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Analysing the Mediating Role of Self-Control and Mental Resilience on the Relationship between Internet Addiction and Academic Procrastination

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Abstract

The current study focuses on investigating the role of self-control and mental resilience of Chinese college students in mediating their internet addiction and procrastination on academic tasks. A cross-sectional quantitative research design has been adopted in the study with a sample of 480 first year college students from China. Standardized tools were used to assess internet addiction, academic procrastination, and mental resilience; self-control was assessed through a self-constructed scale. Quantitative data obtained on the four scales was analyzed through SPSS using descriptive and inferential statistics. Findings of the study reveal that male college students in China are more addicted to the internet and also procrastinate more compared to their female counterparts. In addition, the findings further suggest that there exists a positive relationship between internet addiction and academic procrastination, as internet addiction is the reason for procrastination among Chinese first year college students. These findings suggest that male college students in China are more negatively affected by internet use and addiction and need intervention, particularly focusing on improving their self-control and mental resilience. To improve the depth and applicability of findings, the study has emphasized the adoption of random sampling, a larger and diverse sample, and a mixed methods design.

Keywords: *First year College Students; Internet Addiction; Academic Procrastination; Self-Control; Mental Resilience.*

Introduction

The rampant technology development has led to a significant increase in internet usage in the past couple of decades, particularly among students. Students seek the internet for its varied benefits, such as openness, promptness, and interactivity, all of which can substantially influence their general and academic behaviours and decisions (Geng et al., 2018). However, with the range of services and activities available on the internet, such as virtual gaming, shopping, entertainment, news, social interactions, training, and more, the involvement of students with the Internet has increased to reach a state of addiction. In psychological terms, Kim and Davis (2009) referred to internet addiction (IA) as the increased internet usage by individuals having damaging effects on their psychological and sociological functioning. Such increased Internet usage in the form of Internet addiction has become a challenge for all concerned users and scholars across the world.

Among 1.05 billion internet users in China, the most active users are youngsters and college students (Wang et al., 2022). As stated in the 'Statistical Report on the Development of China's Internet,' the prevalence of IA among Chinese college students is 10.7%. Su et al. (2019) observed that males have a higher propensity to become addicted to internet than females. This finding is particularly more evident in Asia, where a considerably larger male population is addicted to the internet than females. Moreover, it was found that those with IA are associated with higher depression levels due to negative online experiences. Concerning this, Liang et al. (2016) noted that both genders, i.e., male and female, engage differentially with internet. It was noted that males become addicted to internet as a consequence of the depression they are facing; thus, males in China use internet to enhance their moods (Liang et al., 2016). On the contrary, in females, IA was found to be the cause of depression.

While access to internet can make students aware of the happenings of the world, it adversely affects the intellectual and physical health of students. Menhndiratta et al. (2023) observed that while positive internet use can contribute to individual success, IA is associated with impaired cognitive functions, psychosocial functioning, and overall negative performance. Academic procrastination, a part of academic behaviour, is one such negative effect of IA, wherein students intentionally delay working on their assignments, which

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can lead to poor performance on courses and increasing academic stress and anxiety (Pan et al., 2023). Gong et al. (2021) focused on studying the interconnection between IA and academic procrastination among college students. They observed that addiction to internet and internet-based services among college students is a way for them to avoid academic stress and keep procrastinating on their tasks. Moreover, Geng et al. (2018) noted that there exists a negative interconnection between self-control with both IA and academic procrastination, and both IA and academic procrastination could be reduced by increasing the self-control of students. Such insights further underline that self-control has a mediating effect on the interconnection between academic procrastination and IA.

Academic behaviours of students have been found to be impacted by their mental resilience, which reflects their capability to overcome situations of adversity and stress (Zhou & Wang, 2023). According to Li et al. (2023), IA among college students has been found to impair the way in which they cope with stresses, control and manage their emotions, and thus, their academic behaviour and conduct. Thus, while individual studies have linked IA with academic procrastination as well as self-control and mental resilience, there is little research analysing the mediating role of self-control and mental resilience in the relationship between IA and academic procrastination. Moreover, while there are studies examining the relative degrees of IA among male and female students, there is a dearth of research in the field of gender differences in relation to academic procrastination, particularly in the Chinese context. The present study was designed to address these two research gaps to investigate the role that self-control and mental resilience of Chinese college students with IA may play in procrastinating on their academic tasks. For this aim, four research objectives have been framed:

RO1. To investigate academic procrastination and internet addiction patterns among college students in China

RO2. To examine the impact of gender differences in internet addiction and academic procrastination among Chinese college students.

