

ADOLESCENT STUDENTS IN THE DIGITAL AGE: GENDER VARIATIONS IN INTERNET USE AND ACADEMIC PROCRASTINATION

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ABSTRACT

The advent of the technological age has drastically changed the lives of adolescents, both socially and intellectually, and as such, Problematic Internet Use and Academic Procrastination have become major issues. This study proposed to investigate the presence of Gender Differences on Problematic Internet Use and Academic Procrastination, and the relationship link existing between the variables, among the adolescent students, specifically of the Dehradun District, India. This study utilized the survey descriptive method and gathered data from 200 students of the secondary school.

Analysis of the findings revealed that boys had significantly high scores on dimensions as well as the total scores for PIU, such as Obsession, Neglect, and Control Disorder, compared to the scores of girls. On the other hand, no significant difference was observed between boys and girls regarding their scores for academic procrastination. This implies that procrastination for academic purposes and other reasons could be completely independent of gender. In addition, it was observed that there is an important and statistically significant positive link between PIU and academic procrastination for both boys and girls, and that the link is stronger for the latter. This study offers insights into adolescent behavior and an examination of the contemporary world and provides an opportunity to conduct research that offers factual information to help teachers and professionals develop effective techniques for combating PIU and procrastination.

Keywords: Adolescents, Problematic Internet Use, Procrastination, Gender Differences, Digital behaviors, India

INTRODUCTION

Without a question, one of the most important technological developments of the past century is the internet. Because of its convenience, technology has become an essential component of human relationships in commerce, education, health, and the arts. The amount of goods and services available on the internet has increased due to its accessibility and the sharp increase in internet users. Due to these goods and services' ability to save time, many people now consider using the internet a necessity rather than a choice.

Social networks and other online products and services, as well as communication and entertainment tools, have gained new dimensions as a result of internet usage.

Social networks and other online products and services, as well as communication and entertainment tools, have gained new dimensions as a result of internet usage. As enjoyable stuff like music and film, games and entertainment, and social media grows

apps, internet usage has become into a time-consuming routine. The troublesome, unhealthy, and pathological inability to manage internet usage has been the focus of current research. Put differently, an addiction. The term addiction no longer only indicates physical addiction such as substance usage, but it is now observed in many forms such as social media, the internet, and gaming.

Despite the fact that people utilize the Internet to find new knowledge, it is seen that young people do not fully profit from this technology (Arikan & Altun, 2007; Tekakpinar & Tezer, 2020). Along with the benefits of Internet use (Naseri et al., 2015), it has also been noted that problematic Internet use can have negative effects, including decreased academic and professional performance, incompatible cognition, social dysfunction, and Internet addiction (Prasad et al., 2017).

Tomaszek and Muchacka-Cymerman's (2019) study, which involved participants aged 17 to 20 from Poland and looked at problematic Internet usage and school burnout in adolescents, found that a high degree of school burnout was linked to higher levels of indicators of Internet addiction. Nonetheless, the study claims that Internet addiction is predicted by school burnout, which is brought on by family pressure for high school achievement.

The young people believe that entering a university is difficult and demanding. They engage in excessive online activities that lead to internet addiction in an effort to avoid unpleasant emotions and ignore reality (Liu et al., 2022). Students use the internet excessively and disregard their academic obligations because they see it as a tool for enjoyment. Students' academic lives have been significantly disrupted in the post-pandemic era, which has resulted in a rise in procrastination in comparison to earlier times (Chaturvedi et al., 2021; Lim & Javadpour,

2021). Given the current paradigm shift in education from a traditional to an online learning and teaching environment, it is important to examine the connection between university students' procrastinating habits and internet addiction. Academic procrastination is the deliberate postponement of study-related tasks that impede academic achievement.

According to Svartdal et al. (2020), procrastinators are more prone to temptation, lack preparation and conscientiousness, and are present-oriented.

In their 2023 study of Thai university students, Nadarajan, Hengudomsb, and Wacharasin found that increased internet addiction is a contributing factor to academic procrastination and recommended focused treatments to address this problem.

