International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

The Impact of Stress and Self-Esteem on Academic Performance in College Students at Selected Nursing Colleges of Jaipur, Rajasthan

Neeshu Singh[1], Dr. Paramjit Bajwa[2], Misbah Moin[3], Dr. Virendra Singh Choudhary[4]

[1]PhD Scholar Himalayan University,

[2]PhD Guide Himalayan University

[3]Nursing Tutor College of Nursing

[4]AMU, Principal, S. N. CON Sri Ganganagar
Corresponding Author email: *singhviren81[at]gmail.com*

Abstract: ***The research sought to examine the association between performance self-esteem (i. e., self-worth regarding academic performance) and stress (perceived and physiological) on end of semester grade point average (GPA) in Nursing college students. It is hypothesized that the effect of performance self-esteem on GPA at the end of the semester will vary by stress. In the two parts longitudinal study participants completed measures to assess performance self-esteem and perceived stress. Participants also provided two saliva samples to assess the steroid hormone cortisol, before and after an acute lab stressor task. Participants were for permission for the researchers to access their official GPA from the college office. The results showed the effects of perceived stress and performance self-esteem on GPA varied by Gender. Physiological stress was not found to have an association with GPA and did not interact with performance self-esteem to predict GPA.***

Keywords: self-esteem, optical density (OD), GPA (grade point average), ELISA

1. Introduction

The college environment for a young adult poses many different types of stressors. Adolescents face the demands from not only the academic rigor, but also relationships with other students, time management, and still trying to make the most out of their college experience. Self-esteem is defined the assessment of one's self-worth. Previous research has found that high self-esteem plays an important role in academic achievement, social and personal responsibility (Redenbach, 1991). In part due to confidence in abilities. One study found that college students who based their self-worth on external sources, such as: appearance, approval from others, and academic performance reported more stress, anger, academic problems, relationship conflicts and substance abuse (Crocker, 2003).

The study also found that college students who based their self-worth on academics did not receive higher grades than those based their self-worth on other aspects such as family's support or appearance. Students who based their self-worth on academic outcomes were more likely to have conflicts with professors and have higher stress (Crocker, 2003). Those who have a higher sense of confidence in their academic abilities tend to have a higher academic achievement.

Regarding just the effects of self-esteem and stress on academics, it was found that students' level of self-esteem was a significant determinant in their academic achievement. (Aryana, 2010). While significant, previous research has not incorporated any other aspect of the college student self in regards to academic performance.

2. Materials and Methods

Participants: 5 Nursing College of Jaipur city, undergraduates participated in Time 1 of the study and provided consent for the researchers to access their future (end-of-semester) GPA from the principal office. Participants were recruited from B. Sc. Nursing courses and received credit in exchange for participation.

Procedure and Measures:
The study was longitudinal in design and consisted of two parts. Time 1 took place during the first several weeks of the semester, and Time 2 took place during the last few weeks. The procedure for Time 1 and Time 2 were identical, butTime 2 did not include the stressor task. The study was collaboration between the proposed question, as well as the related questions of two other students regarding self-esteem and weight, and self-esteem and academic workload. Participants were brought into the lab and after providing consent to participant, they completed multiple measures on the computer, including performance self-esteem and perceived stress.

They were also given time to acclimate to the conditions of the room, had their blood pressure and heart rate measured. Both of these physiological measures were assessed using a standard blood pressure wrist cuff (Omiron), which provided their systolic and diastolic pressures as well as their pulse rate. Next, participants provided the first saliva sample into a cryovial saliva collection tube. This first sample was used as a baseline measure for the steroid hormone cortisol. Next, participants completed the Trier Social Stress Test (Birkett, 2011), an acute laboratory stressor task in order to examine

physiological stress reactivity. Approximately 20 minutes after the start of the stressor task, participants provided a second saliva sample and were then debriefed about the purpose of the stressor task.

Self-Esteem:
Self-esteem was measured using the State Self-Esteem Scale (Heatherton & Polivy, 1991). This questionnaire was designed to assess what the participant was thinking at the very moment. This 20-item scale was subdivided into 3 components of self-esteem: performance self-esteem, general self-esteem, and appearance self-esteem. There were 7 items regarding performance self-esteem (α =.86). All items were answered on a 5-point scale from 1 (not at all) to 5 (extremely).

