

Investigating the Relationship Between Self-Esteem & Stress Among Secondary Level Students

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Abstract—Adolescence is a critical developmental period during which students are required to manage increasing academic demands while forming a stable sense of self. During this phase, psychological elements like perceived stress and self-worth have a big impact on students' academic experiences and general wellbeing. Using standardised psychometric tools, the current study looked at high school students' perceived stress and self-esteem levels. Participants filled out a self-report questionnaire that included the Rosenberg Self-Esteem Scale (RSES) and the Perceived Stress Scale (PSS-10). Descriptive statistical analyses were conducted to assess overall stress and self-esteem levels, examine item-level response patterns, and explore gender-based differences descriptively.

According to the findings, participants reported a moderate level of perceived stress ($M = 24.18$), with items pertaining to feeling anxious and stressed showing the highest mean scores. An overall moderate level of self-esteem was indicated by the mean self-esteem score ($M = 22.00$), with responses typically indicating agreement with positive self-evaluations and disagreement with strongly negative self-evaluations. There were discernible variations in average stress and self-esteem scores between gender groups according to descriptive comparisons; however, no inferential statistical analyses were carried out to ascertain statistical significance.

Overall, the results are consistent with previous research showing how common academic stress is in adolescence and how crucial self-esteem is to students' psychological well-being. By shedding light on patterns of perceived stress and self-esteem in a secondary school sample, this study adds to the expanding body of research on adolescent well-being and emphasises the need for more studies looking at coping mechanisms and interventions meant to support students' mental health and academic adjustment.

Index Terms—adolescence, perceived stress, secondary school students, self-esteem.

I. INTRODUCTION

Stress is a physiological and psychological reaction that happens when people believe they can't handle the demands made of them (Lazarus and Folkman). Prolonged or poorly managed stress can have detrimental effects on academic performance, emotional health, and cognitive functioning, even though a certain amount of stress can be motivating. Teenagers are particularly susceptible to stress because of growing academic demands, social pressures, identity formation, and expectations about their future educational and professional paths (Compas et al.). This is especially true for secondary school students.

Exams, workload, performance expectations, and time constraints are common causes of academic stress for high school students. Chronic stress during adolescence has been linked to emotional disorders, decreased motivation, and maladaptive academic behaviours, according to research (Deb, Strodl, & Sun, 2015). Students are still learning how to control their emotions and deal with stress because adolescence is a crucial developmental stage that can affect their academic engagement and self-perception. The behavioural and cognitive techniques people employ to deal with stressful circumstances are referred to as coping strategies (Lazarus and Folkman). Coping strategies used by high school students can be either maladaptive (such as avoidance, denial, and disengagement) or adaptive (such as problem-solving, planning, and seeking social support).

According to research, students who use unhealthy coping mechanisms are more likely to struggle academically and feel distressed (Haghi Kalkhoran et al.). Good coping mechanisms for stress can serve as security measures, assisting students in handling the demands of their studies and preserving their mental

health. Additionally, adolescence is a critical period for the formation of one's identity and sense of self. Students start to develop solid beliefs about their skills, value, and competence during this time, which have a big impact on behaviour and motivation (Erikson). A person's overall sense of personal worth and confidence in their skills, which includes both positive and negative self-evaluation, is known as self-esteem. While low self-esteem is typified by self-criticism, negative self-judgment, and feelings of inadequacy, high self-esteem is linked to increased confidence, resilience, and life satisfaction (Stenhouse, 2018). According to earlier studies, teenage academic performance and emotional adjustment are strongly predicted by self-esteem (McKay & Fanning, 2009).

One academic behavior that has been consistently linked to both stress coping strategies and self-esteem is procrastination. The irrational propensity to willingly put off beginning or finishing tasks even when one is aware that doing so could have unfavourable effects is known as procrastination (Steel). Procrastination is frequently linked to low academic performance and feelings of underachievement among students. Procrastination can take many different forms, such as general, decision, obsessive, and academic procrastination (Balkis and Duru). It is a multifaceted construct that is influenced by behavioural, emotional, and cognitive factors (Howell and Watson).

