The study of psychosocial characteristics of youth with internet addiction

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Abstract: Objective: To explore the mental health status, coping styles, personality traits, and time management tendencies of adolescents with internet addiction, providing a theoretical basis for the mental and physical health education of these youth. Methods: A total of 2,784 students were screened for internet addiction using an internet addiction test questionnaire. Of the 80 identified internet addicts, 77 students were designated as the study group, and 80 students without a tendency towards internet addiction were selected as the control group. Both groups were evaluated using the Symptom Checklist-90 (SCL-90), the Simplified Coping Style Questionnaire (SCSQ), the Eysenck Personality Questionnaire (EPQ), and the Adolescent Time Management Disposition Scale (ATMD). Results: The rate of internet addiction among adolescents was 3.1%. Except for the paranoid and psychotic factor scores, the study group's SCL-90 scores in the remaining eight factors were significantly higher than those of the control group (P<0.01). The active coping dimension score of the SCSQ was significantly lower in the study group than in the control group (P<0.01), while the passive coping dimension score was significantly higher (P<0.01). The introversion and neuroticism dimension scores of the EPQ were significantly lower in the study group than in the control group (P<0.01), while the psychoticism dimension score was significantly higher (P<0.01). The ATMD scores for time value, time monitoring, and time efficacy were all significantly lower in the study group than in the control group (P<0.01). Conclusion: Adolescents with internet addiction have poor mental health status, a more negative problem-solving approach, introverted and reclusive personality types, and unreasonable time management.

Keywords: Internet addiction, Adolescents, Mental health, Coping strategies, Personality types, Time management tendencies

1. Introduction

Internet addictive behavior refers to a psychological and behavioral issue where individuals are unable to control themselves and excessively use the internet [1]. Adolescents are in a critical period of transition from childhood to adulthood and are prone to internet addiction, which severely affects their mental and physical health. The issue of adolescent internet addiction has gradually become one of the widely concerned behavioral issues among families, society, schools, and the psychological community, and it urgently needs to be addressed. This study uses an open control study method to explore the psychological and behavioral characteristics of adolescents with internet addiction, aiming to provide a theoretical basis for the mental and physical health education of these youth.

2. Materials and methods

2.1. Materials

Within the framework of 30 middle schools and 5 universities in a certain city, stratified by school type (middle school and university), a stratified cluster random sampling principle was used to select students aged 15 to 18 from 6 middle schools and 1 university. The Internet Addiction Test (IAT) was applied for screening of internet addiction. A total of 2,784 questionnaires were distributed, and 165 invalid questionnaires were excluded (such as uniform answers, wavy responses, too many missing items, etc.),

resulting in 2,619 valid questionnaires returned, with a recovery rate of 94.07%. After IAT screening and diagnostic interviews by a chief physician of clinical psychology, 80 internet addicts were confirmed, with an internet addiction rate of 3.1%. According to the inclusion criteria and personal consent, 3 students were excluded, and the remaining 77 students were set as the study group. The inclusion criteria for the study group were: (1) Informed consent from the individual. (2) Age between 15 and 18 years old. (3) IAT score >80. (4) No history of psychiatric family history, psychiatric history, or substance addiction history. From students without a tendency for internet addiction, 80 students were randomly selected as the control group. The inclusion criteria for the control group were: (1) Informed consent from the individual. (2) Age between 15 and 18 years old. (3) IAT score <40. (4) No history of psychiatric family history, psychiatric history, or addiction history.

2.2. Methods

2.2.1. Research tools

IAT [2]: The scale consists of 20 items, rated on a 5-point scale, and is self-administered by individuals with internet addiction. The scale was translated into Chinese by Pan Qiong and colleagues. An IAT score of ≥80 indicates an internet addict, >40 indicates symptoms of addiction but not yet addicted, and ≤40 indicates no internet addiction. In this study, the Cronbach's α coefficient for the IAT was 0.848, indicating good reliability, and the correlation coefficient with the Chinese Internet Addiction Scale-Revised (CIAS-R) was 0.75. The IAT is considered a viable tool for measuring internet addiction [3].