Academic Performance:
Academic performance was defined as grade point average (GPA) and was assessed in two ways. Participants were asked to self-report what they anticipated their cumulative GPA at the conclusion of the semester on the computer questionnaire. This self-reported value was asked to be given to the nearest thousands place of each decimal. Participants were also asked to provide consent for the faculty member of this research project to acquire their official end of semester GPA from the registrar office. GPA from the registrar was measured on a 4-point scale. For all non-first year students, permission was also asked for their current cumulative GPA. All data was de-identified from each participant and only used to link the GPA to their participation ID number.

Stress:
Stress was assessed in two ways, self-reported and physiological stress accessed via salivary cortisol. Self-reported stress was assessed using the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). This 14-item scale was used a measure for the perception of stress over the last month. The items were designed to see how unpredictable, uncontrollable, and overloaded respondents find their lives. The scoring of this scale was 0 (never) to 4 (very often), α =.75.

Stress was also measured by the steroid hormone cortisol. Participants provided two saliva samples. The first sample was collected into the cryovial saliva collection tube immediately after providing consent to participate. This sample served as a baseline for the hormone level. The second sample was collected 15 minutes following the stressor task. The stressor task was the Trier Social Stress Test (TSST). The task was designed to induce acute stress in the laboratory setting. TSST begins by having a brief introduction to the speech preparation portion of the task. Participants were asked to mentally prepare a 5-minute speech describing why they would be a good candidate for their ideal job. Participants were briefed that their speech would be videotaped and then reviewed by a panel of experts in public speaking, as well as evaluated by a confederate in the adjacent room. Each participant was given 5 minutes to prepare for the speech.

Once the confederate was in position and the video camera prop was set the speech began. If the participant stopped talking before the 5-minute allotted time ended, he or she was prompted to continue by the confederate. At the end of the 5-minute speech, the participant then participated in a quantitative portion. This math portion task asked for each participant to sequentially subtract the number 13 from 1, 022 verbally. At any time a mistake was made the participant was prompted by the confederate to start over from 1, 022.15 minutes following the completion of this portion of the task, the second saliva sample was collected. Each saliva sample tube was labelled and stored in a freezer until analysis. Cortisol levels were measured using a salimetrics ELISA using a salivary cortisol enzyme immunoassay kit. Following the completion of the multi well plate, the optical density (OD) was measured at 450 nm. After the optical density was taken calculations of the percent of cortisol bound for each standard, control, and saliva sample by diving the OD of each well by the average OD for the control.

3. Results

To test whether the interaction between performances related self-esteem, and perceived stress was associated with end-of-semester GPA and whether that association is moderated by gender, several analyses were conducted.

First, end-of-semester GPA was regressed onto Time 1 self-reported perceived stress, Time 1 performance related self-esteem, gender, and all interaction terms. Gender was associated with GPA, b = 0.3242, SE = 0.1551, t (66) = 2.09, p = 0.0405, such that female candidate had a higher end of semester GPA than male. Performance related self-esteem was positively associated with GPA, b =0.5229, SE= 0.1706, t (66) = 3.07, p = 0.0031. Perceived stress was also positively associated to GPA, b = 0.6325, SE = 0.3264, t (66) = 1.94, p = 0.0569. These effects were qualified, though, by a significant gender by performance related self-esteem by perceived stress interaction, b = 0.9836, SE = 0.3815, t (66) = 2.58, p = 0.0122. The interaction was decomposed by examining the perceived stress by performance self-esteem interaction separately for male candidates and female candidate. For male, there was a trend towards significance between the association between performance self-esteem and GPA, b = 0.5229, SE = 0.1706, t (66) = 3.07, p = 0.0031.

There was also a trend towards significance in male candidates regarding the association between perceived stress and GPA, b = 0.6325, SE = 0.3264, t (66) = 1.94, p = 0.0569 (Fig.1). For female candidates candidate, there was a significant performance self-esteem by stress interaction, b = 0.5769, SE = 0.2389, t (66) = 2.41, p = 0.0185. At high levels of stress, performance self-esteem is positively associated with GPA, b = 0.4594, SE = 0.1311, t (66) = 3.51, p = 0.0008. At low levels of stress, performance self-esteem is unrelated to GPA, b =-0.07751, SE = 0.2332, t (66) =-0.33, p = 0.7406 (Fig.2).

In general, self-esteem and stress are positively associated with GPA for male, whereas for female candidate, GPAs are higher when female candidate have high stress and high self-esteem.