Research has demonstrated that students with lower self-esteem are more likely to engage in procrastination, as they may avoid tasks due to fear of failure, self-doubt, or negative self-evaluation (Chambers et al.). According to Haghi Kalkhoran et al. students who use maladaptive coping strategies when under stress are more likely to procrastinate in order to avoid academic tasks that cause stress. These results imply that procrastination among high school students is significantly influenced by stress coping mechanisms and self-esteem. Therefore, the present study aims to examine the relationship between self-esteem, stress coping strategies, and academic procrastination among secondary school students. By focusing on this developmental stage, the study seeks to contribute to a deeper understanding of the psychological factors that influence stress & self-esteem during adolescence.

II. METHODOLOGY

A. Aim

To examine the relationship between perceived stress and self-esteem among high school students

B. Objectives

To identify whether female students in high school have lower self-esteem than male students in high school

C. Hypotheses

1. There would be a significant negative correlation between stress and self-esteem
2. Female students would report higher stress levels than male students

Older high school students would report higher stress levels than younger students

E. Co-variables

Co-variable 1: Perceived Stress

Co-variable 2: Self-Esteem

F. Sampling technique

Sampling Techniques: Volunteer Sampling

G. Measures used in the study

A. Perceived Stress Scale (PSS-10)

The Perceived Stress Scale (PSS-10), developed by Cohen et al. (1983), was used to measure the level of stress perceived by students. The scale consists of 10 items that assess how unpredictable, overwhelming, and stressful individuals perceive their lives to be.

Each item is rated on a 5-point Likert scale from 0 (Never) to 4 (Very Often). The total perceived stress score is obtained by summing all responses, with higher scores indicating higher levels of perceived stress. Previous studies have reported strong reliability for this scale, with Cronbach's alpha values ranging from 0.78 to 0.91 (Lee, 2012).

B. Rosenberg Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES) (Rosenberg, 1965) was used to assess students' overall self-worth and self-acceptance. This scale consists of 10 items, including both positively and negatively worded statements. Responses are measured on a Likert scale from 1 (Strongly Disagree) to 4 (Strongly Agree). Negative items are reverse-scored, and a total

self-esteem score is calculated by summing all adjusted responses. Higher scores indicate higher self-esteem. The Rosenberg Self-Esteem Scale has demonstrated high reliability in adolescent samples, with Cronbach's alpha coefficients typically above 0.85 (Blascovich & Tomaka, 1991)

H. Procedure

This study employed a descriptive correlational design to examine the relationship between perceived stress and self-esteem among high school students.

Data was gathered between January 16 and January 20, 2026, using an online questionnaire hosted on Google Forms. Using volunteer sampling, the survey link was distributed via social media channels and school groups. While the survey was open to students up to age 19, the final analyzed sample consisted of 28 participants aged 14–18, following the exclusion of invalid responses.

Ethical procedures ensured that participation was voluntary, anonymous, and confidential. Participants were informed that the data would be used for psychology research focusing on stress and well-being. Demographic questions (age, gender, and education level) to facilitate a correlational analysis of the primary variables were also collected. Following the collection period, the data was screened for validity and analyzed using descriptive statistical methods.

III. RESULTS

Table 1: Mean Age & Frequency Based on Participant Responses in the 'Stress Survey for High School Students'

Age	Frequency
14	1
15	1
16	18
17	6
18	2
19	0
Mean Age	16.2

Table 1 presents the age distribution of participants in the study examining the relationship between self-esteem and perceived stress among high school students. The sample consisted primarily of 16-year-old students ($n = 18$), followed by 17-year-olds ($n =$

6), with minimal representation from ages 14 ($n = 1$), 15 ($n = 1$), and 18 ($n = 2$), and no participants aged 19. The mean age of the sample was 16.2 years, indicating that the data largely reflects mid-adolescent students, which is relevant given that this developmental stage is often associated with heightened academic stress and ongoing self-concept formation.

