The Influence of Academic Stress and Smartphone Addiction on Academic Procrastination Among Public Senior High School Students in Yogyakarta City

Pipit Haryani[1]; Prof. Dr. Budi Astuti, M. Si[2]

[1] Student at Faculty of Education and Psychology, Yogyakarta State University, Indonesia

[2] Lecturer of Faculty of Education and Psychology, Yogyakarta State University, Indonesia

Abstract

This study aims to investigate the influence of: (1) academic stress on academic procrastination among high school students, (2) smartphone addiction on academic procrastination among high school students, and (3) the combined effect of academic stress and smartphone addiction on academic procrastination. This research employed a quantitative correlational approach. A total of 404 high school students in yogyakarta city were selected using a proportionate stratified random sampling technique from a population of 9,354 students. Data were collected using three scales: academic stress, smartphone addiction, and academic procrastination, all of which were validated by two expert reviewers and tested for reliability. Data analysis was conducted using multiple linear regression, preceded by assumption tests including normality, linearity, multicollinearity, and heteroscedasticity. The results revealed that: (1) academic stress (x_1) had a significant influence on academic procrastination (y), with a negative direction. This means that the higher the level of academic stress experienced by students, the lower their tendency to procrastinate; (2) smartphone addiction (x_2) had a positive and significant effect on academic procrastination (y). The more addicted students were to smartphones, the higher their tendency to delay academic tasks; and (3) simultaneously, both independent variables—academic stress and smartphone addiction—significantly contributed to academic procrastination. Although the direction of influence differed, the regression analysis showed that the combination of both variables could explain the variability in academic procrastination behavior among high school students.

Keywords: *Academic Stress; Smartphone Addiction; Academic Procrastination*

Introduction

Academic procrastination is closely related to laziness among students. Since many studies have shown that this behavior negatively affects academic achievement, procrastination has become a serious issue that requires attention. It directly impacts students, resulting in suboptimal outcomes and low performance. Students who continue to delay tasks, even though they are aware that procrastination is a bad habit, will find it difficult to break out of this pattern. Consequently, task completion takes longer and becomes more limited.

The Influence of Academic Stress and Smartphone Addiction on Academic Procrastination Among Public Senior High School Students in Yogyakarta City

613

According to Ferrari, Joseph, Johnson & Mccown (1995), academic procrastination is influenced by internal factors, including students' psychological conditions, such as feeling incapable of handling difficult tasks, which can trigger stress. Academic stress arises from pressures in the learning process, such as heavy workloads, competition, failure, and poor relationships with teachers, peers, or family. When within reasonable limits, stress can have positive effects by encouraging creativity. However, excessive stress can lead to physical and mental disorders, such as insomnia, headaches, and eating disorders, ultimately reducing students' academic performance.

Academic procrastination, or the habit of delaying assignments, is common among teenagers, especially students. This behavior negatively affects their academic achievement. It often occurs when students believe they can complete tasks later and instead choose to do other activities, which hinder task completion. Adolescents tend to form peer groups aligned with their personalities. If most group members procrastinate, students are likely to adopt the same behavior (Monks, Knoers & Haditono, 2006).

Several previous studies have investigated academic procrastination behavior. For example, Juliawati (2014) found that students at a school in padang had a high tendency toward academic procrastination. Bayu Permana (2019) revealed that 95% of students at SMA Darul Falah (Class of 2017) procrastinated due to various internal and external factors. Theadora Gracelyta (2021) discovered a moderate level of academic procrastination among 11th-grade students at SMA Negeri 1 Martapura, where students wanted to complete their tasks but had difficulty expressing their abilities through action.

Supporting this, Dwi Rahmi (2021) found that students at SMA Negeri 1 Pasir Penyu experienced high levels of academic stress in the intellectual domain due to challenges in online learning during the pandemic. Chornelia Silintowe Labiro (2022) also found that lower academic stress reduces procrastination, and vice versa. Regarding smartphone addiction, Amini Yuliyani (2022) discovered that high levels of smartphone addiction correlate with increased stress. This condition is marked by the emergence of negative emotions, such as a lack of motivation or emotional instability. The pressure of assignments and difficult materials led students to cope with stress by using smartphones.