Symptom Checklist-90 (SCL-90): The SCL-90 consists of 90 items covering somatization, obsessive-compulsive symptoms, interpersonal relationships, depression, anxiety, hostility, phobia, paranoia, psychoticism, and other factors. Ratings range from 1 to 5, with 1 to 5 indicating the severity of symptom presence, and higher scores indicating more severe symptoms. The Cronbach's α coefficient for this scale is 0.954.

Simplified Coping Style Questionnaire (SCSQ) [4]: This scale consists of 20 items, rated on a 4-point scale from not used (0 points) to occasionally used (1 point), sometimes used (2 points), to often used (3 points). The scale is composed of two dimensions: active coping and passive coping, with higher scores indicating more frequent use of the corresponding coping strategies. The Cronbach's α coefficient for this scale is 0.90.

Eysenck Personality Questionnaire (EPQ): The EPQ consists of 88 items, assessing the respondent's personality traits from four dimensions: extraversion (E), neuroticism (N), psychoticism (P), and lie (L). Each question has "yes" or "no" options, and the respondent answers according to their actual situation. The score on each item reflects different personality traits. The Cronbach's α coefficients for this scale range from 0.824 to 0.836.

Adolescent Time Management Disposition Scale (ATMD) [5]: This scale consists of 44 items, rated on a 5-point scale from completely disagree (1 point), mostly disagree (2 points), partially agree/disagree (3 points), mostly agree (4 points), to completely agree (5 points). Higher scores indicate more reasonable time management. The scale has good reliability and validity.

2.2.2. Research methods

Internet Addiction Screening: The Internet Addiction Test (IAT) was used for screening of internet addiction. Based on the screening results, individual willingness, research requirements, and inclusion criteria, individuals with internet addiction were designated as the study group, and some individuals without a tendency towards internet addiction were selected as the control group. Both groups of participants were assessed using the Symptom Checklist-90 (SCL-90), the Simplified Coping Style Questionnaire (SCSQ), the Eysenck Personality Questionnaire (EPQ), and the Adolescent Time Management Disposition Scale (ATMD) to evaluate their mental health status, coping styles, personality traits, and time management conditions.

2.2.3. Quality control

A professor from the Henan Provincial Psychological Counseling Center trained all researchers for 1 day, covering aspects such as questionnaire distribution, instructions, and collection, as well as mental health

education for the participants to increase their motivation in the evaluation process. The time for completing the questionnaires was generally limited to no more than 30 minutes [6]. To prevent participant fatigue and dissatisfaction due to the large number of questions, which could lead to distorted results, the survey was conducted in two parts, with no more than one week between them. Researchers provided unified standards and instructions for filling out the forms, and students completed the questionnaires on their own. Students were asked to write their student numbers and QQ numbers on the questionnaires for follow-up visits.

2.2.4. Statistical methods

All data were processed using the SPSS 17.0 statistical software. For the comparison of categorical data, the chi-square(χ^2) test was used. For the comparison of continuous data, if the data were normally distributed, the independent samples t-test was used; if the data did not conform to a normal distribution, the non-parametric t' test was used. A difference was considered statistically significant at P<0.05.

3. Results

3.1. Study completion status

A total of 76 participants in the study group completed the research, including 63 males and 13 females with an average age of 16.76 ± 0.87 years; in the control group, 75 participants completed the study, consisting of 59 males and 16 females with an average age of (16.57 ± 0.92) years. There was no significant difference in gender ($\chi^2 = 0.43$) or age (t = 1.30) between the two groups (P > 0.05).

