

Internet Addiction among " Gen Z " College Students in China: the Role of Attachment Styles

Xinyi Wen*

Faculty of Health and Social Sciences, The Hong Kong Polytechnic University, Hong Kong, 999077, China

*xinyiwen521@gmail.com

ABSTRACT

This study looked at whether insecure attachment style among Chinese university students categorized as "Gen Z" is predictive of various types of Internet addiction using an online survey. Using simple random sampling, 796 Chinese university students (581 valid questionnaires) were chosen as participants. The chi-square test results showed a strong correlation between insecure attachment style and addiction to online gaming and relationships, but not with addiction to online information. Online gaming and online relationship addiction were positively connected with anxious and fearful avoidant attachment, according to binary logistic regression studies, but dismissive avoidant attachment did not demonstrate any significant correlation. These results imply that online relationships and game addiction are partially predicted by an insecure attachment type.

KEYWORDS

Insecure Attachment Style; Types of Internet Addiction; College Students; Chi-square Test; Binary Logistic Regression.

1. INTRODUCTION

1.1. Background

Nowadays, people's daily life revolve around the Internet. It is changing people's lives and productivity as a revolutionary tool. In recent years, Internet use in China has increased significantly. The results of The Statistical Report on China's Internet Development (2021) show that by June 2021, China's Internet users reached 1.011 billion, or roughly 71.6 % of the total population [1,2].

The Internet has enabled people to communicate over long distances, process information more easily, have more shopping choices, and so on. At the same time, the Internet's negative effects are becoming more noticeable. For example, college students may spend too much time on the Internet and lose attention to their studies, the anonymity of the Internet makes more scammers, and frequent use of computer screens may cause poor eyesight [3].

1.2. Internet Addiction

Internet addiction is an impulse control disorder that excludes drug control. In simple terms, behavioural characteristics such as excessive time spent in online activities, deception about how much time one actually spends online, and a lack of interest in activities other than online activities can be defined as "Internet addiction". In 1996, the first behavioral study on Internet addiction was

carried out with the intention of investigating the practical and therapeutic consequences of the findings as well as potential future research avenues [4,5].

Zhou and Yang's study (2006) showed that the main types of Internet addiction among Chinese college students can be categorised into three types: addiction to online games, addiction to online relationships and addiction to online information. Online game addiction includes obsession with all kinds of online games and non-internet computer games and includes some related negative emotions and experiences caused by addiction to games. Online relationship addiction mainly includes interpersonal interaction and related problems caused by addiction to the Internet. Online information addiction refers to the uncontrollable urge to browse and collect information on the Internet that has no substance [6].

1.3. Attachment Theory

Prior to its expansion into the study of adult relationships in the 1980s, attachment theory was mostly applied to the interaction between parents and children. According to Bowlby's attachment theory, children form interactional patterns that may have an ongoing impact on adult relationships [7]. Research suggests that attachment styles are relatively flexible. While attachment styles are rather stable over time, risk factors and individual or interpersonal experiences might cause them to alter [8]. Adult attachment can therefore be interpreted as an adult's recollection and recapitulation of childhood experiences and evaluations of early attachment experiences.

There are four categories of adult attachment: secure attachment (i.e., perceiving oneself and others as generally friendly, reliable and trustworthy), anxious attachment (i.e., placing undue importance on the perceptions of others, obsessing over relationships, and believing oneself to be unworthy of love and worthless), dismissive avoidant attachment (i.e., having a relatively positive view of the self but believing others to be untrustworthy and refusing to be interdependent with them), and fearful avoidant attachment (i.e., desperately avoiding intimate relationships with others). Of these, anxious attachment, dismissive and fearful avoidant attachment can be collectively referred to as insecure attachment [9].

Psychoanalytic theory holds the view that addiction is an attachment disorder [10]. Originally developed to understand substance addiction, subsequent research has shown that it can also be used to explain internet addiction [11].