RO3. To assess the relationship between internet addiction and academic procrastination of Chinese college students.

RO4. To investigate the mediating role of self-control and mental resilience in the relationship between internet addiction and academic procrastination of Chinese college students.

For these objectives, three Null Hypothesis were designed:

H_{01}:

There will be no statistically significant effect of gender on internet addiction and academic procrastination among Chinese college students.

H_{02}: There will be no statistically significant effect of internet addiction on academic procrastination of Chinese college students.

H_{03}: There will be no statistically significant mediating role of self-control and mental resilience in the relationship between internet addiction and academic procrastination of Chinese college students.

Methodology

Research Design

The study aims to quantify the effect of IA on academic procrastination at a singular point in time; therefore, the research design of the study was a cross-sectional design. This design helped collect quick and large data in lesser time and was appropriate for assessing the patterns in the use of internet of a specific age group, i.e., college students. The independent variable of the study was internet addiction, the dependent

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variable was academic procrastination, and the two mediating variables were self-control and mental resilience.

Participants

The study population comprised of both males and female college students in China.

From this population, few colleges were contacted through email, describing the key details of the research, the details on how data will be collected from the students, and how that data will be used. The first five colleges that showed interest and allowed data collection at their premises were included in the sampling frame for the research. Thus, the selection of the colleges/sampling frame was done through convenience sampling method. Moreover, the students as final samples were selected from colleges having multiple courses. For the final sample selection, the link of combined questionnaire for the four variables and demographic information was shared with the student groups of first year students in all the different courses of the five selected colleges. The link had instructions on how to fill out the questionnaires and also an informed consent form which was to be filled out first before participants could proceed to fill the actual questionnaires. The first 240 male students and 240 female students who filled out the questionnaire were selected as the sample of the study; thus, the final sample was also selected through the convenience sampling method. The choice of a moderately large sample size was governed by the G*power formula and the need to be able to generalize the findings on the broader first year college population in China. Therefore, the final sample of the study comprised 480 first year students (240 male and 240 female) from five Chinese colleges selected through the method of convenience sampling.

Data Instruments

Quantitative online survey questionnaires were used to collect data from the sample. Existing literature was reviewed and appropriate and standardised tools were obtained for internet addiction, academic procrastination, and mental resilience in the Chinese context; these pre-existing questionnaires were used to assess these three variables. Demographic information of the sample like their age, class/domain of education, and gender was also collected to study the patterns in IA and academic procrastination as per these variables.

a. Internet Addiction Scale: The Internet Addiction Scale by Chen or CIAS is a multi-item scale developed and standardised by Chen et al. (2003) in the Chinese context to study the patterns of internet addiction among the Chinese population. The scale has 26 Likert-scale items rated on a four-point scale between 1-4, with one signifying 'does not match my experience at all' and 4 signifying 'definitely matches my experience.' The participants are required to rate each item keeping in view their experiences of the past three months. For example, one item reads '*I feel energized online*.' Here, the participants are to rate the item with their degree of affirmation of how well they felt energized when using internet in the past three months. The range of scores on the scale lies between 26 and 104, and the higher the score of individuals, the higher is their internet usage. According to the authors of the scale, a score on CIAS higher than or equal to 64 will come in the category of Internet Addicted. Although the exact values of reliability and validity are not revealed by the authors, they have reported the scale to be reliable and possessing satisfactory internal consistency and test-retest reliability.

b. Academic Procrastination Scale: For academic procrastination, the PASS or the 'procrastination assessment scale for students' developed by Solomon and Rothblum (1984) has been used. The scale has two broad parts- *areas of procrastination*, which has 18 items and *reasons for procrastination,* which has 18 items. For the present study, all items of only part one, '*areas of procrastination*' were used to investigate the patterns of academic procrastination among Chinese college students. These items were rated on a five-point scale between 1 and 5 to describe the degree to which the participants procrastinate working on their academic tasks. On this scale, 1 suggested 'never procrastinate', and 5 suggested 'always procrastinate.' All the items of the scale were positively scored and the range of scores varied between 18 and 90, which higher scores indicating higher academic procrastination and vice-versa. The scale exhibited a test-retest reliability of .74