Research by Tian et al. (2021), Xie et al. (2023), Liu et al. (2018), and Chen, Li, and Kim (2021) examined the psychological processes—such as intrusive thinking, DAS symptoms, and time management disposition—that link internet addiction to procrastination. These results highlight how crucial it is to treat mental health conditions in order to reduce procrastination and improve academic achievement. Lastly, studies conducted by Reinecke et al. (2018), Sharma and Kastiya (2020), and Choo (2022) verified that internet addiction had a substantial impact on procrastination and general psychological health in a variety of settings, including Malaysian universities and workplaces.

Although there is an increasing number of research articles available on the topic of internet use and procrastination during adolescence, there appears to be a lack of research available that focuses on the relationship between Problematic Internet Use and Academic Procrastination, as well as the differences that exist between the two as it pertains to the genders. For this reason, the objectives of the research study are designed to address the above-stated gaps and provide an insight into the relationship that Problematic Internet Use and Academic Procrastination share, as it pertains to the various genders.

This study makes contributions to the existing literature by offering empirical insights regarding the intersection of online behaviors and the self-regulation of academic behaviors during adolescence, pointing out both gender-specific risks and common patterns. Given this knowledge, PIU among adolescent students may result in academic procrastination. The definition of addiction will be covered in this study, followed by problematic internet use. Lastly, this study investigates the relationship between problematic internet use and adolescent students' academic procrastination.

These research findings are likely to benefit teachers, policy-makers, and mental health professionals regarding the development of effective approaches for healthy online engagement and sound academic behaviors, coping with the challenges of the digital age.

RESEARCH METHODOLOGY:

Research Objectives:

1. **To examine gender-based differences in Problematic Internet Use (PIU) among adolescent students.**
2. **To assess gender-based differences in Academic Procrastination among adolescent students.**
3. **To investigate the relationship between Problematic Internet Use (PIU) and Academic Procrastination among adolescent students with respect to gender.**

Research Hypotheses:

Ho1 There is no significant difference in Problematic Internet Use (PIU) between male and female adolescent students.

Ho2 There is no significant difference in Academic Procrastination between male and female adolescent students.

Ho3 There is no significant relationship between Problematic Internet Use (PIU) and Academic Procrastination among adolescent students, irrespective of gender.

Delimitations of the Study:

- This study is conducted on the Secondary school students of Dehradun district.
- The study includes both boys and girls enrolled in government, government-aided, and private intermediate schools in the urban and rural Dehradun District studying in classes 11th and 12th.

Tools used in the study:

The following standardized tools have been used to collect the data in the present investigation:

- Problematic Internet Use Questionnaire by Pramod, S.K. and Dr. Raju S.
- Academic Procrastination Scale (APS- KAYM) by Dr. Ashok K. Kalia & Manju Yadav.

Variables of the study:

- Academic Procrastination
- Problematic Internet Use

Demographic Variable:

Boys
Girls

METHODOLOGY:

Design and Participants:

The study employed a survey-based approach grounded in a descriptive research design to examine the relationships among the key variables. An intervening variable was incorporated to function as a mediator in the proposed associations. This design enabled a systematic assessment of patterns and interactions within the adolescent population.

Population and Sample:

The population for the study comprised adolescent students enrolled in secondary schools. A sample of approximately 200 students from various schools in the Dehradun district was selected to participate. The sample represents diverse demographic and educational backgrounds, ensuring adequate variability for meaningful analysis.

Collection of Data:

To conduct the study, the required ethical permits were acquired from the government, government aided and non-government schools of Dehradun district. Adolescent students attending secondary schools were asked to complete a questionnaire within 15 to 20 minutes on specific days and hours in order to provide the data.

Statistical Technique:

Mean and S.D. values were computed to test the null hypothesis, and the t-test was computed to find relationship between the groups.