3.2. Comparison of SCL-90 scores between the two groups (see table 1)

Table 1 Comparison of SCL-90 Scores Between the Two Groups (Mean ± Standard Deviation)

Factor	Study Group (n=76)	Control Group (n=75)	t	P
Somatization	2.92±1.02	1.88±0.50	7.97	<0.01
Obsessive-Compulsive Symptoms	3.03±0.95	1.53±0.48	12.27	<0.01
Interpersonal Relations	3.14±1.00	1.70±0.48	11.30	<0.01
Depression	3.05±0.60	1.67 ± 0.63	13.79	<0.01
Anxiety	3.16±0.76	1.51±0.68	14.05	<0.01
Hostility	2.54±0.50	1.75±0.47	10.00	<0.01
Phobia	1.91±0.56	1.37±0.55	5.98	<0.01
Paranoia	1.52±0.35	1.43±0.40	1.47	>0.05
Psychoticism	1.48±0.49	1.36±0.48	1.52	>0.05
Other	2.93±0.86	1.46 ± 0.80	10.87	<0.01

Table 1 shows that the study group's SCL-90 scores for somatization, obsessive-compulsive symptoms, interpersonal relationships, depression, anxiety, hostility, phobia, and other factors were significantly higher than those of the control group (P<0.01), while the scores for paranoia and psychoticism factors were not significantly different from the control group (P>0.05).

3.3. Comparison of SCSQ Scores between the two groups (see table 2)

Table 2 Comparison of SCSQ Scores Between the Two Groups (Mean ± Standard Deviation)

Dimension	Study Group (n=76)	Control Group (n=75)	P
Active Coping	1.43±0.42	1.86±0.426.29	<0.01
Passive Coping	1.97±0.56	1.20±0.608.15	<0.01

Table 2 indicates that the study group's scores on the active coping dimension of the SCSQ are significantly lower than those of the control group (P<0.01), while the scores on the passive coping dimension are significantly higher than those of the control group (P<0.01).

3.4. Comparison of EPQ scores between the two groups (see table 3)

Table 3 Comparison of EPQ Scores Between the Two Groups (Mean ± Standard Deviation)

Dimension	Study Group (n=76)	Control Group (n=75)	t'	P
Extraversion-Introversion	43.95±10.07	52.75±8.44		5.82<0.01
Neuroticism	50.80±9.16	53.05±6.89	1.71	>0.05
Psychoticism	53.15±9.49	48.30±7.76	3.44	<0.01
Lie	47.15±8.23	48.60±7.73		1.12>0.05

Table 3 shows that the study group's scores on the extraversion-introversion dimension of the EPQ are significantly lower than those of the control group (P<0.01), while the scores on the psychoticism dimension are significantly higher than those of the control group (P<0.01). There are no significant differences in the neuroticism and lie dimensions compared to the control group (P>0.05).

3.5. Comparison of ATMD scores between the two groups (see table 4)

Table 4 Comparison of ATMD Scores Between the Two Groups (Mean ± Standard Deviation)

Factor	Study Group (n=76)	Control Group (n=75)	t	P
Time Value	17.50±4.40	27.30±9.08	8.42	<0.01
Time Monitoring	48.73±11.52	77.04±18.24	11.39	<0.01
Time Efficacy	15.80±4.40	30.20±8.74	12.76	<0.01

Table 4 shows that the study group's scores on the time value, time monitoring, and time efficacy factors of the ATMD are all significantly lower than those of the control group (P<0.01).

4. Discussion

The problem of internet addiction among adolescents has become very serious. Although there are many studies related to it, they are still not comprehensive enough. Especially in the clinical treatment of adolescent internet addiction, there are many methods, such as psychotherapy and pharmacotherapy [7], but they are not systematic enough [8]. In recent years, many organizations aimed at making a profit have emerged in society, such as "internet addiction boot camps" and "internet addiction summer camps". These organizations often use high-intensity physical training, corporal punishment and other means, which often lead to not only the failure to cure internet addiction among adolescents but also severe mental and physical trauma. In short, the lack of understanding of the psychological and behavioral characteristics of adolescents with internet addiction has led to the above-mentioned chaos in the treatment of internet addiction. Therefore, researching and analyzing the psychological and behavioral characteristics of adolescents with internet addiction is of great significance for the treatment and cessation of internet addiction.