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for areas of procrastination and .80 for the overall scale. It also has a significant degree of concurrent validity.

c. CD-RISC: The Connor-Davidson Resilience Scale, or the CD-RISC, is probably one of the most widely accepted, standardised, and used scale of mental resilience. The original scale is a 25-item Likert scale developed by Connor and Davidson (2003) to measure the stress endurance, coping, and adaptation aspects of individuals when faced with stressful situations. The items are rated between 0 to 4, where 0 suggests 'not true at all' and 4 suggests 'true nearly all the time.' All the items on the scale are positively scored and the range of score varies between 0 to 100. The higher the score of an individual, the higher is their mental resilience, and vice versa. The scale has sound psychometric properties with a high internal consistency (value of Cronbach's alpha being 0.89) and high convergent and discriminant validities. Additionally, CD-RISC has been validated and standardised over large populations across the globe, including Chinese populations, which make it an idea choice of scale when assessing mental resilience.

d. Self-control Scale: For self-control, there was no standardised questionnaire available in the context of Chinese college students; therefore, a survey questionnaire was self-constructed for this variable using a rigorous process of tool construction. The available scales on self-control were assessed, such as the Brief Self-control scale by Tangney et al. (2004) and aspects of self-control, including emotional competence, goal-orientation, locus of control, and perseverance were identified. Based on these aspects, a preliminary draft of the scale was prepared, reviewed by experts and then refined. Content validities of the scale and items were assessed and the scale was piloted to see if the participants could understand the items well. High reliability (test-retest reliability of 0.88) and validity (scale-wise content validity of 0.84) of the tool were ensured before using it in the study. The final scale had 15 Likert-type items rated between 1 and 5 where 1 implies 'not true at all' and 5 implies 'definitely true.' As all the items on the scale were positively scored, the range of scores varied between 15 and 75, wherein the higher scores indicated greater self-control and vice-versa.

Procedure

The first step of the process of data collection. The research included contacting various colleges in China through an e-mail containing information on the purpose of the study. The first five colleges that affirmed the purpose of the research and agreed to data collection on their students were selected as the sampling frame of the study. Appropriate tools (survey questionnaires) were selected for internet addiction, mental resilience and academic procrastination, and a survey questionnaire was self-constructed for self-control following a rigorous tool construction process. All the tools for these four variables were then concise to form a combined questionnaire. The combined questionnaire had 5 parts. Part 1 of the combined questionnaire had demographic information of participants such as age, gender, and course of study, Part 2 had 26 Likert-scale items of Internet Addiction Scale, and Part 3 had 18 items of PASS. Part 4 of the combined questionnaire had 25 items of CR-RISC, and Part 5 had 15 items of the Self-control Scale. Thus, the combined scale had a total of 84 Likert-type items and demographic information of the participants. This questionnaire was constructed in both Chinese and English language on 'Questionnaire Star,' a platform for constructing online research tools. The questionnaire also had an informed consent form and instructions on how to fill out the questionnaire. This link with the consent form, instructions, and the combined questionnaire was shared with the student groups of first year students of the various courses of this college. The first 240 males and 240 females who filled out the questionnaire became the sample of the study. Once an adequate sample had been collected, the questionnaire link was disabled. The raw scores of the participants were compiled in MS Excel, and then analysed by IBM SPSS to find the results of this study.

Data Analysis

Data collected in the study was quantitative, therefore, quantitative statistical tools were used to collate and analyse this data. Raw data was compiled using MS Excel and it were analysed using IBM SPSS. Both descriptive (numeric and graphical) and inferential statistics were used. In the descriptive statistics, trends and patterns in terms of internet addiction, self-control, academic procrastination, and mental resilience of

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the sample were assessed using mean, standard deviation, and percentages. The numeric data was complemented using graphical representations such as frequency histograms and pie charts. For making comparisons between male and female students pertaining to their IA and academic procrastination, t-tests were used. For investigating the relationship between IA and academic procrastination, correlation coefficients were computed. Lastly, to examine the effect of IA and the two mediating variables (self-control and mental resilience) on academic procrastination, regression matrices were formed.