Given these factors, the researcher is interested in continuing the research conducted by Romy Purwanto Bakri (2021) titled "the influence of academic stress and smartphone addiction on academic procrastination among students of the faculty of social and political sciences at Mulawarman University." this study focuses on high school students in Yogyakarta city. Based on the background described above, students tend to procrastinate due to academic stress caused by difficulty in completing tasks and their busy schedules. When they have free time, they often divert their attention to smartphones, using various games or social media applications excessively, which leads them to forget about their academic responsibilities.

Therefore, this thesis aims to explore the influence of academic stress and smartphone addiction on academic procrastination among public high school students in Yogyakarta city.

Based on the background described above, the researcher proposes the following hypotheses:

1. Ho: there is no positive and significant influence of academic stress and smartphone addiction on academic procrastination among public high school students in yogyakarta city.

   Ha: there is a positive and significant influence of academic stress and smartphone addiction on academic procrastination among public high school students in Yogyakarta city.
   Ho: there is no negative and significant influence of academic stress on academic procrastination among public high school students in Yogyakarta city.

2. Ha: there is a negative and significant influence of academic stress on academic procrastination among public high school students in Yogyakarta city.

3. Hypothesis testing regarding the influence of smartphone addiction:

Ho: there is no positive and significant influence of smartphone addiction on academic procrastination among public high school students in Yogyakarta city. Ha: there is a positive and significant influence of smartphone addiction on academic procrastination among public high school students in Yogyakarta city.

Method

This research adopted a quantitative approach using a correlational research design. The minimum sample size was determined using the sample size formula by Isaac And Michael (Sugiyono, 2013), with a population of 9,354 students. The researcher set the sample size based on a 10% margin of error. The sampling technique used was proportionate stratified random sampling. The researcher assumed that the population across the 11 public senior high schools in yogyakarta city was relatively homogeneous. Three schools were randomly selected as sample schools: sma negeri 4 yogyakarta, sma negeri 8 yogyakarta, and sma negeri 10 yogyakarta. The sample was drawn proportionally, with students from grades x and xi, totaling 404 respondents. Four classes were selected randomly from each school across both grade levels.

Data were collected using three scales: the academic stress scale, the smartphone addiction scale, and the academic procrastination scale. The operational definitions of the variables are as follows: (1) academic procrastination is the behavior of delaying academic tasks despite being aware of the negative consequences; (2) academic stress is a psychological pressure experienced by students in response to academic demands that are perceived to exceed their ability to cope; (3) smartphone addiction is the excessive and uncontrollable use of smartphones that disrupts psychological, social, academic, or professional aspects of daily life. Individuals with smartphone addiction show high dependency, difficulty controlling usage time, and experience negative consequences due to compulsive use. Each scale contained both favorable and unfavorable statements, with four response options: strongly agree, agree, disagree, and strongly disagree. The three scales were piloted with 65 students outside the main research sample using google forms.

Based on the validity and reliability tests of the three scales:

The academic procrastination scale initially contained 29 items, with 5 items removed after testing, resulting in 24 valid items with a correlation coefficient (r) above 0.244. The overall reliability (cronbach's alpha) was 0.814, indicating high reliability.

The academic stress scale initially included 35 items, with 17 items dropped, leaving 18 valid items with $r > 0.244$ and a reliability score of 0.910, indicating high reliability.

The smartphone addiction scale started with 38 items, of which 11 were eliminated, resulting in 27 valid items, with $r > 0.244$ and a reliability coefficient of 0.792, showing that the scale was reliable.

Data were analyzed using multiple linear regression, preceded by assumption testing including tests for normality, linearity, multicollinearity, and heteroscedasticity. All data analyses in this study were conducted using spss version 30.0 for windows.