This study shows that the rate of internet addiction among adolescents is 3.1%, which is lower than the rate of internet addiction among adolescents in Shanghai [9]. This may be related to factors such as region and local economic development level. Further comparative studies between adolescents with internet addiction and those without found that the study group's SCL-90 scores for somatization, obsessive-compulsive symptoms, interpersonal relationships, depression, anxiety, hostility, phobia, and other factors were significantly higher than those of the control group (P<0.01). This suggests that the mental and physical health status of adolescents with internet addiction is not optimistic, and there are symptoms such as physical discomfort, sensitivity in interpersonal relationships, compulsion, hostility, anxiety, depression, and phobia. These results are basically consistent with those of Ko CH et al. [10]. In

addition, the higher scores in other factors indicate that adolescents with internet addiction have poor sleep and diet, while there is no significant difference in paranoia and psychoticism compared with the control group (P>0.05). In summary, the mental health status of adolescents with internet addiction is poor. The reasons are analyzed as follows: (1) After adolescents become addicted to the internet, they often spend a lot of time surfing the internet, sitting for a long time, and concentrating for a long time, while lacking physical exercise, which may lead to physical symptoms such as dizziness and headache. (2) Adolescents have poor self-control, and after becoming addicted, they may have compulsive symptoms because they surf the internet uncontrollably for a long time and find it difficult to extricate themselves. (3) Adolescents who are addicted to the internet for a long time have adapted to the virtual way of interpersonal communication on the internet, and lack real-life communication objects or discomfort, which may lead to symptoms such as sensitivity in interpersonal relationships, depression, anxiety, hostility, and phobia. After these symptoms appear, adolescents with internet addiction often cannot get regular and systematic treatment, and may continue to vent through the internet, which further aggravates their internet addiction, eventually forming a vicious cycle and affecting their mental and physical health.

In terms of coping strategies, research by Xu Song Quan et al. [11] and Zhi Xiaoyan et al. [12] has shown that adolescents with internet addiction often use negative and immature ways to solve problems. This study indicates that the study group's scores on the active coping dimension of the SCSQ are significantly lower than the control group (P<0.01), while the scores on the passive coping dimension are significantly higher (P<0.01). This suggests that adolescents with internet addiction are often unwilling to face problems and tend to avoid or tolerate them, using less seeking help and actively solving difficulties, which is consistent with related research [11-12]. In addition, Tang J et al. [13] believe that internet addiction is associated with the addict's choice of negative solutions when encountering difficulties. Most addicts indulge in the internet because they are unwilling to face the problems in life. Therefore, the treatment of internet addiction should also include improving coping strategies, which also helps to correctly handle the relationship between surfing the internet and life and study.

In terms of personality traits, the study group's scores on the extraversion introversion dimension of the EPQ are significantly lower than the control group (P<0.01), while the psychoticism dimension score is significantly higher (P<0.01). There is no significant difference in the neuroticism and lie dimensions compared to the control group (P>0.05). The study shows that adolescents with internet addiction tend to be introverted, emotionally volatile, lonely, and refuse to communicate with others, which is consistent with the research results of Dai Weihua et al. [14]. This suggests that personality traits are likely to be a contributing factor to adolescent internet addiction, so it is necessary to intervene and prevent these high-risk groups with introverted and lonely personalities as early as possible.

In terms of time management, the study group's scores on the time value, time monitoring, and time efficacy factors of the ATMD are all significantly lower than the control group (P<0.01). This indicates that adolescents with internet addiction have significantly poorer time management skills than the control group, and it is difficult for them to manage time effectively, which is consistent with the research results of Liu Hui Xing et al. [15]. Time management skills can be changed in terms of concepts and behavioral habits, and there is a clear positive correlation between time management tendencies and an individual's positive emotions and self-worth [16]. Improving the time management skills of adolescents with internet addiction not only has a direct effect but also can improve the symptoms of internet addiction through the intermediary role of positive emotions and play a positive role in the treatment of internet addiction.