Ethical Considerations

To ensure that the data is collected in an ethical and transparent manner, appropriate ethical principles were adopted for privacy, confidentiality, and data security. To ensure privacy and confidentiality of the participants, names or any other identifiable information of the sample were not collected. Instead, each participant was given an autogenerated code like 1, 2, 3, in the order they filled the questionnaires. Thus, the pseudonyms of participants ensured they were not identifiable to any outside person. Additionally, the principle of informed consent was adopted to make sure that the participants were aware of the purpose for which their responses would be used. Such measures were taken while collecting data and informing the participants about the scope and aim of the research, followed by the tool used for collecting data. Standardised tools were used to ensure that the data collected would assess the exact variables being studied; for self-control and academic procrastination, though tools were self-constructed, their high reliability and validity ensured the tools appropriately assessed these variables. To reduce the impact of the researcher on the sample, data was collected in a virtual mode, which ensured that all participants had access to the same instructions and that no outside help or cues were provided to participants by the researcher. Moreover, to ensure the safety of the data collected, the data was stored in an encrypted folder, so that only the researcher could access it. Thus, any outside influence from the researcher or any other agency was averted in the data collection process. All these measures ascertained that the study was ethically conducted.

Findings

Descriptive Statistics

The first objective of the study was to investigate the patterns of internet addiction, academic procrastination, self-control, and mental resilience, mean values and standard deviations were calculated. On the basis of the mean values, the level of internet addiction, as well as the level of procrastination on academic tasks by first year college students in China, was ascertained (Table 1).

Based on the range of scores for internet addiction (26-104), scores of 64 and above are interpreted as high internet addiction. In the sample, the mean value of internet addiction came to fall in the low internet addiction range, as $M = 58.79$, $S.D. = 8.30$. As the mean value is lower than the cutoff score of 64, it implies that first-year college students in China are moderately addicted to the internet. The range of scores for academic procrastination was 18-90, and the scores were divided into three levels, i.e., scores including 30 and below were low scores, scores between 31-60 were average scores, and scores above 60 were high scores. Based on this, the academic procrastination of first-year college students in China was found to lie in the average range, as $M = 49.51$, $S.D. = 14.38$. This means that first year college students in China are moderately procrastinating on their academic tasks such as writing a paper, attending with professors, studying for exams, or on general tasks of college.

The mediating variable, self-control had a score range of 15-75 with three levels- low self-control (scores including 25 and below), average self-control (scores between 26-50), and high self-control (scores including 51 and above). Based on this distribution, the first year college students in China have moderate or average self-control, as $M = 33.66$, $S.D. = 5.29$. This implies that the sample students are only moderately able to control their temptations to use the internet, focus on their academic tasks, and control their emotions. Lastly, the score range of metal resilience for the participants was 0-100. The scores were divided into three levels- low mental resilience (scores below 34), average mental resilience (scores between 34-67), and high mental resilience (scores above 67). Looking at the mean value of mental resilience, the participants were found to exhibit average mental resilience, as $M = 55.89$, $S.D. = 8.99$. These findings imply that the first-

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year college students in China are only moderately able to cope with the challenges of their lives, be it academic, emotional, or social challenges. On the whole, the descriptive statistics show that the selected first-year college students in China exhibit moderately high internet addiction, moderate self-control and resilience, and they moderately procrastinate on their academic tasks.

Gender-wise Comparisons

The second objective of the study was to study gender differences and compare male and female students in terms of internet addiction and academic procrastination among Chinese college students. To achieve this objective, t-tests were run for the mean scores of male and female first-year college students in China (Table 2).

From Table 2, it is evident that for all four variables, i.e., internet addiction, academic procrastination, self-control, and mental resilience, the t-test values of gender-wise comparisons are significantly higher and statistically significant. The t-test value for internet addiction is t (478) = 29.27, $p < .001$, which is statistically significant at .01 level of significance, implying that there exists a statistically significant difference between male and female first year Chinese college students in terms of their internet addiction. As the mean value of males (M = 65.44, $S.D.$ = 5.58) is considerably higher than the females (M = 52.15, $S.D.$ = 4.27), it can be asserted that male first year Chinese college students are more addicted to internet than the female first year Chinese college students. Similarly, for academic procrastination, t (478) = 69.34, $p < .001$, which is statistically significant at a .01 level of significance, implying that there exists a statistically significant difference between male and female college students in terms of their procrastination on academic tasks. As mean value of males (M = 63.21, $S.D.$ = 5.08) is considerably higher than the females (M = 35.81, $S.D.$ = 3.41), it can be asserted that male students procrastinate more on their academic tasks than female students.

