 females (74.03%) participating. Notably, the subjects reported spending an average of 1.77 hours daily engaging in Internet fiction reading.

2.2. Measurements

2.2.1. Regular Information Supplement Questionnaire

To supplement the study, a set of general questions was employed to gather demographic information from the subjects. This information encompassed variables such as gender, age, family economic status, and whether the participants were the only children in their respective families. Additionally, the questionnaire aimed to capture characteristic details about the subjects' Internet fiction reading habits, including the specific types of Internet fiction they engaged with and the diverse methods they employed for accessing and consuming such content.

2.2.2. Internet Fiction Addiction Scale

The Internet Fiction Addiction Scale, updated by Zhang.D [8], was used in this study, which was expanded on the Chinese Internet Addiction Scale (CIAS-R). The scale used a 4-point Likert scoring system, and seven questions were excluded based on exploratory factor analysis principles. The final scale included 19 items organized into three categories: obsessive symptoms, withdrawal responses, and time management issues. A higher overall score indicated more serious Internet fiction addiction.

The scale performed well in confirmatory factor analysis, with x^2/df = 4.17, RMSEA = 0.07, NFI = 0.93, GFI = 0.91, and CFI = 0.94. The scale demonstrated great internal consistency(α=0.96).

2.2.3. Boredom Proneness Questionnaire

The Boredom Proneness Questionnaire (BPQ), developed by Chinese scholar Huang Hua, was utilized in this research. The questionnaire is a revised and adapted version of the Farmer and Sundberg Boring Tendency Scale [7], tailored to the cultural context of China and deemed more suitable for assessing boredom proneness among Chinese students. Comprising 30 questions rated on a 7-point scale, the BPQ encompasses two dimensions: external stimuli and internal stimuli. The external stimuli dimension encompasses four factors: monotony, constraint, loneliness, and tension. Conversely, the internal stimuli dimension comprises two elements: self-control and creativity. The six factors are denoted as F1 to F6 based on the content of the questions. In this study, the BPQ revealed high internal consistency(α =0.91).

2.2.4. General Self-Efficacy Scale

In this study, the Chinese version of the General Self-efficacy Scale (GSES), as tested by Wang Caikang et al., was employed [9]. The scale consisted of 10 Likert 4-point items. Wang's research demonstrated the reliability and validity of the Chinese GSES, with a Cronbach's α coefficient of 0.87, a retest reliability of 0.83 over a 10-day interval, a half-test reliability of 0.90, and a correlation

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exceeding 0.60 between the individual items and the total score. These findings indicate strong reliability and validity.

2.3. Statistical Analysis

The present study employed SPSS 22.0 for conducting descriptive statistics and correlation analysis. However, it is important to acknowledge that the utilization of self-report measures may introduce common method bias, potentially influencing the obtained results. To mitigate this issue, several precautionary measures were implemented in this study, including the separate administration of different questionnaires and a strong emphasis on ensuring data anonymity and confidentiality. Additionally, Harman's single-factor test was conducted as a post-statistical control to assess the presence of common method bias. Results from this test indicated that the factor characteristic root exceeded 1 and that the variance explained by the first factor was only 25.16%, significantly below the critical threshold of 40%. These findings suggest that no substantial common method bias exists within this study.

3. Results

3.1. Demographic Analysis

According to the results of the questionnaire, the mean age of participants is 16.58 years old, most of them come from rural areas and are not the only child. The specific details are shown below(See Table 1).

Table 1: Demographic Statistics

variable	category	number of people	Proportion(%)
Sex	male	107	25.97
	female	305	74.03
Rural or urban background	rural	280	67.96
	urban	132	32.04
Family economic status	well-off	154	37.38
	average	238	57.77
	challenging	20	4.85
Only child status	yes	132	32.04
	no	280	67.96
Duration of daily Internet Fiction reading	1h	196	47.57
	1-2h	149	36.17
	2-3h	33	8.01
	>3h	34	8.25

3.2. Descriptive Statistics

SPSS22.0 was used to conduct descriptive statistics on the total scores and sub-dimensional scores of the three variables, and the results are shown in Table 2.

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Table 2: Descriptive Statistics

	Internet Fiction Addiction	General Self-Efficacy	Boredom Proneness
Mean	32.027	24.915	45.265
Std. Deviation	9.987	5.175	27.580
Shapiro-Wilk	0.885	0.926	0.979
P-value of Shapiro-Wilk	< .001	< .001	< .001
Minimum	19.000	10.000	-34.000
Maximum	57.000	40.000	108.000

3.3. Correlation Analysis

Correlations between Internet Fiction addiction, boredom proneness, and self-efficacy scores among subjects are shown in Table 3.