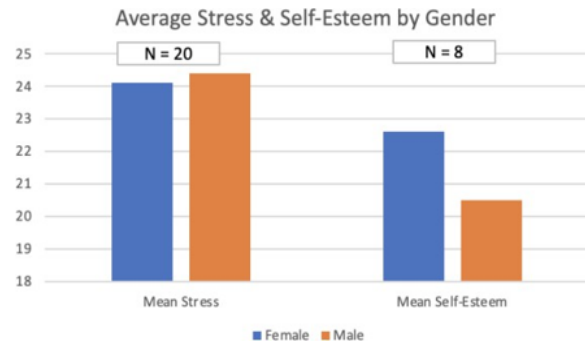


Figure 1: Average Stress and Self-Esteem by Gender based on Participant Responses in Stress Survey for High School Students

Descriptive statistics were calculated for gender (see Figure 2). Female students ($n = 20$) reported an average stress score of 24.1 ($SD = 4.51$) and an average self-esteem score of 22.6 ($SD = 2.58$). Male students ($n = 8$) reported a similar mean stress score of 24.4 ($SD = 3.20$) but a lower mean self-esteem score of 20.5 ($SD = 3.16$). While these descriptive results suggest that female students may have slightly higher self-esteem than male students, no inferential statistical test was conducted to determine whether this difference was statistically significant.

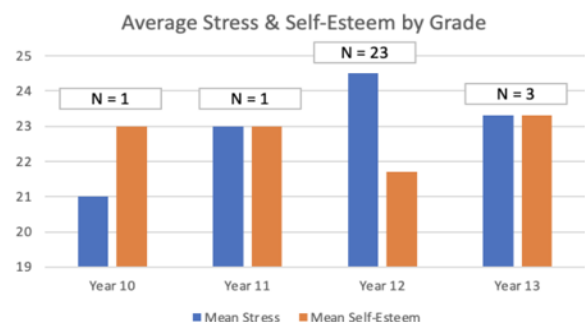


Figure 2: Average Stress and Self-Esteem by Grade based on Participant Responses in Stress Survey for High School Students

Descriptive statistics by grade level showed variability in stress and self-esteem (see Figure 2). Year 12 students ($n = 23$) reported the highest average stress

score ($M = 24.5$, $SD = 4.43$) and the lowest average self-esteem score ($M = 21.7$, $SD = 3.02$). In contrast, Year 13 students ($n = 3$) reported lower stress ($M = 23.3$, $SD = 2.31$) and higher self-esteem ($M = 23.3$, $SD = 2.52$). Year 10 and Year 11 each had only one participant, so their results cannot be meaningfully compared. Overall, the descriptive trends align with the negative relationship found between stress and self-esteem.

Correlation Table with r and r^2 Values based on Participant Responses in Stress Survey for High School Students

Table 2: Correlation Table with r and r^2 Values based on Participant Responses in Stress Survey for High School Students

Variable	Statistics	stress_score	Selfesteem_score
stress_score	Pearson's r	-	
	Df	-	
	p-value	-	
	r^2	-	
selfesteem_score	Pearson's r	- 0.426*	-
	df	26	-
	p-value	0.012	-
	r^2	0.181	-

The data collected from the questionnaires was analyzed at both descriptive and inferential levels using Jamovi. For each participant, a total stress score and a total self-esteem score were calculated. To examine the relationship between perceived stress and self-esteem, a Pearson correlation coefficient (r) was computed.

This study followed ethical guidelines for psychological research. Participants:

1. We're not exposed to any psychological harm.
2. We're not required to provide any identifying information.
3. Were free to withdraw at any time.

A Pearson's correlation was conducted to examine the relationship between students' stress levels and their self-esteem scores. The analysis revealed a moderate negative correlation, $r(26) = -0.426$ and $p = 0.012$. This indicates that students who reported higher levels of

stress tended to have lower levels of self-esteem.