While significant, the results for self-control and mental resilience are in contradiction to the results for internet addiction and academic procrastination. The t-value for self-control was found to be t (478) = -20.07, $p < .001$, which is statistically significant at a .01 level of significance. This implies that there exists a statistically significant difference between male and female college students in terms of their self-control. However, the mean value for males (M = 30.08, $S.D.$ = 4.41) is significantly lower than the mean value for females (M = 37.24, $S.D.$ = 3.32). Thus, it can be asserted that female first year college students in China are better than male students at controlling their temptations to use the internet, focusing on their academic tasks, and controlling their emotions. Similarly, for mental resilience, t (478) = -20.78.62, $p < .001$, which is statistically significant at .01 level of significance. This implies that there exists a statistically significant difference between Chinese first year male and female college students in terms of their mental resilience. However, the mean value for males (M = 49.70, $S.D.$ = 7.53) is significantly lower than the mean value for females (M = 62.09, $S.D.$ = 5.34). Thus, it can be asserted that female first year college students in China are better at coping with the challenges of their lives, be it academic, emotional, or social challenges. Based on these comparisons, it can be concluded that females first year college students in China are less addicted to the internet, procrastinate less, and have better self-control and resilience than male first year college students.

Correlational Analysis

The third objective of the study was to assess the relationship between internet addiction and academic procrastination in Chinese college students. For this, correlation analysis was carried out by computing Pearson's correlation coefficient. Correlation was also computed to assess the relationship between the two mediating variables, self-control and mental resilience with internet addiction and academic procrastination (Table 3).

From Table 3, it is evident that there exists statistically significant correlation between academic procrastination and internet addiction in first year college students in China, as r (478) = .78, $p < .001$. The value of correlation coefficient indicates a significantly high positive relationship between academic procrastination and internet addiction, such that with an increase in the internet addiction of Chinese first

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year students at selected colleges, their procrastination in academics also increases, and vice versa. The value of correlation is also significant between internet addiction and self-control, r (478) = -.53, p < .001. However, the negative sign of correlation implies that the relationship between internet addiction and self-control is inverse, i.e., students who are more addicted to the internet have lesser self-control, or the students who have better self-control are less addicted to internet and vice versa. Similarly, the value of the correlation between internet addiction and mental resilience is moderately significant but negative, r (478) = -.51, p < .001. This means that students who are more addicted to internet have lower mental resilience, or the students who have better resilience are less addicted to internet and vice versa. Correlations between academic procrastination and self-control, r (478) = -.65, p < .001, and academic procrastination and mental resilience, r (478) = -.65, p < .001 were also significant and negative. It means that students with a high degree of self-control and mental resilience procrastinate less on their academics and vice versa. However, there was a statistically significant moderate positive relationship between self-control and mental resilience, r (478) = .43, p < .001, signifying that students possessing high self-control are also better resilient than students with low self-control, but this relationship could be affected by other factors also. Thus, it can be observed from the results that there are statistically significant relationships between the independent, dependent, and mediating variables of the study.

Regression Analysis

The last objective of the study was to investigate the mediating role of self-control and mental resilience in the relationship between internet addiction and academic procrastination of Chinese college students. For this, firstly, the regression analysis for academic procrastination and internet addiction was carried out (Table 4).

Regression analysis was carried out between internet addiction and academic procrastination, and the value of regression coefficient (B = 1.35) came out to be significant, implying that one unit change in internet addiction of sample students will bring about 1.35 units change in their academic procrastination. The positive sign of regression coefficient indicates that the change is direct, i.e., an increase in internet addiction of sample students will bring 1.35 unit increase in their academic procrastination. Similarly, a decrease in their internet addiction will bring about identical decrease in their level of academic procrastination. Beta value, which represents the strength of the relationship is also statistically significant, as r (478) = .78, p < .001. This means that the observed relationship between internet addiction and academic procrastination is not random. As F (1, 478) = 732.25, p <.001, the regression model of internet addiction is extremely highly predictive for academic procrastination of Chinese first year college students. R^2 value of this regression model was .60, which means that internet addiction can predict 60% variability in academic procrastination of the sample. On the whole, it can be asserted that academic procrastination of the sample students can be significantly predicted by their internet addiction.