Research Results

1. Statistical Data

Based on the results of questionnaires distributed via google forms to collect data from students of SMA Negeri 4 Yogyakarta, SMA Negeri 8 Yogyakarta, and SMA Negeri 10 Yogyakarta totaling 404 students. The following table presents the frequency distribution of the combined variables:

Table 1. Frequency Distribution Of The Combined Variables

No	Variable Instrument	Frequency	Percentage	Category
1.	Academic Procrastination	184	45,54%	High
2.	Academic Stress	136	33,66%	High
3.	Smartphone Addiction	197	48,76%	High

Based on the combined results of the three instruments, it was found that on the academic procrastination scale, 184 students or 45.54% were categorized as high, indicating a strong tendency among these students to engage in academic procrastination. On the academic stress scale, 33.66% of students were in the high category, indicating that they experience a high level of academic stress. Meanwhile, on the smartphone addiction scale, 197 students or 48.76% were categorized as high, indicating a high level of smartphone addiction among the students.

Overall, these results suggest that the levels of academic procrastination, academic stress, and smartphone addiction among students are relatively high and may be interrelated, potentially affecting students' learning behavior.

To proceed with the analysis, several assumption tests were conducted, including tests for heteroscedasticity, multicollinearity, linearity, and normality. SPSS statistics 30.0 for windows was used to perform all these tests.

2. Assumption Testing Results

The analysis involved several assumption tests, including tests for heteroscedasticity, multicollinearity, linearity, and normality. SPSS statistics 30.0 for windows was used to perform all these tests. The results of the assumption tests are as follows:

a. Normality Test

This test aims to determine whether the sample data used follow a normal distribution. A 5% significance level was applied, and the kolmogorov-smirnov approach was used on the residual or error values of variable Y. The data must meet the criterion of normal distribution to permit the use of parametric analyses such as linear regression.

Table 2. Results Of The Normality Test

Test Statistic	Value	Criteria	Description
Asymptotic Significance (2-Tailed)	0,040	> 0,05	Data Terdistribusi Normal

The result of the normality test using the kolmogorov-smirnov method showed a significance value of 0.040, which is greater than 0.05. This indicates that the residual data are normally distributed, and the assumption of normality is fulfilled.

b. Linearity Test

This test aims to assess whether a linear relationship exists between the independent and dependent variables. The decision in this test is based on the significance value obtained from the linearity test results, analyzed using SPSS statistics 30.0 for windows.

Decision Criteria:

- Linear Relationship: Significance Of Deviation From Linearity > 0.05

- Non-Linear Relationship: Significance Of Deviation From Linearity < 0.05

Table 3. Linearity Test Results Of Academic Stress Variable

Variable Relationship	Deviation From Linearity	Significance	Description
Academic Stress → Academic Procrastination	0,77	0,77 > 0,05	Linear

The results of the linearity test show that the relationship between academic stress and academic procrastination has a significance value of 0.77, which is greater than 0.05. This indicates that the relationship between the two variables is linear.

Table 4. Linearity Test Results of Smartphone Addiction Variable

Variable Relationship	Deviation From Linearity	Significance	Description
Smartphone Addiction → Academic Procrastination	< 0,001	< 0,05	Tidak Linear

The results of the linearity test show that the relationship between smartphone addiction and academic procrastination has a significance value of < 0.001, which is less than 0.05. This indicates that the relationship between the two variables is not linear.

c. Multicollinearity Test

This test aims to analyze the intercorrelation or collinearity among the independent variables in the regression model.

Decision Criteria:

- Tolerance > 0.10 And Vif < 10.00: No Multicollinearity Present

- Tolerance < 0.10 And Vif > 10.00: Multicollinearity Present

Table 5. Multicollinearity Test Results

Variable	Tolerance	Vif	Description
Academic Stress	0,736	1,358	No Multicollinearity
Smartphone Addiction	0,736	1,358	No Multicollinearity

The results of the multicollinearity test show that both independent variables have tolerance values greater than 0.10 and vif values less than 10.00. This indicates that there is no multicollinearity in the regression model.

d. Heteroscedasticity Test

This test aims to evaluate whether the regression model exhibits irregularities in the variability of the residuals. The Glejser method was used, with the following decision criteria:

- Significance > 0.05: No heteroscedasticity

- Significance < 0.05: Heteroscedasticity is present

Table 5. Results of the Heteroscedasticity Test Using the Glejser Method

Variable	Significance	Description
Academic Stress	0,760	No Heteroscedasticity
Smartphone Addiction	0,492	No Heteroscedasticity

The results of the heteroscedasticity test show that both independent variables have significance values greater than 0.05. This indicates that there is no heteroscedasticity in the regression model.