1.4. Research Question

The degree of Internet addiction might vary depending on the sort of attachment pattern. Eichenberg (2017) states that compared to persons with secure attachments, those with insecure attachments have a greater propensity for internet addiction. [12]. Moreover, it has been found that different types of Internet addicts differ in some aspects of personality traits [13]. For example, online game addicts have higher anxiety levels and increased aggression, and narcissistic personality is associated with addiction to online relationships [14,15].

However, Internet addiction is only generalized into a dimension in the current national and international study on the interaction between attachment and Internet addiction. It does not break it down into specific categories. Consequently, a thorough investigation is required to determine whether the effects of various attachment styles on distinct forms of Internet addiction differ from one another.

This study aims to explore if different forms of Internet addiction are associated with different attachment styles. It was postulated that people with fearful-avoidant attachment styles would be more likely to develop an addiction to online games, anxious types to be more likely to develop an addiction to online information, and dismissive types to develop an addiction to online relationships.

2. METHODS

2.1. Participants and Procedure

In 2023, this cross-sectional survey was conducted among college students in mainland China, with 796 undergraduate and graduate students aged 17 to 29. This study was split into two phases overall. To get as diverse a sample as feasible, web-based questionnaires evaluating adult attachment types were disseminated on social media platforms like WeChat, QQ, etc. during the initial part of the study. 796 surveys in all were gathered. For the purposes of this study, 581 valid questionnaires were retained after excluding invalid questionnaires. In the second phase, these 581 participants were asked to complete an online internet addiction scale after being contacted via email or social media. After removing invalid questionnaires one more, 461 valid questionnaires remained. Invalid questionnaires were again eliminated, leaving 461 valid questionnaires at the end. Participation was voluntary and participants received \$3 worth of cash as payment.

2.2. Measures

2.2.1. Experiences in Close Relationships Inventory.

Zhou and Yang (2006) developed the Types of Internet Addiction Scale for Undergraduates to assess the many types of Internet addiction [6]. With eight items for the online gaming addiction component, six for the online relationship addiction element, and six for the online information addiction factor, this scale has twenty items total. The Likert scale, which is the basis of the measure, has five points, with "completely incompatible" receiving one point and "completely compatible" receiving five. The predisposition toward addiction is more prominent the higher the score. In the current analysis, this scale showed good internal consistency (Cronbach's $\alpha = 0.990$).

2.2.2. Experiences in Close Relationships Inventory (ECR).

Adult attachment was measured using the ECR, which was developed by Brennan, Clark, and Shaver in the beginning and subsequently improved upon by Li-Tonggui and Kazuo Kato (2006). Eighteen of the thirty-six items in the ECR measure the attachment avoidance dimension, and the remaining eighteen measure the attachment anxiety dimension [16]. On a 7-point rating system, 1 denotes significant disagreement, 7 denotes strong agreement, and ratings ranging from 1 to 7 represent increasingly higher levels of agreement. In the current investigation, this inventory showed excellent internal consistency (Cronbach's $\alpha = 0.921$).

2.3. Data Analyses

All analyses were calculated using IBM SPSS V29. To investigate the relationship between internet addiction type and attachment type. In order to evaluate the predictive potential of attachment types on different forms of Internet addiction, this study employed multiple logistic regression analyses in addition to chi-square tests to evaluate the independence of categorical variables.

3. RESULTS

3.1. Correlational Analyses

In this study, the chi-square test was conducted for insecure attachment type and internet addiction type. As shown in Table 1, insecure attachment type was significantly correlated with online gaming addiction ($\chi^2 = 11.296$, $P = 0.004 < 0.05$). As shown in Table 2, insecure attachment type was also significantly correlated with online relationship addiction ($\chi^2 = 7.916$, $P = 0.019 < 0.05$). However, insecure attachment type was not significantly correlated with whether they were addicted to online information ($\chi^2 = 2.161$, $P = 0.339 > 0.05$), as shown in Table 3.

