A Study on the Prediction about Internet Addiction Disorder by Callous-Unemotional Traits and Internet Use Preferences

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Abstract. In order to explore whether adolescent callous-unemotional traits and different types of internet use preference can predict internet addiction, this paper uses the Internet Use Questionnaire, the Callous-Unemotional Traits Scale (CUS), and Young's Internet Addiction Scale to investigate 535 middle school students. Then SPSS 22.0. is used to analyze data collected by questionnaire mentioned above. The results show that there are no significant differences in the performance of callous-unemotional traits among adolescents of middle school, but the Internet use preferences and Internet addiction scores are significantly different from each other. Callous-unemotional traits, social networking, and internet entertainment can positively predict internet addiction, and different dimensions of callous-unemotional traits can predict different Internet use preferences, but there is no mediation effects between these factors and Internet addiction. In conclusion, the callousness-unemotional traits can be combined with online social networking and Internet entertainment to predict internet addiction.

Keywords: Callous-Unemotional Traits; Internet Use Preferences; Adolescents; Internet Addiction

1   Introduction

The transformation of tools has accompanied the progress of human civilisation. As the most promising tool in human history, the impact of the Internet on human development has been widely concerned by scholars in the fields of psychology, sociology, communication and so on since its birth.

In the field of psychology, research on the influencing factors of Internet use generally includes social anxiety, personality characteristics, self-esteem, social support, etc. The research on the outcome variables of Internet use focuses on happiness, depression, loneliness, self-disclosure and interpersonal communication. As for mediating and moderating variables, the common factors are gender, age, purpose and method, etc. However, callous-unemotional traits, as an important variable, has rarely been studied for its impact on Internet use.

Callous-Unemotional Traits (CU), first proposed by Frick [1], is a psychological trait that treats others with a lack of empathy and guilt as well as unresponsive to emotional stimuli. CU is composed of three factors: callousness, uncaring, and unemotionality, of which callousness refers to indifference to rules and punishments, uncaring refers to lacking of concern to others, and unemotionality refers to emotional inhibition and avoidance. This behavioural trait is stable and persistent, and is a good predictor of antisocial behaviour and even lifelong violent criminal behaviour [2]. As a result, CU traits are commonly used in clinical research of criminal psychology and psychopathology in the early days [3], and later applied to the general population.

Although the influence of CU on individuals get attention in recent years, the majority of the existing research focus on the relationship between CU and violent behaviours in real life such as bullying and behavioural disorders. [4] However, the relationship between CU and different types of Internet use is still unclear, and there are few studies on adolescent objectives, and most of them are reform school students instead of ordinary middle school students. Therefore, studies on relation of CU and Internet use remains to be further explored.

It has been demonstrated that CU are correlated with internet addiction and cyberbullying in previous research. Trumello et al. [5] found that CU could predict Internet addiction, with emotion regulation ability and parenting style playing a mediating role. Fang et al. [6] found that CU are related to cyberbullying, and moral disengagement plays a moderating role, which is the same as the mechanism by which moral disengagement regulates CU and campus bullying in previous studies.

To sum up, this study takes middle school students as the research object, studies the relationship between CU and online behaviour, divides Internet use into three aspects: information, online social networking and internet entertainment, and explores the effect of CU on different online behaviour preferences and internet addiction.

2   Research Methods

2.1   The Research Object

The study adopts the method of cluster sampling. The students need to fill online questionnaires in computer classroom. When they finished, the questionnaires is collected at the same time. As the result, 535 valid quesionnaires are obtained. (268 in the first year of junior high school and 267 in the first year of senior high school, with 271 males and 264 females, with an average age of 14.3 years). SPSS 22.0 was used for data analysis.

2.2   Measurement tools

The measurement tools of this study included the Basic Information Questionnaire, the Internet Behaviour Questionnaire, the Inventory of Callous-Unemotional Traits and Young's Internet Addiction Test. Among them, the basic information includes: name, gender, class, age, whether he is an only child in his family, whether is he the single-parent children, estimated monthly income of the family, parents' educational level and

mental support, Internet age, Internet access equipment, average online time during the week and weekend.