3. Hypothesis Testing Results

The researcher formulated several hypotheses as described below:

a. Hypothesis testing related to the negative and significant effect of academic stress and smartphone addiction on academic procrastination among public high school students in Yogyakarta city.

In this hypothesis test, the null hypothesis (ho) and the alternative hypothesis (ha) were stated as follows:

- Ho: there is no positive and significant effect of academic stress and smartphone addiction on academic procrastination among public senior high school students in Yogyakarta city.

- Ha: there is a positive and significant effect of academic stress and smartphone addiction on academic procrastination among public senior high school students in Yogyakarta city.

b. Hypothesis testing regarding the positive and significant effect of academic stress on academic procrastination among public high school students in Yogyakarta city in this hypothesis test, the null hypothesis (ho) and the alternative hypothesis (ha) were stated as follows:

- Ho: there is no negative and significant effect of academic stress on academic procrastination among public senior high school students in Yogyakarta city.

- Ha: there is a negative and significant effect of academic stress on academic procrastination among public senior high school students in Yogyakarta city.

c. Hypothesis testing regarding the positive and significant effect of smartphone addiction on academic procrastination among public high school students in Yogyakarta city in this hypothesis test, the null hypothesis (ho) and the alternative hypothesis (ha) were stated as follows:

- Ho: there is no positive and significant effect of smartphone addiction on academic procrastination among public senior high school students in Yogyakarta city.

- Ha: there is a positive and significant effect of smartphone addiction on academic procrastination among public senior high school students in Yogyakarta city.

Discussion

1. The Influence of Academic Stress and Smartphone Addiction on Academic Procrastination

The results of the regression analysis show that the regression equation $y' = 23.609 - 0.372(x_1) + 0.280(x_2)$ means that for every one-unit increase in academic stress, academic procrastination decreases by 0.372 units, while for every one-unit increase in smartphone addiction, academic procrastination increases by 0.280 units. The negative coefficient for academic stress indicates that higher levels of academic stress may actually suppress procrastination behavior. This can be interpreted to mean that students experiencing well-managed academic stress (eustress) are more motivated to complete their assignments promptly. On the other hand, smartphone addiction has been proven to increase students' tendency to delay academic task completion. These findings are consistent with previous studies showing that excessive smartphone use disrupts concentration and study time.

2. The Influence of Academic Stress on Academic Procrastination

The t-test results indicate that academic stress significantly affects academic procrastination ($p < 0.001$). This means that academic stress plays an important role in reducing students' tendency to procrastinate. In this context, stress acts as a driving force that encourages students to fulfill their academic responsibilities on time. These findings are important for teachers and parents to understand so they can help turn academic pressure into positive motivation.

3. The Influence of Smartphone Addiction on Academic Procrastination

Smartphone addiction has a significant positive effect on academic procrastination ($p < 0.001$). The higher the level of smartphone addiction, the greater the tendency for students to delay academic tasks. Uncontrolled smartphone use can consume valuable study time and reduce students' focus on important academic responsibilities. This research highlights the importance of monitoring smartphone use to prevent its negative impact on students' academic achievement.

Research Limitations (Summary)

Despite being carefully designed and implemented to achieve optimal results, this study encountered several unavoidable limitations. One major limitation occurred during the instrument validation phase with expert lecturers, which had to be completed within a limited timeframe due to tight research deadlines.

Initially, the researcher planned to collect data from SMA Negeri 1, 3, 5, and 8 Yogyakarta. However, these schools were conducting end-of-year summative assessments and could not accommodate student researchers. This required the researcher to seek alternative schools, involving additional time to obtain new research permits and coordinate with school counselors. Ultimately, the study was conducted at SMA Negeri 4, 8, and 10 Yogyakarta.

Other challenges included time constraints for distributing and completing questionnaires. The schedule had to align with the schools' academic activities, making it difficult to administer the survey simultaneously to all respondents. This may have affected respondents' focus and consistency. Additionally, limited supervision during questionnaire completion posed a challenge, as not all students thoroughly read the instructions—even though the items had been clearly formulated.