Table 1. Chi-Square Tests of attachment type * online game addiction

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.296 ^a	2	.004
Likelihood Ratio	11.360	2	.003
Linear-by-Linear Association	10.923	1	<.001
N of Valid Cases	459		

Table 2. Chi-Square Tests of attachment type * online relationship addiction

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	7.916 ^a	2	.019
Likelihood Ratio	7.948	2	.019
Linear-by-Linear Association	7.763	1	.005
N of Valid Cases	459		

Table 3. Chi-Square Tests of attachment type * online information addiction

	Value	df	Asymptotic Significance (2-sided)
Pearson Chi-Square	2.161 ^a	2	.339
Likelihood Ratio	2.173	2	.337
Linear-by-Linear Association	2.157	1	.142
N of Valid Cases	459		

3.2. Regression Analyses

Binary logistic regression analyses were performed with the four attachment types as independent variables and online games and online relationship addiction as dependent variables in order to further investigate the effects of insecure attachment types on information addiction and online gaming. "Disruptive avoidant attachment," "anxious attachment," and "fearful avoidant attachment" are included in the regression equation.

From Table 4, the model equation is:

$$\ln(p/1 - p) = -1.055 + 1.064 \times \text{fearful avoidant attachment} + 0.775 \times \text{anxious attachment} - 1.056 \times \text{dismissive avoidant attachment} \quad (1)$$

(where "p" represents the probability of whether the addiction to online games is 1, and "1-p" represents the probability of whether the addiction to online games is 0).

According to this research, fearful avoidant attachment has a regression coefficient value of 1.064 and is a substantial and positive influence on the probability of developing an addiction to online gaming, and it is statistically significant at the 0.001 level ($p < 0.001$). Anxious attachment has a regression coefficient value of 0.775. The data demonstrates significance at the 0.01 level ($p = 0.002 < 0.01$), indicating a strong positive correlation between the risk of being addicted to online gaming and anxious attachment. Dismissive avoidant attachment has a regression coefficient value

of -1.056, but it does not demonstrate significance ($p=0.064>0.05$), suggesting that either the existence or non-existence of online game addiction is unaffected by dismissive avoidant attachment.

Table 4. Logistic Regression of attachment type * online game addiction

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	attachment			29.663	3	<.001			
	attachment(1)	1.064	.249	18.229	1	<.001	2.898	1.778	4.723
	attachment(2)	.775	.251	9.541	1	.002	2.171	1.328	3.551
	attachment(3)	-1.056	.569	3.441	1	.064	.348	.114	1.062
	Constant	-1.055	.209	25.573	1	<.001	.348		

note. "attachment" represents secure attachment; "attachment (1)" represents fearful avoidant attachment; " attachment (2)" represents anxious attachment; and "attachment (3)" represents dismissive avoidant attachment.

From Table 5, the model equation is:

$$\ln(p/1 - p) = -1.012 + 1.002 \times \text{fearful avoidant attachment} + 1.021 \times \text{anxious attachment} - 0.631 \times \text{dismissive avoidant attachment} \quad (2)$$

According to particular analyses, fearful avoidant attachment has a regression coefficient value of 1.002 and is p-valued at the 0.001 level ($p<0.001$), indicating statistical significance, indicating a positive effect on the risk of online relationship addiction. Anxious attachment's regression coefficient is 1.021, indicating significance at the 0.001 level ($p<0.001$), indicating that it will significantly positively influence the likelihood of developing an addiction to online relationships. Dismissive avoidant attachment has a regression coefficient value of -0.631, however, it does not demonstrate significance ($p=0.199>0.05$), indicating that the existence or lack of an addiction to online relationships is unaffected by dismissive avoidant attachment.