Internet Behaviour Questionnaire.

According to the purpose of using the Internet for middle school students, this study uses Internet Behaviour Questionnaire to measure the needs of information, social networking and entertainment. In this study, the internal consistency coefficients for the three dimensions were 67, 74, and 73 respectively.

The Inventory of Callous-Unemotional Trait Scale (ICU)

This paper uses the ICU for research. The ICU has 24 items, which are assessed from three dimensions: callousness (eg, lack of concern for others or social norms/rules), uncaring (eg, lack of empathy), and unemotionality (eg, inability to express emotions). The internal consistency coefficients for each dimension in this study were 0.79, 0.81, and 0.82respectively.

Young's Internet Addiction Test.

The Internet Addiction Test (IAT) has been shown to have broad adaptability in different cultural backgrounds including China. The IAT consists of 20 questions in total, including three factors, namely mood management, tolerance, social withdrawal, and anticipation. The internal consistency is $\alpha=0.93$, and the split-half reliability is 0.94. In this study, the consistency reliability coefficient of the total scale was 0.87, and the test-retest reliability of the sub-scales were 0.79, 0.81, and 0.82 respectively.

3   Results

3.1   Overall score

Table 1. The Overall Score of CU (Photo credit: Original)

	Min	Max	Average	Std.
callousness	8.00	40.00	15.8084	4.66992
uncaring	5.00	27.00	13.9720	4.21145
unemotionality	6.00	20.00	13.0374	2.41640
Sum-CU	24.00	66.00	42.8178	7.97116

The callous-unemotional traits are scored on a 4-point scale. The higher score he gets, the more apathy he is. The theoretical medians for callousness, uncaring, and unemotionality are: 22.5, 20, and 12.5 respectively. According to the scores of CU (Table

1), it can be seen that middle school students have relatively low CU score in each sub-dimension, indicating that middle school students are more concerned about others and social norms, have a sense of responsibility for personal behavior, and the ability to deal with emotions. But at the stage of adolescence, the self-awareness of middle school students develops rapidly, and there is a tendency to avoid and hide their emotions.

3.2   Regression Effect Analysis of CU, Internet Use Preference and Internet Addiction

Descriptive statistics and Pearson correlation analysis were conducted on CU, Internet use preference and Internet addiction. The results are shown in Table 2. Findings: CU are significantly negatively correlated with Internet information use, and significantly positively correlated with Internet addiction; all three types of Internet use are significantly positively correlated; except for Internet information, other Internet behaviour preferences (social networking and entertainment) are positively correlated with Internet addiction.

Table 2. Descriptive Statistics and Correlation Analysis of CU, Internet Behavior Preference, and Internet Addiction (Photo credit: Original)

variate	M	D	1	2	3	4	5
1. CU	41.14	7.71	1				
2. Internet Information	10.50	2.24	-.21**	1			
3. Social Networking	8.87	3.04	-0.02	.33**	1		
4.Online Entertainment	13.68	3.34	0.07	.24**	.53**	1	
5. Internet Addiction	43.71	13.19	.23**	0.02	.38**	.37**	1

Table 3. Regression Results of CU and Internet Behavior Preferences on Internet Addiction (Photo credit: Original)

Model	Predictor	Beta	t	R^2	ΔR^2	F
1	Gender	0.19	4.66**	0.087	0.083	25.267**
	Age	0.23	5.43**			
2	Gender	0.21	5.13**	0.139	0.135	28.663**
	Age	0.22	5.36**			
	CU	0.23	5.7**			
3	Gender	0.15	3.89**	0.27	0.263	39.149**
	Age	0.16	4.2**			
	CU	0.22	5.83**			

Social Net-working	0.23	5.18**
Entertainment	0.19	4.37**

Secondly, the method of hierarchical regression analysis is used to test the predictive effect of CU and the use of social networking and entertainment on Internet addiction (Table 3). The first step is to include demographic variables (gender and age) as control variables into the regression equation; the second step is to include CU into the regression equation; the third step, the use of online social networking and entertainment is included in the regression equation. The results show that, after controlling for demographic variables, CU can significantly predict Internet addiction ($\beta=0.23$, $p<0.001$). When social networking and entertainment are included in the regression equation, the model's predictive effect on Internet addiction increased by 0.13.