5. Conclusion

In summary, the mental and physical health status of adolescents with internet addiction is not optimistic. They tend to have introverted personality types, with emotions that are prone to fluctuations, loneliness, negative coping strategies, and poor time management. These psychological and behavioral characteristics of adolescents with internet addiction can serve as a scientific basis for mental and physical health education for adolescents and provide a reference for the cessation of adolescent internet addiction. By integrating the significant roles of family and school factors in the development of internet addiction [17], and by establishing a corresponding psychological treatment system, such as targeted treatment for the anxiety and depression of adolescents with internet addiction, while also training their time management skills, and

carrying out preventive education for adolescents who are prone to internet addiction, we can ultimately effectively prevent and reduce the occurrence of internet addiction among adolescents. This also lays the foundation for further research.

6. References

[1]   Tsitsika A, Janikian M, Schoenmakers TM, et al. Internet addictive behavior in adolescence: a cross-sectional study in seven European countries [J]. Cyberpsychol Behav Soc Netw, 2014, 17(8): 528.

[2]   Fan F, Su L, Cao F, et al. Preliminary development and validation of a prediction questionnaire for adolescent internet addiction [J]. Chinese Journal of Clinical Psychology, 2008, 16(1): 1.

[3]   Pan Q, Xiao S. Advances in the study of pathological internet use [J]. Chinese Journal of Clinical Psychology, 2002, 10(3): 237.

[4]   Xie Y. Preliminary study on the reliability and validity of the Simplified Coping Style Questionnaire [J]. Chinese Journal of Clinical Psychology, 1998, 6(2): 114.

[5]   Huang X, Zhang Z. The development of the Adolescent Time Management Disposition Scale [J]. Acta Psychologica Sinica, 2001, 33(4): 338.

[6]   Li Y, Liu H. Common problems and solutions in the questionnaire survey process [J]. Educational Research and Experiment, 2006, 24(2): 61.

[7]   Huang XQ, Li MC, Tao R. Treatment of internet addiction [J]. Curr Psychiatry Rep, 2010, 12(5): 462.

[8]   Wolfling K, Beutel ME, Dreier M, et al. Treatment outcomes in patients with internet addiction: a clinical pilot study on the effects of a cognitive-behavioral therapy program [J]. Biomed Res, 2014, 2014: 1.

[9]   Xu J, Shen LX, Yan CH, et al. Personal characteristics related to the risk of adolescent internet addiction: a survey in Shanghai, China [J]. BMC Public Health, 2012, 12: 1106.

[10]   Ko CH, Liu TL, Wang PW, et al. The exacerbation of depression, hostility, and social anxiety in the course of internet addiction among adolescents: a prospective study [J]. Compr Psychiatry, 2014, 55(6): 1377.

[11]   Xu S, Wang D, Lin M, et al. A study on family care and coping styles of middle school students with internet addiction [J]. Zhejiang Preventive Medicine, 2010, 22(8): 4.

[12]   Zhi X, Wang C, Wang C, et al. Analysis of coping styles, social support, and parenting styles among adolescents with internet addiction [J]. Chinese Journal of School Health, 2013, 34(4): 426.

[13]   Tang J, Yu Y, Du Y, et al. Prevalence of internet addiction and its association with stressful life events and psychological symptoms among adolescent internet users [J]. Addict Behav, 2014, 39(3): 744.

[14]   Dai W, Shi J, Zhou C, et al. A study on the current situation of internet addiction and its correlation with personality factors in primary and secondary schools in Nantong [J]. Journal of Clinical Psychosomatic Diseases, 2014, 20(2): 56.

[15]   Liu H, Yang N. A study on the relationship between college students' internet addiction, time management tendency, and anxiety morphology [J]. Social Psychological Science, 2012, 27(12): 92.

[16]   Ma Y, Meng Y, Xu J. The relationship between college students' time management tendency and learning burnout: the mediating role of self-efficacy [J]. Modern Preventive Medicine, 2014, 41(17): 3161.

[17]   Wang H, Zhou X, Lu C, et al. Problematic internet use in high school students in Guangdong province, China [J]. PLoS One, 2011, 6(5): e19660.