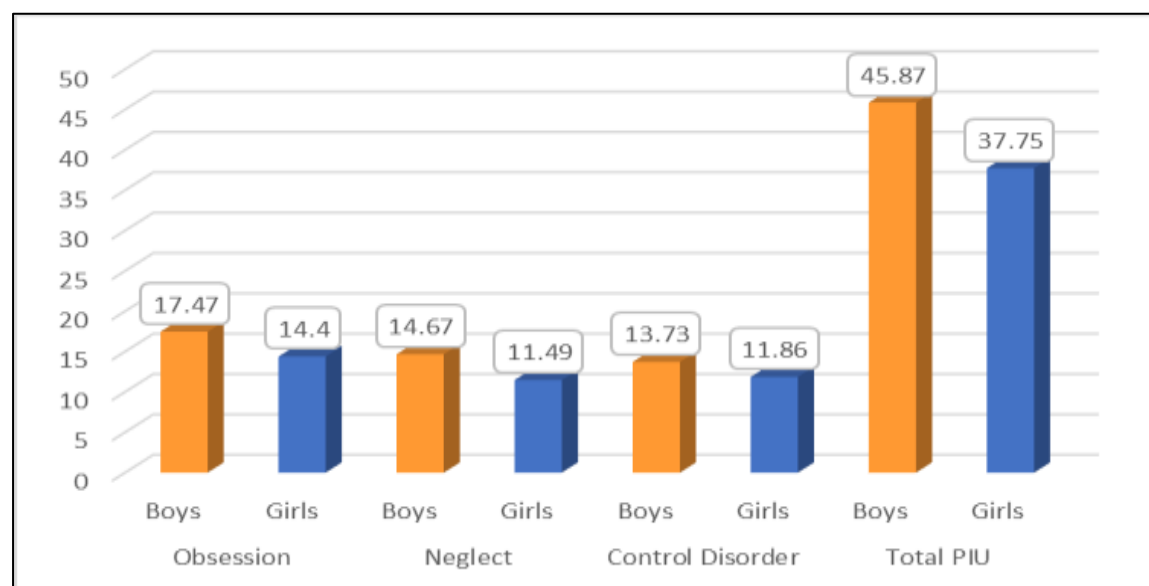
Analysis and findings of data:

Phase1 Effect of PIU on boys and girls of Dehradun district.

Ho1 There is no significant difference in Problematic Internet Use (PIU) between male and female adolescent students.

Table1 Significant difference between adolescent boys and girls of Dehradun district on PIU.

Variable	Gender	N	Mean	SD	df	t-value	Level of significance
Obsession	Boys	100	17.47	2.883	198	6.043	Significant
	Girls	100	14.40	4.183			
Neglect	Boys	100	14.67	3.059	198	7.690	Significant
	Girls	100	11.49	2.783			
Control Disorder	Boys	100	13.73	3.045	198	4.484	Significant
	Girls	100	11.86	2.850			
Total PIU	Boys	100	45.87	4.172	198	9.841	Significant
	Girls	100	37.75	7.119			



Interpretation of Results

1. Obsession:

- Mean (Boys = 17.47) is significantly higher than Mean (Girls = 14.40).
- t-value = 6.043, $p < 0.05$ (significant).
- Interpretation: Boys experience a significantly higher level of obsessive internet use compared to girls.

2. Neglect:

- Mean (Boys = 14.67) vs. Mean (Girls = 11.49).
- t-value = 7.690, $p < 0.05$ (significant).

○ **Interpretation:** Boys show significantly greater neglect (e.g., ignoring responsibilities or offline activities) due to internet use than girls.

3. Control Disorder:

○ **Mean (Boys = 13.73) vs. Mean (Girls = 11.86).**

○ **t-value = 4.484, $p < 0.05$ (significant).**

○ **Interpretation:** Boys face more difficulty controlling their internet use than girls.

4. Total PIU Score:

○ **Mean (Boys = 45.87) vs. Mean (Girls = 37.75).**

○ **t-value = 9.841, $p < 0.05$ (significant).**

○ **Interpretation:** Overall, adolescent boys in the Sahaspur block show significantly higher levels of Problematic Internet Use compared to girls.

CONCLUSION

The present investigation establishes definite evidence of statistically significant gender-based differences in PIU among adolescent students of Dehradun District, with boys consistently scoring higher than girls across dimensions like Obsession, Neglect, and Control Disorder, reflecting a greater tendency toward compulsive, disruptive, and poorly controlled internet use. The overall PIU score also confirms this fact—that adolescent boys are significantly more vulnerable to problematic digital behavior compared to their female counterparts.