3.3 Mediating Effect of Internet Use Preference Between CU and Internet Addiction

In order to further explore whether there is mediating effect of social networking and entertainment between CU and Internet addiction, this study will analyze it step by step.

In the first step, regression analysis is conducted with Internet addiction as the criterion variable and CU as the predictor variable. The results show that CU could significantly and positively predict Internet addiction ($\beta=0.175$, $p<0.001$), which means that the total effect c is significant. In the second step, regression analysis is carried out with social networking and online entertainment as the criterion variables, and CU as the predictor variables. The third step is to conduct regression analysis with Internet addiction as the criterion variable, CU and social networking and online entertainment as predictor variables. The b1, b2 and the direct effect c' are all significant (Figure 1). That is to say, CU, social networking and online entertainment can predict Internet addiction, but there is no mediating effect among them.
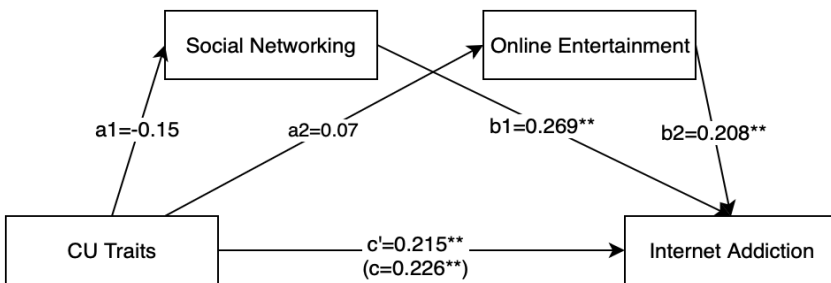

Fig. 1. The mediating effect of Internet use preference between empathy and Internet addiction (Photo credit: Original)

3.4   Results

The above results partially verify the research hypothesis. CU, social networking and online entertainment can positively predict Internet addiction, but the relationship between CU, social networking and entertainment is not significant. For the phenomenon shown by the results, this paper believes that the possible reasons are: the influence of CU on social networking and online entertainment is too small, and the direct influence of social networking and online entertainment on Internet addiction is huge.

4   Conclusions

The study explores the influence of social networking and online entertainment on the relationship between CU and Internet addiction. The results show that CU can predict Internet addiction, but there is no mediating effect of Internet socialization and Internet entertainment, which is inconsistent with the experimental hypothesis. The disadvantage of this study can be concluded to two points. Firstly, the experiment adopts a cross-sectional study, and the sampling has limitations, which cannot well represent the situation of all Chinese adolescents and the development law of network behaviour. This can be fixed by expanding the sample, optimising the sampling strategy, and re-validating it using a longitudinal study combined with an intervention. Secondly, the scope of this research is narrow and the ever-changing Internet use has also posed a challenge to measurement tools. During the review of the literature, this study found that the existing research has a rough classification of network usage, and there is no more rigorous, scientific and up-to-date research method. Both the Internet use preferences and the definition and classification of games have a certain distance from the real Internet use of today's teenagers.

On the whole, young people's Internet use is complex and comprehensive in terms of media, method, content and the corresponding impact. After summarizing the previous research, McKenna and Bargh [7] asserted that "the impact of the network on individuals can never be a single main effect". The results of the study also support this point. The length of Internet use alone cannot predict the indifference or empathy of adolescents, and the indifference of adolescents cannot directly predict the degree of online game use. The relationship between personal characteristics and Internet use is not simple and absolute. Later, the intensive and comprehensive research should be conducted on the impact of information, social, entertainment and its segmentation of network use.

Acknowledgment

that I had more contact with junior high school and high school students, and I was more deeply aware of the problems in the development of adolescent now, so I was interested and inspired to do this research. This article still has some deficiencies, and I also look forward to the communication and correction of my peers.

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