Second, end-of semester GPA was regressed onto Time 1 baseline cortisol levels, Time 1 performance related self-esteem, gender, and all interaction terms. Gender was associated with GPA, b = 0.2845, SE = 0.1444, t (65) = 1.97, p = 0.0531, such that female candidate had a higher end of semester GPA than male.

Performance related self-esteem was associated with GPA, b=0.3354, SE= 0.1372, t (65) = 2.4, p = 0.0172. However, there was no found association between cortisol baseline levels and GPA, all (t>.34).

Finally, end of semester GPA was regressed onto Time 1 stress reactivity, Time 1 performance related self-esteem, gender and all interaction terms. Gender was found to associate with GPA, b =.02778, SE = 0.1527, t (65) = 1.82, p = 0.0735, such that female candidates had a higher end of semester GPA than male candidates. Performance related self-esteem was associated with GPA, b = 0.3244, SE = 0.1504, t (65) = 2.16, p =.0346. The all interaction in terms of stress reactivity showed no association as an end of semester GPA predictor, all t values >.72.

4. Discussion

The goal of the study was to examine the association between performance self-esteem, stress, and academic performance in Nursing college graduate students. Gender differences illustrated that female candidates had a higher GPA than male candidates who participated in the study.

The relationship with perceived stress suggested that those with lower performance self-esteem had a lower end of semester GPA in both genders, but for female candidates this effect was moderated by perceived stress. Physiological stress, baseline cortisol at Time 1 and stress reactivity, had no association with end of semester GPA. This could be due to the time the participants chose to participate. Cortisol is released throughout the day in a pattern peaking around 30 minutes after waking, and then a general decrease across the day (Adam & Kumari, 2009; Pruessner et al., 1997).

The studies were conducted from 10: 00 A. M to 4: 00 P. M, so this could have contributed to the varying cortisol baseline levels throughout the day.

Other factors such as caffeine, alcohol, and recreational drugs were initially screened for participation but there was no way to insure the participants followed the protocol which would have contributed to varying levels of stress reactivity.

Overall, self-esteem and stress are positively associated with GPA for male candidates, the higher the performance self-esteem the higher the GPA. Whereas for the female candidates, the degree of stress had a significant association with end of semester GPA. GPAs were found higher when female candidates have high stress and high self-esteem.

Ethical Clearance:
Ethical clearance was obtained from the Research Ethical committee of the concerned institution and written consent has been obtained from the participants.

Conflict of interest:
There is no conflict of interest in conducting this study. It was self-financed.

Acknowledgement:
I acknowledge my thanks to all participants, management of the nursing institutes and my family members for supporting me throughout the work.

References

[1] Adam, E. K., & Kumari, M. (2009). Assessing salivary cortisol in large-scale, epidemiological research. Psychoneuroendocrinology, 34 (10), 1423-1436. doi: 10.1016/j. psyneuen.2009.06.011
[2] Aryana, M. (2010). Relationship between Self-esteem and Academic Achievement amongst Pre-University Students. Journal of Applied Sciences, 10: 2474-2477.
[3] Birkett, M. A. (2011). The Trier Social Stress Test Protocol for Inducing Psychological Stress. Journal of Visualized Experiments : JoVE, (56), 3238.
[4] Cameron, J., Stinson, D., Hoplock, L., Hole, C., & Schellenber, J. (2016). The robust self-esteem proxy: Impressions of self-esteem inform judgments of personality and social value, Self and Identity.15: 5, 561-578. doi: 10.1080/15298868.2016.1175373
[5] Katz, D. A., & Peckins, M. K. (2017). Cortisol and salivary alpha-amylase trajectories following a group social-evaluative stressor with adolescents. Psychoneuroendocrinology, 868-16. doi: 10.1016/j. psyneuen.2017.08.021
[6] Mruk, C. J. (2013). Defining self-esteem as a relationship between competence and worthiness: How a two-factor approach integrates the cognitive and affective dimensions of self-esteem. Polish Psychological Bulletin, 44 (2), 157-164. doi: 10.2478/ppb-2013-0018
[7] Howard, M. C. (2017). Measuring self-esteem instability through a single-administration scale: Still a fruitless endeavor?. Personality And Individual Differences, 104522-532. doi: 10.1016/j. paid.2016.09.011
[8] Corral-Frías, N. S., Nadel, L., Fellous, J., & Jacobs, W. J. (2016). Behavioral and self reported sensitivity to reward are linked to stress related differences in positive affect. Psychoneuroendocrinology, 66, 205-213. doi: 10.1016/J. PSYNEUEN.2016.01.012