These findings are strongly supported by several recent studies from India and South Asia. Joseph et al. (2022), in a national-level meta-analysis on Indian adolescents, similarly reported higher PIU prevalence among males. Studies by Singh et al. (2022) and Dhawan et al. (2021) also found that male adolescents tend to demonstrate greater internet dependence, often associated with prolonged online engagement and gaming activities. Bhattacharjee (2024) further highlights that boys are particularly prone to gaming-related PIU, which aligns with the higher Obsession and Control Disorder scores in the current study. Regional studies on schoolchildren (e.g., IJ Pediatrics; Shanti, 2023) also consistently identify male gender as a significant risk factor for PIU.

However, findings should be interpreted with awareness of the mixed evidence reported in the literature. For example, Wang et al. (2023) and the Lucknow based study in the International Journal of Indian Psychology found that sometimes gender differences vary based on the type of online activities, with females displaying higher levels of social-media-related problematic use. These variations indicate that, while boys generally show high PIU, gender differences are not uniform and may be influenced by socio-cultural factors, access patterns, or the nature of specific digital platforms used.

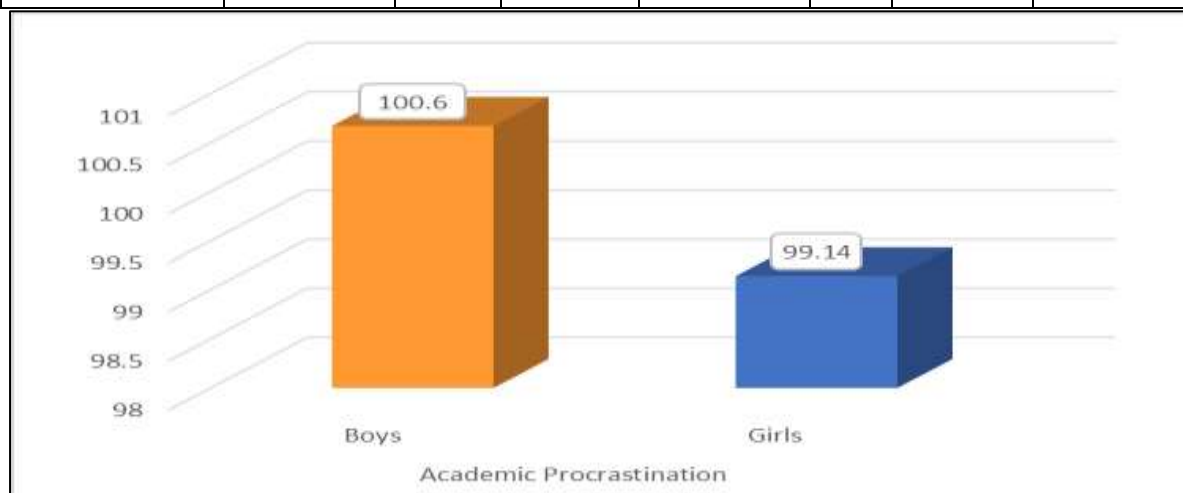
Overall, the findings of the present study add to the growing body of evidence suggesting that male adolescents remain more susceptible to problematic internet involvement, especially in domains related to compulsive and uncontrolled usage. The findings have important implications for gender-sensitive digital literacy interventions, targeted counseling, and systematic monitoring within schools to promote healthier and more balanced technology use.

Phase 2- Effect of Academic Procrastination on boys and girls of Dehradun district.

Ho2 There is no significant difference in Academic Procrastination between male and female adolescent students.

Table 2 Significant difference between adolescent boys and girls of Dehradun district on Academic Procrastination.

Academic Procrastination	Gender	N	Mean	Std. Deviation	df	t-value	Level of significance
	Boys	100	100.67	12.744	198	.769	Insignificant
	Girls	100	99.14	15.285			



Interpretation:

- In the present sample, the mean scores for academic procrastination in boys ($M = 100.67$) and girls ($M = 99.14$) are nearly identical. The low t -value (0.769 , $df = 198$) and a p -value greater than $.05$ indicate that **there is no statistically significant gender difference** in academic procrastination.
- This result is in line with several studies that found **no significant gender-based differences** in academic procrastination. For example, **Tawsheeba Nisar & Raisa Khan (2025)** reported no gender difference in procrastination among college students. *ijip.co.in* Similarly, **Joshy & Chacko (2022)** found that, although there were gender differences in study habits and optimism, there was **no significant difference in procrastination** between male and female students. *ijip.co.in*
- Additional support comes from **Mishra & Shukla (2023)**, whose study of adolescent students found that self-esteem and procrastination did not differ significantly across genders. *IJIP* Also, a broader review/meta-analysis of procrastination research suggested that gender effects on academic procrastination are often small or inconsistent across educational levels and contexts. *Frontiers*
- However, the literature does show **mixed results**: some studies have found greater procrastination among males (e.g., **Wasfeea Wazid et al., 2016**) *journals.tiss.ac.in*, and others among females — depending largely on context, type of tasks, motivational factors, and sample. *SpringerLink+1* This variability suggests that **gender may not be a stable predictor of procrastination** and that other factors (e.g., self-efficacy, study habits, task type) likely play a stronger role.

CONCLUSION:

Given the non-significant t -test result ($p > .05$), our study **fails to reject** the null hypothesis. Therefore, we conclude that **there is no statistically significant gender difference** in academic procrastination among adolescent students of Dehradun district.

The results of the present study indicate that there is **no significant gender difference** in academic procrastination among adolescent students of Dehradun district, as evidenced by nearly identical mean scores for boys ($M = 100.67$) and girls ($M = 99.14$), and a non-significant t -test ($t = 0.769$, $p > .05$). This finding aligns with recent empirical evidence suggesting that academic procrastination is largely **gender-neutral** during adolescence. For instance, **Nisar and Khan (2025)** reported no gender differences in procrastination among college students, while **Joshy and Chacko (2022)** observed similar patterns among secondary school students. Similarly, **Mishra and Shukla (2023)** found that self-esteem and procrastination did not vary significantly across genders in an adolescent sample. Meta-analytic evidence further supports this conclusion, indicating that gender effects on academic procrastination are often inconsistent or minimal and are influenced more strongly by contextual, motivational, and individual factors (e.g., **Steel & Ferrari, 2021**). Nevertheless, some studies have observed gender-specific differences depending on cultural, task-related, or environmental factors (e.g., **Wazid et al., 2016**), suggesting that while gender may play a role in certain contexts, it is not a robust predictor of procrastination overall. These findings highlight the need for interventions aimed at improving **time management, self-regulation, and study habits** for all students rather than targeting gender-specific groups.

Phase 3-Relationship of PIU and Academic Procrastination on adolescent students gender wise.

Ho3 There is no significant relationship between Problematic Internet Use (PIU) and Academic Procrastination among adolescent students, irrespective of gender.

Table 3 Gender wise Relationship between PIU And Academic Procrastination of adolescent students of Dehradun district.

Boys

Pearson correlation coefficient r	
PIU	Academic Procrastination
Obsession	-.196
Neglect	.334**
Control Disorder	.357**
Total PIU	.369**

Girls

Pearson correlation coefficient r	
PIU	Academic Procrastination
Obsession	.336**

Neglect	.394**
Control Disorder	.376**
Total PIU	.502**

Total

Pearson correlation coefficient r	
PIU	Academic Procrastination
Obsession	.151*
Neglect	.343**
Control Disorder	.363**
Total PIU	.401**

Interpretation:

The relationship between **Problematic Internet Use (PIU)** and **academic procrastination** among adolescent students of Dehradun district reveals **gender-specific patterns**:

• Boys:

- The correlation coefficients show that **Obsession** is negatively correlated with academic procrastination ($r = -0.196$, not significant), while **Neglect** ($r = 0.334$), **Control Disorder** ($r = 0.357$), and **Total PIU** ($r = 0.369$) are positively and significantly correlated ($p < 0.01$).
- This suggests that boys who experience greater neglect of responsibilities or difficulty controlling internet use are more likely to procrastinate academically. However, the negative correlation with obsession implies that highly obsessive internet use may not directly translate to procrastination in boys.

• Girls:

- All PIU dimensions, including **Obsession** ($r = 0.336$), **Neglect** ($r = 0.394$), **Control Disorder** ($r = 0.376$), and **Total PIU** ($r = 0.502$) show **positive and significant correlations** with academic procrastination ($p < 0.01$).
- This indicates that, for girls, higher levels of PIU across all dimensions are consistently associated with higher academic procrastination.

