CHRONOTYPE AND ACADEMIC PROCRASTINATION: THE MODERATING ROLE OF GENDER IN ENGINEERING STUDENTS

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Abstract

This study examined the relationship between chronotype and academic procrastination among engineering students and explored gender differences in this association. The sample consisted of 230 engineering students from Mumbai aged 18 to 25 years. Standardized self-report measures were used to assess chronotype and academic procrastination. Tests of normality indicated significant deviations from normal distribution ($p < .05$); therefore, non-parametric analyses were employed. Spearman's rank-order correlation revealed a strong, significant negative relationship between chronotype and academic procrastination ($r_s = –.827$, $p < .01$), indicating that higher morningness was associated with lower procrastination, while higher eveningness was associated with greater procrastination. Gender-wise analyses showed a similar pattern for males ($r_s = –.809$, $p < .01$) and females ($r_s = –.841$, $p < .01$), with only minor differences in strength. The findings suggest that chronotype is an important correlate of academic procrastination, with no substantial variation across gender. These results highlight the role of circadian preferences in academic behavior.

Keywords: chronotype, academic procrastination, morningness eveningness, engineering students, gender differences

1.Introduction

Academic performance in higher education is influenced by both biological rhythms and behavioural factors. Chronotype, defined as an individual's preference for timing of sleep and activity, plays a significant role in determining alertness and cognitive functioning (Horne &

Östberg, 1976). Individuals differ in their circadian preferences, with some showing a tendency towards morningness and others towards eveningness, which can impact their daily productivity and academic engagement.

Academic procrastination, on the other hand, refers to the intentional delay of academic tasks despite awareness of negative consequences (Steel, 2007). It is a widespread issue among university students and has been associated with poor time management, reduced academic performance, and increased stress. Previous research suggests that biological factors such as chronotype may influence self-regulatory behaviours, including procrastination.

Engineering students often face structured academic schedules that may not align with their individual circadian rhythms, potentially leading to inefficiencies and increased procrastination. Additionally, gender differences in sleep patterns and behavioural regulation have been reported in earlier studies, suggesting that gender may influence the relationship between chronotype and procrastination.

However, limited research has examined this relationship within the Indian context, particularly among engineering students. Therefore, the present study aims to examine the relationship between chronotype and academic procrastination and to explore whether this association differs across gender.

2. Methodology

2.1 Research Design

The study adopted a quantitative, correlational research design to examine the relationship between chronotype and academic procrastination and to explore the moderating role of gender.

2.2 Participants

The sample consisted of 230 engineering students (115 males and 115 females) aged between 18 and 25 years from various engineering colleges in Mumbai.

2.3 Sampling Technique

Participants were selected using convenience sampling based on accessibility and willingness to participate. All participants provided informed consent, and confidentiality was maintained.

2.4 Instruments

2.4.1 Morningness Eveningness Questionnaire (MEQ)

Developed by McCloskey (2011), this 25-item scale measures the tendency to delay academic tasks. Responses are rated on a 5-point Likert scale, with higher scores indicating greater procrastination.

2.4.2 Academic Procrastination Scale (APS)

Developed by McCloskey (2011), this 25-item scale measures the tendency to delay academic tasks. Responses are rated on a 5-point Likert scale, with higher scores indicating greater procrastination.

2.5 Procedure

Data were collected using an online survey distributed through Google Forms to students from multiple engineering colleges in Mumbai. Participation was voluntary, and informed consent was obtained prior to data collection. The survey included demographic details followed by the MEQ and APS.

2.6 Data Analysis

Descriptive statistics were computed to summarize the data. Tests of normality indicated non-normal distribution; therefore, Spearman's rank-order correlation was used to examine the relationship between variables. Gender-based analyses were conducted separately.

3. Results

The results indicated that both chronotype and academic procrastination deviated from normal distribution; hence, non-parametric analysis was used. Spearman's correlation revealed a strong, statistically significant negative relationship between chronotype and academic procrastination ($r_s = –.827$, $p < .01$).

Table 1

Spearman's Correlation between Chronotype and Academic Procrastination

Variable	1	2
1. Chronotype	-	-.83**
2. Academic Procrastination	-.83**	-

Note. Spearman's rho correlations are shown. **p<.01.

This suggests that students with higher morningness reported lower levels of procrastination, whereas those with greater eveningness showed higher procrastination. Gender-wise analysis showed a similar pattern for both males ($r_s = –.809$, $p < .01$) and females ($r_s = –.841$, $p < .01$). Although the correlation was slightly stronger among females, the direction of the relationship remained consistent across genders.

Table 2

Spearman's Correlation between Chronotype and Academic Procrastination by Gender

Variables	1	2
Male (115)		
1. Chronotype	-	
2. Academic Procrastination	-.809**	-
Female (115)		
1. Chronotype	-	
2. Academic Procrastination	-.841**	-

Note. N=230 (n=115 males, 115 females). **p<.01 (2-tailed)

4. Discussion

The present study revealed a strong and significant negative relationship between chronotype and academic procrastination, indicating that individuals with greater morningness tendencies reported lower levels of procrastination, whereas those with eveningness tendencies exhibited higher levels. This finding is consistent with earlier research suggesting that circadian preferences influence self-regulation and behavioural patterns (Horne & Östberg, 1976; Steel, 2007).

Morning-oriented individuals are more likely to function optimally within conventional academic schedules, which may facilitate better time management and task completion. In contrast, evening-oriented individuals often experience a mismatch between their peak alertness periods and institutional demands, contributing to delays in academic tasks. Similar associations between eveningness and increased procrastination have been reported in previous studies, supporting the role of biological rhythms in shaping academic behaviour (Steel, 2007).

Gender-wise analysis indicated that the relationship remained consistent across males and females, with only minor differences in strength. This suggests that although gender may influence certain behavioural tendencies, it does not significantly alter the relationship between chronotype and academic procrastination. Overall, the findings reinforce the importance of considering circadian factors in understanding student behaviour.

5. Limitations

The present study has certain limitations that must be acknowledged. The use of convenience sampling restricts the generalizability of the findings beyond the selected group of engineering students in Mumbai. Furthermore, the reliance on self-report measures such as the Morningness–Eveningness Questionnaire (Horne & Östberg, 1976) and the Academic Procrastination Scale may introduce response biases, including social desirability and subjective inaccuracies. The cross-sectional nature of the study also limits the ability to establish causal relationships between chronotype and academic procrastination. Future research may benefit from larger and more diverse samples, the use of objective measures, and longitudinal designs to better understand these relationships.

6. Conclusion

The findings of the present study indicate that chronotype is a significant correlate of academic procrastination among engineering students. Individuals with morningness tendencies are less likely to procrastinate, whereas those with eveningness tendencies are more prone to delaying academic tasks. These findings are consistent with existing literature highlighting the role of circadian rhythms in behavioural regulation (Horne & Östberg, 1976; Steel, 2007).

Although minor gender differences were observed, gender did not substantially influence the direction of the relationship. The study highlights the importance of considering individual differences in biological rhythms when addressing academic procrastination. Interventions aimed at improving time management and aligning academic demands with students' circadian preferences may contribute to better academic outcomes.

References

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