Descriptive statistics were calculated for perceived stress and self-esteem among high school students (see Figure 1). The mean total score on the Perceived Stress Scale (PSS-10) was 24.18, indicating a moderate level of perceived stress within the sample. The mean total score on the Rosenberg Self-Esteem Scale (RSES) was 22.00, suggesting an overall moderate level of self-esteem among participants.

Item-level analysis of the PSS-10 revealed that the highest mean score was observed for the item "In the last month, how often have you felt nervous and stressed?" ($M = 3.29$), indicating that participants experienced feelings of stress fairly often. In contrast, the lowest mean score was found for the item "In the last month, how often have you felt that you were on top of things?" ($M = 1.86$), suggesting that participants only sometimes felt in control of their responsibilities. For the RSES, the highest mean score was observed for the item "I feel that I have a number of good qualities" ($M = 1.79$), indicating agreement with positive self-evaluations. The lowest mean score was recorded for "All in all, I am inclined to think that I am a failure" ($M = 2.79$), suggesting that most participants disagreed with this negative self-assessment.

Figure 1 displays the average perceived stress and self-esteem scores by gender. Visual inspection of the figure indicates differences in mean stress and self-esteem levels across gender groups, although no inferential statistical tests were conducted to determine the significance of these differences.

The results partially supported the hypotheses.

The first hypothesis, that there would be a significant negative correlation between stress and self-esteem, was supported. A Pearson's correlation revealed a moderate negative relationship, $r(26) = -0.426$, $p = 0.012$, indicating that students who reported higher stress levels tended to have lower self-esteem. This finding aligns with existing psychological research suggesting that stress can negatively affect self-perception and emotional well-being.

The second hypothesis, that female students would report higher stress levels than male students, was not supported. Descriptive statistics showed that female students ($M = 24.1$, $SD = 4.51$) and male students ($M = 24.4$, $SD = 3.20$) had very similar stress scores.

Interestingly, female students reported slightly higher self-esteem ($M = 22.6$, $SD = 2.58$) compared to male

students ($M = 20.5$, $SD = 3.16$), but no inferential test was conducted to determine statistical significance. The small number of male participants limits the reliability of this comparison, suggesting that future studies should include a more balanced gender sample. The third hypothesis, that older high school students would report higher stress levels than younger students, was partially supported. Year 12 students ($n = 23$) had the highest stress scores ($M = 24.5$, $SD = 4.43$) and the lowest self-esteem scores ($M = 21.7$, $SD = 3.02$), indicating that academic pressures associated with this grade may increase stress and negatively affect self-esteem. However, due to the very small sample sizes for Year 10, Year 11, and Year 13 students, these comparisons are limited, and no statistical tests could be conducted across grade levels. Overall, these results confirm the negative relationship between stress and self-esteem while highlighting potential differences by grade and gender, even though some predictions were not fully supported.

IV. DISCUSSION

The purpose of this study was to investigate the relationship between students' stress levels and their self-esteem. The results supported the hypothesis, revealing a moderate and statistically significant negative correlation between stress and self-esteem. This suggests that students who experience higher levels of stress are more likely to have lower self-esteem. The strength and direction of this relationship are consistent with existing psychological research, which indicates that stress can negatively influence an individual's self-perception and emotional well-being. One possible explanation for this finding is that prolonged academic and social stress may lead students to feel less capable, less confident, and more self-critical, thereby reducing their self-esteem. This is particularly evident in the Year 12/Grade 11 group, which reported both the highest stress levels and the lowest self-esteem scores. This could be due to the academic pressures associated with that year group, such as preparing for final examinations, university expectations and requirements, or increased workload demands. The data therefore not only supports the overall correlation but also provides insight into how stress may affect students at different academic stages. Descriptive gender data suggested that female students had slightly higher self-esteem than male students,

even though their stress levels were similar. However, due to the smaller number of male participants, this finding cannot be interpreted as statistically significant. Future research could aim for a more balanced gender sample to determine whether these differences are meaningful.