Table 5. Logistic Regression of attachment type * online relationship addiction

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B)	
								Lower	Upper
Step 1 ^a	attachment			29.970	3	<.001			
	attachment(1)	1.002	.247	16.410	1	<.001	2.725	1.678	4.425
	attachment(2)	1.021	.249	16.886	1	<.001	2.776	1.706	4.519
	attachment(3)	-.631	.491	1.646	1	.199	.532	.203	1.395
	Constant	-1.012	.206	24.014	1	<.001	.364		

note. "attachment" represents secure attachment; "attachment (1)" represents fearful avoidant attachment; " attachment (2)" represents anxious attachment; and "attachment (3)" represents dismissive avoidant attachment.

4. DISCUSSION

The current research of this kind only generalizes Internet addiction into one dimension and does not break down specific categories of Internet addiction (such as addiction to online gaming, addiction to online relationships, and addiction to information on the Internet), even though an increasing amount of scientific literature highlights the link between Internet addiction and attachment styles. The current study set out to investigate if attachment style may be used as a predictor of different types of Internet addiction.

4.1. The Relationship between Insecure Attachment and Online Game Addiction

This study's results somewhat supported the findings of Sung et al. (2020) by showing that while dismissive avoidant attachment did not positively predict online game addiction, both anxious and fearful avoidant attachment did [17]. Additionally, this previous study discovered that those with insecure attachment are more susceptible to stress and, hence, have a higher risk of being addicted to online games. Nonetheless, anxious and avoidant attachment styles differ in the reasons behind their respective addictions to online games [17]. Furthermore, the results showed that the fearful avoidant attachment was a higher predictor of online game addiction, which was consistent with the study's hypothesis.

4.2. The Relationship between Insecure Attachment and Online Relationship Addiction

The results of this study showed that both fearful avoidant attachment and anxious attachment positively predicted online relationship addiction, whereas dismissive avoidant attachment did not, where the findings of Monacis et al. (2017) are supported by the first half of this section [18]. According to this study, those who have anxious attachment tend to exhibit increased need for approval and acceptance, which makes them dependent on other people and increases their risk of developing an addiction to online connections. On the other side, avoidant attachment individuals often utilize online platforms to meet their need for intimacy and social belonging by keeping a "safe" distance from others, which can result in an addiction to online connections [18]. Furthermore, the current study's findings demonstrated that anxious attachment had a comparatively larger impact on online information addiction, a result that validates the hypothesis of the present study.

4.3. The Relationship between Insecure Attachment and Online Information Addiction

In contrast to the hypothesis of this study, the analyses showed no significant correlation between online information addiction and insecure attachment. Additionally, the findings of earlier research, which found that insecure attachment was linked to higher frequencies of stressful situations, diverge from this, while the experience of stressful events was associated with online information addiction [19,20]. This might be because of the different eras; college students in this study had more coping mechanisms and, hence, were less likely to develop an addiction to the internet.

5. LIMITATIONS AND FUTURE DIRECTIONS

The study has certain drawbacks. First off, despite the fact that the scales employed in this study were valid and dependable, they were self-reported, making them vulnerable to biases including unintentional misreporting bias and social desirability bias. Future research could interpret the study variables using a wider range of techniques. Second, a cross-sectional study was used in this investigation, which has timeliness but is unable to examine the causal relationship between variables. If the conditions of future research permit, a longitudinal study can be adopted. Furthermore, the

majority of the study's sample comprises college students in mainland China; as such, it is not representative of China's overall population. Future research may include Taiwanese, Macau, and Hong Kong college students in its sample. Lastly, a variety of other elements, including social and cultural influences, can also have an impact on Internet addiction. There might be some restrictions on how broadly the findings can be applied because this study was unable to account for these aspects. Future studies can be conducted on different cultures and countries to validate the results of this study.

6. CONCLUSION

The findings demonstrated that among Chinese college students belonging to the Z generation, anxiety and fearful avoidant attachment were strongly and positively connected with addiction to online games and relationships. This supported the theory that certain types of Internet addiction might be partly predicted by insecure attachment styles. Furthermore, the findings of this study are crucial for researchers to comprehend how Chinese college students' attachment styles affect various forms of Internet addiction. For example, it could be beneficial to carry out related research on the prevention and treatment of certain Internet addictions.

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