• Total Sample:

- Across all students, positive correlations were observed between **Neglect** ($r = 0.343$), **Control Disorder** ($r = 0.363$), **Total PIU** ($r = 0.401$) and academic procrastination, with Obsession showing a smaller but significant correlation ($r = 0.151$, $p < 0.05$).
- These findings suggest a general trend: **higher problematic internet behaviors are linked with greater academic procrastination**, although the strength of this relationship varies by gender and PIU dimension. These results are consistent with previous research. Studies indicate that PIU is **positively associated with academic procrastination** in adolescents (e.g., Mei et al., 2022; Islam et al., 2021). Furthermore, gender-specific analyses often reveal **stronger correlations in females**, possibly due to differences in internet use patterns (e.g., social media use in girls vs. gaming in boys) and coping strategies (Kayis & Horzum, 2020; Roy & Chakraborty, 2022). The negative correlation between Obsession and procrastination in boys aligns with some studies suggesting that certain forms of compulsive internet use, such as goal-directed gaming or task-focused online activity, may not always lead to academic delay (Kim & Davis, 2020).

Conclusion

The study demonstrates a **significant positive relationship between PIU and academic procrastination** among adolescent students, with **gender-specific nuances**. For girls, all dimensions of PIU are strongly linked to procrastination, while in boys, Neglect, Control Disorder, and Total PIU show significant positive associations, but Obsession does not. Overall, Total PIU correlates moderately with academic procrastination ($r = 0.401$, $p < 0.01$), indicating that **students with higher problematic internet behaviors are more prone to delay academic tasks**.

These findings highlight the importance of **gender-sensitive interventions**: programs addressing time management, self-regulation, and healthy internet use habits may help reduce procrastination, especially in students exhibiting high PIU. Furthermore, understanding the **type of PIU** (obsession vs. neglect vs. control disorder) is crucial in designing effective strategies for different genders.

Problematic Internet Use is closely related to academic procrastination among adolescent students of Dehradun district, and this relationship follows a gender-based pattern:

Boys:

The correlation coefficients indicate that Obsession is negatively but insignificantly related to academic procrastination, $r = -0.196$, while Neglect ($r = 0.334$), Control Disorder ($r = 0.357$), and Total PIU ($r = 0.369$) are positively and significantly correlated at $p < 0.01$ level of significance.

That would imply that with increased neglect of responsibilities or difficulty in controlling internet use, boys are more likely to procrastinate academically. However, the negative correlation with obsession might suggest that highly obsessive internet use does not directly lead to procrastination in boys.

Girls:

According to the findings, all dimensions of PIU, such as Obsession ($r = 0.336$), Neglect ($r = 0.394$), Control Disorder ($r = 0.376$) and Total PIU ($r = 0.502$) are positively and significantly associated with academic procrastination ($p < 0.01$).

That is, regarding girls, higher levels of PIU across all dimensions are consistently associated with higher levels of academic procrastination.

Total Sample:

The correlations across all students between Neglect ($r = 0.343$), Control Disorder ($r = 0.363$), Total PIU ($r = 0.401$) and academic procrastination were positive, while Obsession showed a smaller but still significant correlation with academic procrastination ($r = 0.151$, $p < 0.05$).

These findings point toward a general trend: higher problematic internet behaviors are associated with greater academic procrastination, though the strength of this association does vary by gender and PIU dimension.

These findings are in accordance with existing literature. It has been found that PIU is positively linked with academic procrastination among adolescents, for instance, Mei et al. (2022) and Islam et al. (2021). Moreover, gender-specific analyses often show stronger associations in females, perhaps for the reason of disparities in internet use patterns, such as the maintenance of social media in girls and gaming in boys, and in coping strategies, as stated by Kayis & Horzum (2020) and Roy & Chakraborty (2022). The negative correlation of Obsession and procrastination in boys is in agreement with some studies that suggested that certain forms of compulsive internet use, such as goal-directed gaming or task-oriented online activity, may not always result in academic delay, as mentioned by Kim & Davis (2020).