To ascertain the mediating role of self-control and mental resilience, two mediation analyses were carried out: one with self-control as the mediating variable, and the other mental resilience as the mediating variable. The first mediation analysis describing both direct and indirect effects for self-control as the mediating variable is given in table 5.

The result of mediation analysis shows a statistically significant mediation role of self-control in influencing the relationship of internet addiction and academic procrastination. The value of the coefficient of the direct effect of internet addiction on academic procrastination is 1.048, p > 0.01, suggesting a large direct impact of internet addiction on academic procrastination. However, the coefficient value of indirect effect of internet addiction on academic procrastination, mediated by self-control, is .300, p > 0.01, suggesting that self-control mediates the relationship of internet addiction with academic procrastination. Conclusively, it can be asserted that internet addiction promotes academic procrastination among first-year university students in China by affecting and reducing their self-control over their usage of internet.

The second mediation analysis describing both direct and indirect effects for mental resilience as the mediating variable is given in table 6.

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The result of mediation analysis shows a statistically significant mediation role of self-control in influencing the relationship between internet addiction and academic procrastination. The value of coefficient of the direct effect of internet addiction on academic procrastination is 1.041, $p > 0.01$, suggesting a significant direct impact of internet addiction on academic procrastination. However, the coefficient value of the indirect effect of internet addiction on academic procrastination, mediated by mental resilience, is .306, $p > 0.01$, suggesting that mental resilience mediates the relationship of internet addiction with academic procrastination. Conclusively, it can be asserted that internet addiction promotes academic procrastination among first-year university students in China by reducing their mental resilience to control their usage of internet and utilize their time on academics. In summary, it can be concluded that both self-control and mental resilience mediate the interconnection between academic procrastination and internet addiction.

Discussion and Conclusion

The present study investigated the role that self-control and mental resilience of Chinese college students with internet addiction may play in procrastinating on their academic tasks. Concerning the patterns of internet addiction and academic procrastination, it was found that the first-year college students in China are addicted to internet. These findings align with the observations of Wang et al. (2023), who noted that 10.7% of college students in China are addicted to internet. Pertaining to their academic procrastination, it was observed that the first-year college students in China were moderately procrastinating on their academic tasks such as writing a paper, attending with professors, studying for exams, or on general tasks of college. For mediating variable, self-control, it was found that the sample students were only moderately able to control their temptations to use the internet, focus on their academic tasks, and control their emotions. Lastly, first-year college students in China were found to be able to only moderately cope with the challenges of their lives, be they academic, emotional, or social challenges.

Gender-wise differences revealed that male students were more addicted to the internet and also procrastinated more compared to their female counterparts. This finding is in alignment with the observations of Su et al. (2019), who found that Asian males have a higher propensity to become addicted to the internet than females. The finding is particularly interesting from the point of view of its Chinese context since such gender differences are more prominent in countries from Asia and Africa due to their economic and cultural backgrounds. In such countries, low per capita GDP, lesser penetration of internet services, and more preference for males due to culturally male-dominated social structure make it less feasible for females to access internet services for longer durations (Su et al., 2019). Therefore, there is a relatively lesser probability of female students becoming addicted to the internet. Thus, the null hypothesis, $H_{01,}$ 'there will be no statistically significant effect of gender on internet addiction and academic procrastination among Chinese college students,' is rejected.

The findings from the study state that there exists a direct relationship between internet addiction and academic procrastination. Moreover, the study observed a significant predictive capability of internet addiction for academic procrastination found among first year college students in China. Thus, the hypothesis, $H_{02,}$ 'there will be no statistically significant effect of internet addiction on academic procrastination of Chinese college students,' is rejected. The finding provides evidence for the observations of Geng et al. (2018) and Gong et al. (2021), who observed that internet addiction and academic procrastination are positively correlated. However, the cause-effect relationship observed in the present study is in contradiction with the findings of Gong et al. (2021). As per their justification, addiction to internet and internet-based services among college students is a way for them to avoid academic stress and keep procrastinating on their tasks. As the present study has also found a predicting role of IA on academic procrastination, it can be stated that IA is the major reason for academic procrastination among Chinese college students.