Table 3: Pearson's Correlations

Variable		Internet Fiction Addiction	General Self-Efficacy	Boredom Proneness
Internet Fiction Addiction	*r*	—		
	p	—		
General Self-Efficacy	*r*	0.063	—	
	p	0.200	—	
Boredom Proneness	*r*	0.277	-0.234	—
	p	< .001	< .001	—

Table 3 reveals notable correlations among Internet Fiction addiction, boredom proneness, and self-efficacy scores. Firstly, a significant positive association was observed between the Internet fiction addiction score and the boredom proneness score ($r = 0.227$, $p < 0.001$), confirming hypothesis 1, which implies that higher Internet fiction addiction scores are associated with higher boredom proneness scores. Secondly, General self-efficacy was found to be significantly and negatively associated with boredom proneness ($r = - 0.234$, $p < 0.001$), affirming hypothesis 3, which indicates that lower self-efficacy scores correspond to higher boredom proneness scores. However, the correlation between self-efficacy and Internet fiction addiction was not significant ($r = 0.063$, $p = 0.200$). Consequently, hypothesis 2 is rejected, suggesting that higher Internet Fiction addiction scores do not necessarily correspond to lower self-efficacy scores.

4. Discussion

4.1. Relations between Self-efficacy, Boredom Proneness, and Internet Fiction Addiction

Internet addicts commonly exhibit shared personality traits, including low self-esteem, interpersonal sensitivity, social withdrawal, and negative self-evaluation. These individuals struggle with social interaction and have difficulty expressing their opinions, leading to feelings of loneliness and detachment. Consequently, they often seek solace in immersive fantasy worlds, deriving pleasure and

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satisfaction from storylines and characters, as a means to escape the disappointments of reality. Zhang Dongjing et al.'s research demonstrated a positive link between neurotic personality traits and Internet Fiction addiction [8]. Neurotic personality traits primarily encompass emotional instability and are associated with heightened levels of negative emotions [10]. These findings suggest a potential relationship between Internet Fiction addiction and negative emotional experiences.

People with psychological problems (such as loneliness and depression) are more inclined to interact online than face-to-face because it is easier to compensate for their lack of social skills. Other research supports the idea that some people use the Internet to cope with negative emotions [11]. The results of this research also demonstrate that IFA shares similar characteristics with Internet addiction. The higher the propensity for boredom, the greater the likelihood of IFA.

When studying the relationship between boredom proneness and time perception, researchers found that individuals with low boredom proneness can estimate time more accurately, while individuals with high boredom proneness show more mistakes in time estimation and tend to overestimate time [12]. This may also provide an alternative explanation as to why individuals with a higher propensity for boredom are more susceptible to Internet Fiction addiction. One of the possible reasons could be attributed to the inaccurate estimation of time. The relationship between BP, time perception, and Internet addiction can be further elucidated through various methodologies in future studies.

4.2. Analysis of the Non-correlation between General Self-Efficacy and Internet Fiction Addiction

In this study, there was no significant relationship between general self-efficacy and Internet fiction addiction. This could be due to the complexity of addiction, which suggests that it is affected by various factors. However, general self-efficacy, which represents the general part of an individual's psychological makeup, may not be sufficient enough to describe the nuanced dynamics of Internet Fiction addiction. Other elements, such as environmental and emotional factors, could also influence the measurement of general self-efficacy and therefore weaken the correlations [5,6].

5. Conclusion

The present study conducted a questionnaire survey among 412 Chinese middle school students to examine the association between Internet Fiction addiction, self-efficacy, and boredom proneness. The findings confirm that Internet Fiction addiction is significantly and positively related to boredom proneness, while no significant correlation was found with self-efficacy. This could be attributed to the fact that heightened levels of boredom proneness lead to mood fluctuations, increased engagement in self-fantasies, and distorted perception of time, thereby exacerbating symptoms associated with Internet Fiction addiction. However, the general self-efficacy scale employed in this study may have been too broad to capture an association with Internet Fiction addiction. Additionally, contextual factors such as the environment might have contributed to the lack of significance observed in these results. The study examines the relationship between Internet Fiction addiction, self-efficacy, and boredom proneness, providing a theoretical basis for student management and mental health in middle schools. It also offers valuable insights into preventing Internet Fiction addiction.

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