Conclusion

1. Academic stress has a significant and negative effect on academic procrastination. The higher the academic stress, the lower the tendency of students to delay tasks—possibly because the stress encourages them to complete their academic workload promptly (eustress).

2. Smartphone addiction has a significant and positive effect on academic procrastination. The higher the level of smartphone addiction, the greater the students' tendency to delay academic tasks.

3. Simultaneously, academic stress and smartphone addiction significantly contribute to academic procrastination, although the direction of their effects differs.

Implications

1. For schools and teachers: it is important to adjust academic workloads and provide training in stress management and study skills to help students turn stress into a source of motivation.

2. For parents: it is essential to supervise and limit smartphone use at home and to educate children about its potential impact on learning.

3. For school counselors: guidance programs should be developed to address stress management, smartphone control, and learning strategies to reduce procrastination.

4. For future researchers: it is recommended to explore other influencing factors such as motivation, social support, and self-regulated learning, and to consider qualitative approaches.

Suggestions

1. Schools and Teachers: Should Implement Learning Strategies That Are Challenging Yet Manageable, While Guiding Students in Time Management.

2. Parents: Are Expected to Limit Smartphone Use and Create a Supportive Learning Environment at Home.

3. Students: Should Increase Awareness of the Effects of Stress and Smartphone Addiction, and Practice Time Management and Self-Discipline.

4. School Counselors: Should Provide Counseling Services Related to Stress Management, Smartphone Usage, And Procrastination Prevention.

5. Future Researchers: Are Advised to Expand the Respondent Base, Examine Other Education Levels, And Include Additional Variables Such as Motivation and Social Support.

References

1. Amini, Y. (2022). *Pengaruh Kecanduan Smartphone Terhadap Stres Akademik Dan Prokrastinasi Akademik Mahasiswa*. Jurnal Psikologi & Pendidikan, 10(2), 101–110.

2. Bayu, P. (2019). *Gambaran Prokrastinasi Akademik Siswa Sma Darul Falah Cililin: Studi Pendekatan Kuantitatif*. Jurnal Fokus Konseling, 5(1), 45–52.

3. Chornelia, S. L., & Ratriana, Y. E. K. (2022). Hubungan Antara Stres Akademik Dengan Prokrastinasi Akademik Pada Mahasiswa Di Masa Pandemi Covid-19. *Berkala Online Konseling Dan Pendidikan*, 1(2), 55–65.

4. Dwi, R. (2021). *Stres Akademik Siswa Sma Negeri 1 Pasir Penyu Selama Pembelajaran Daring Di Masa Pandemi Covid-19*. Jom Fkip, Universitas Riau.

5. Ferrari, J. R., Johnson, J. L., & Mccown, W. G. (1995). *Procrastination And Task Avoidance: Theory, Research, And Treatment*. Springer Us.

6. Gracelyta, T., & Harlina. (2021). *Tingkat Prokrastinasi Akademik Siswa Di Masa Pandemi*. Jurnal Konseling Dan Psikologi, 3(1), 33–41.

7. Juliawati. (2014). *Hubungan Prokrastinasi Akademik Dengan Stres Akademik Pada Siswa Sma Di Kota Padang*. Skripsi, Universitas Negeri Padang.

8. Monks, F. J., Knoers, A. M. P., & Haditono, S. R. (2006). *Psikologi Perkembangan: Pengantar Dalam Berbagai Bagiannya*. Yogyakarta: Gadjah Mada University Press.

9. Romy, P. B. (2021). *Pengaruh Stres Akademik Dan Kecanduan Smartphone Terhadap Prokrastinasi Akademik Mahasiswa Fisip Universitas Mulawarman*. Jurnal Psikoneo, 7(1), 22–32.

10. Santrock, J. W. (2003). *Adolescence: Perkembangan Remaja* (6th Ed.). Jakarta: Erlangga.

11. Solomon, L. J., & Rothblum, E. D. (1984). Academic Procrastination: Frequency And Cognitive-Behavioral Correlates. *Journal Of Counseling Psychology, 31*(4), 503–509.

12. Sugiyono. (2013). *Metode Penelitian Kuantitatif, Kualitatif Dan R&D*. Bandung: Alfabeta.