CONCLUSION:

These results indicate that there is a significant positive relationship between PIU and academic procrastination among adolescent students, considering some gender-specific nuances. In girls, all dimensions of PIU are strongly related to procrastination, while in boys, Neglect, Control Disorder, and Total PIU reveal significant positive correlations, though Obsession does not. In the total sample, Total PIU is related to academic procrastination at a moderate level: $r = 0.401$, $p < 0.01$, meaning that students with more problematic internet behavior are more inclined to delay finishing their academic work. These findings emphasize the importance of gender-sensitive interventions. Interventions aiming at time management, self-regulation, and healthy internet use habits may contribute to a reduction in procrastination, especially in students with high PIU. Moreover, different genders require different strategies according to the type of PIU: obsession, neglect, or control disorder.

FINDINGS AND DISCUSSION

The study focused on the examination of the difference that exists between males and females regarding Problematic Internet Use (PIU) and procrastination, as well as the relationship that exists between the two factors for the adolescent students belonging to Dehradun district.

Gender Differences in PIU

Results show that boys significantly outscored the scores of girls on every aspect of PIU, including Obsession, Neglect, and Control Disorder, as well as the total score of PIU. This reveals that boys are susceptible to internet problems in the region. These findings support the fact that the prevalence of PIU tends to be high amongst boys compared to girls, especially regarding gaming and compulsive use problems on the internet (Joseph, 2022; Bhattacharjee, 2024; Quraishi et al., 2020). In fact, meta-analysis research confirms that the risk for PIU tends to be high for boys, but the prevalence for excessive use of social networks tends to be high for females (Su & Mak, 2020). Studies conducted specifically for the Indian region confirm that the situation regarding the survey question remains the same, and boys are most likely to feel ignored for their offline duties and find it difficult to control their use of the internet (Tadpatrikar, 2024, Liu & Li, 2023).

Gender Differences in Academic Procrastination

In contrast to PIU, no statistically significant difference was observed for gender concerning academic procrastination ($t = 0.769$, $p > 0.05$). Boys and girls had just about the same scores for the latter, $M = 100.67$ and $M = 99.14$, respectively. This indicates that the observed phenomenon of procrastination appears to be gender-neutral for the selected age group. Similar findings are observed for many other research works, which endorse the fact that the factor of procrastination is less dependent on gender and, instead, dependent on the regulation and motivation levels of the individual, as well as study and academic-related stresses (Nisar & Khan, 2025; Joshy & Chacko, 2022; Mishra & Shukla, 2023; Steel & Ferrari, 2021). In some literature, it has also been observed that the difference, if observed, appears to be minimal and dependent on the nature of the task (Wazid et al., 2016).

Relationship Between PIU and Academic Procrastination

The study further helped uncover that there was a statistically significant and positive link between PIU and study procrastination. Also, there were significant and positive links for boys for the dimensions Neglect ($r = 0.334$), Control Disorder ($r = 0.357$), and Total PIU ($r = 0.369$), and the dimension Obsession had no significant negative link ($r = -0.196$). For the female category, there were significant and positive links for all dimensions of PIU, including Obsession ($r = 0.336$). In the entire sample, the Total PIU had a medium and significant link for study procrastination ($r = 0.401$, $p < 0.01$).

These results are in line with existing literature showing that there are stronger links between PIU and academic procrastination for young people (Mei et al., 2022; Islam et al., 2021; Kayis & Horzum, 2020; Roy & Chakraborty, 2022). The disparity in the links for boys and girls could imply varying levels of internet use, such as gaming as opposed to social networking, and the use of coping styles. The negative link between Obsession and procrastination for boys corresponds to some research that argues that engagement in motivated online pursuits does not necessarily translate into young people's tendency to delay their schoolwork (Kim & Davis, 2020).

Implications

In conclusion, the present study emphasizes the urgent need for gender-sensitive interventions. Although boys benefit from programs focusing on excessive and compulsive use, both boys and girls need help regarding improved self-regulation, efficient use of time, and effective planning. The various aspects of PIU would play an important and significant step for effective programs and interventions for dealing with the problem of academic procrastination. These findings are supportive of the wider implication that internet-related problem behaviors are linked to an individual's academic procrastination, independent of their gender, but internet use patterns differ for both men and women.

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