A. Strengths of current research

A strength of this study is the use of validated psychometric questionnaires to measure both stress and self-esteem. This improves the reliability and validity of the results and allows comparisons with findings from other psychological studies. Additionally, the data was collected directly from students within similar school environments, increasing the relevance of the findings to the target population. Another strength of this study is the use of direct, student-reported data collected within their actual school environment. By gathering responses from students in their real academic context rather than in a laboratory or artificial setting, the study captures stress and self-esteem as they naturally occur, which increases the ecological validity of the findings.

B. Weaknesses of current research

Despite these strengths, the study has several limitations. The sample size was relatively small, and most participants belonged to the same grade level, which may limit the generalizability of the findings across different age groups. Furthermore, because the study was correlational, it cannot establish a causal relationship. While stress and self-esteem are related, the results do not prove that stress directly causes lower self-esteem. Other factors such as family support, personality traits, or academic performance may also play a role. Another limitation of the study was an early design error in the administration of the self-esteem scale. The first participant responded using a 0-5 scale for the PSS10 instead of the intended 0-4 format. Because this difference would have artificially increased their self-esteem score, their data could not be reliably compared with the rest of the sample and was excluded from the analysis. The removal of this participant slightly reduced the sample size and may have influenced the strength of the observed correlation between perceived stress and self-esteem. However, retaining the data would have introduced systematic scoring bias and reduced the overall validity of the results.

Overall, this study provides evidence that higher stress is associated with lower self-esteem among high school students. These findings highlight the importance of promoting mental health awareness and stress-management strategies within academic settings. Supporting students' psychological well-being may not only improve their emotional health but also contribute to better academic outcomes.

V. CONCLUSION

This study examined the relationship between perceived stress and self-esteem among high school students during mid-adolescence. The findings indicated that participants reported moderate levels of stress and moderate levels of self-esteem overall. Students most strongly endorsed items related to feeling nervous and overwhelmed, while responses suggested a generally stable but not exceptionally high sense of self-worth. These results reflect the psychological pressures commonly experienced during high school, where academic demands and personal development occur simultaneously. Although descriptive differences were observed across gender groups, no inferential statistical analysis was conducted to determine significance. The relatively small and age-concentrated sample, along with the use of self-report measures, also limits the generalizability of the findings. Nevertheless, the study highlights the importance of understanding how stress and self-esteem coexist in adolescents and reinforces the need for supportive school environments that promote both emotional well-being and academic resilience.

VI. DIRECTIONS FOR FUTURE RESEARCH

Future studies could address the limitations of existing research in multiple ways. For example, researchers could conduct longitudinal studies to further explore the development of self-esteem, stress coping strategies and procrastination in adolescents. Longitudinal designs would increase the ability to draw stronger conclusions regarding causality and historical patterns of development. In addition to longitudinal studies, future studies would benefit from a greater focus on high school populations. Adolescence is a crucial stage of human development during which individuals are forming their identities, learning to control their emotions, and

developing healthy habits for school. Research that is specific to secondary students will increase the applicability of the findings in the context of educational interventions.

Additionally, future studies could utilize mixed-methods designs (i.e., quantitative questionnaires plus qualitative interviews or reflective journals) in order to provide a more in-depth view of the lived experiences of students regarding stress and procrastination. Mixed-methods research would illuminate the contextual factors surrounding the numerical data obtained from self-report scales and provide a more nuanced understanding of these experiences.

Future studies could also provide insight into the effectiveness of intervention-based studies. For example, do programs that focus on increasing self-esteem or teaching healthy, adaptive coping strategies result in significant decreases in academic procrastination?

Finally, researchers should investigate protective factors that aid students in coping with stress and maintaining academic engagement. Examples of protective factors include social support, teacher-student relationships and emotional intelligence.

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