Moreover, the study found that self-control and mental resilience, both had a mediating role in influencing the relationship between internet addiction and academic procrastination. Consequently, hypothesis $H_{03,}$ 'there will be no statistically significant mediating role of self-control and mental resilience in the relationship between internet addiction and academic procrastination of Chinese college students,' is

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rejected. The mediating role of self-control in the relationship of internet addiction with academic procrastination is supported by the observations of Kim et al. (2017), who observed that college students with poor self-control are more prone to procrastinate more on their tasks and become addicted to the internet. They are also more likely to engage in present-focussed thinking with a very casual approach towards their future prospects. While there is no research directly linking resilience with internet addiction, problematic use of internet has been found to be linked negatively with resilience levels of adolescent students in high school by Dinc and Topcu (2021). Similarly, Kumar and Jayalakshmi (2022) found a negative relationship between resilience and academic procrastination among undergraduate college students. Based on these findings, it can be inferred that the results of the present study are in sync with published literature in the field. While the findings align with previous literature, there are significant fresh perspectives presented by this research that shall be further researched to establish their significance.

Equipped with the findings, certain significant implications can be proposed for concerned stakeholders like college students, educators, and policy makers. As self-control and resilience have been found to relate negatively with internet addiction and procrastination, college students shall be encouraged to work towards improving their self-control and resilience levels, both of which can promote healthy use of the internet and reduced academic procrastination. Additionally, awareness programs shall be arranged for the students by college/school administration to ensure the students are informed of the risks of internet addiction; this can motivate the students to make informed choices on why and how much to use internet. Moreover, parents shall also be made aware of the risks of unhealthy use of internet to promote among them the awareness to adopt healthy internet-use and manage the internet use of their children also. Additionally, educators and school administration can adopt a well-structured curriculum to ensure that students have no option to procrastinate but to take their studies and assignments seriously in a focused manner. Furthermore, policymakers can consult with health professionals, educators, parents, and students to design policies and laws for promoting digitally-healthy habits, such as appropriate mandatory cocurricular activities which can take students' attention off of internet services. Lastly, colleges and schools can coordinate with mental healthcare professionals to set up counselling services and intervention programs aimed at promoting mental resilience and self-control among students. A coordinated and collaborative efforts from parents, policymakers, educators and healthcare professionals can promote healthy use of internet to support the holistic development of students.

Despite such rich results, the present study has certain limitations. First, though the sample size (n = 480) is large enough to make generalisations, the generalising capability of the study is limited by the method of sample selection, which is the convenience sampling method. There are high chances that the first 480 students from the first five colleges that agreed to the research process were the ones who had interest in the research topic. Under such circumstances, the sampling is not random and the sample does not represent the entire population of first year college students in China. Moreover, there is a high probability that the responses of participants were biased by general conjecture on internet addiction or resilience or social desirability bias. Consequently, the responses obtained may not be representative of the actual responses of the participants. To overcome these limitations, it is recommended that future researchers use a more representative, diverse and random sample. Second, though the quantitative data provides great width to the findings, the depth of how students become addicted to internet, why they procrastinate, and why they are not able to control their emotions or use of internet, is not covered in this study. Future research could adopt a mixed methods design to include qualitative interviews that can generate deeper information on the experiences of college students with internet use and procrastination. Lastly, though rigorous procedure was adopted to make the self-control scale adequately reliable and valid, it may not be as refined as standardised tools of self-control. Future researchers can work on validating and standardising this tool by applying it over larger and diverse cultural populations.

In summary, the study used a cross-sectional quantitative research design to assess the role of self-control and mental resilience of Chinese college students in mediating their internet addiction and procrastination on academic tasks. Findings of the study reveal that male college students in China are more addicted to the internet and also procrastinate more compared to their female counterparts. Additionally, the inferences further underline that there is a statistically significant positive relationship between internet addiction and

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academic procrastination, and internet addiction is the reason for procrastination observed among first year college students in China. Moreover, the study has found that self-control and mental resilience, both have a mediating role in influencing the relationship between internet addiction and academic procrastination. These findings suggest that male college students in China are more negatively affected by internet use and addiction, and are in need of intervention, particularly focusing on improving their self-control and mental resilience. To improve the depth and applicability of findings, the study has emphasised the adoption of random sampling, a larger and diverse sample, and a mixed methods design.

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