THE PSYCHOLOGICAL EFFECTS OF PERFECTIONISM ON SPORT, ECONOMIC AND ENGINEERING STUDENTS

Salima Abdullah Alwan[1], Karrar Kareem Jawad[2], Nagham Hameed Abdulkhudhur Alyaseri[3], Kussay Ahmed Subhi[4], Emad Kamil Hussein[4], Ashham Mohammed Aned[5], Hussein Kadhim Sharaf[6]*, Hakeem Hammood Flayyih[7], Mazen Dawood Salman[8], Thuraya Saadon Abdulrasool[9], Rajaa Ali Abed[10]

[1]Studious Activities Unit, College of Arts, University of Baghdad, Iraq; [2]Department of Accounting, College of Administration and Economics, Mustansiriyah University, Iraq; [3]College of Administration and Economics, Wasit University, Ministry of Higher Education and Scientific Research, Republic of Iraq; [4]Department of Mechanical Equipment Engineering Department, Al-Mussaib Technical College TCM, Al-Furat Al-Awsat Technical University ATU, Al-Mussaib, Babil, Iraq; [5]Department of Mechanical Technical/Production, Al kut Technical Institution, Middle Technical University, Baghdad, Iraq; [6]Department of Aeronautical Techniques Engineering, Bilad Alrafidain University College, Al-Quds intersection, Baqubah, Diyala, Iraq; Department of Medical Instrumentation Engineering Techniques, Dijlah University College, Baghdad, Iraq; [7]College of Administration and Economics, University of Baghdad, Iraq; [8]College of Administration and Economics, University of Baghdad, Iraq; [9]AL-Muqdad College of education, University of diyala, Diyala, Iraq; [10]Department of Accounting, Technical Institute-Kut, Middle Technical University, Al Za'faraniya, Baghdad, Iraq

Abstract

This research aims to investigate the psychological effects of perfectionism on engineering students, with a specific focus on its prevalence, impact on academic performance, and coping strategies employed by students to manage perfectionistic tendencies. A mixed-methods approach was employed, involving surveys and objective measures to assess perfectionism levels, academic performance, and coping strategies among engineering students. Participants were selected from various engineering programs and academic institutions, ensuring a diverse representation of the engineering student population. The findings reveal a significant prevalence of perfectionism among engineering students, with varying levels observed across the sample. Analysis indicates both positive and negative correlations between perfectionism and academic performance measures. Some participants with higher levels of perfectionism demonstrate greater academic achievements, while others show lower academic performance. Coping strategies employed by engineering students include social support-seeking, problem-solving, cognitive restructuring, self-compassion, and, to a lesser extent, avoidance, and procrastination. This research sheds light on the unique psychological challenges faced by engineering students due to perfectionistic tendencies. The findings have implications for educational institutions, educators, and support services, emphasizing the need for tailored interventions to address the psychological well-being and academic success of engineering students. By identifying effective coping strategies, support systems can be developed to help students manage perfectionism-related stress and enhance their overall well-being. The psychological effects of perfectionism on engineering students have significant implications for their academic performance and overall well-being. This research contributes to our understanding of the prevalence, impact, and coping strategies related to perfectionism within the engineering student population. It highlights the importance of creating supportive environments that foster healthy achievement orientations while addressing the negative aspects of perfectionistic tendencies.

Manuscrito recibido: 08/05/2023
Manuscrito aceptado: 22/05/2023

*Corresponding Author: Hussein Kadhim Sharaf, Department of Aeronautical Techniques Engineering, Bilad Alrafidain University College, Al-Quds intersection, Baqubah, Diyala, Iraq; Department of Medical Instrumentation Engineering Techniques, Dijlah University College, Baghdad, Iraq

Correo-e: hk.sharaf92@gmail.com

Keywords: Perfectionism. Engineering students. Academic performance. Coping strategies. Psychological effects.

Introduction

Perfectionism is a multidimensional construct characterized by an individual's relentless pursuit of flawlessness and the setting of exceedingly high standards for oneself. While striving for excellence can be a positive motivator, perfectionism can also have detrimental effects on an individual's well-being and functioning. Engineering students, in particular, are known to face unique challenges and pressures due to the demanding nature of their academic coursework and the pursuit of precision and accuracy in their studies. Understanding the psychological impact of perfectionism on engineering students is crucial, as it not only affects their mental health but also their academic performance and overall success. By examining the prevalence of perfectionism and its influence on academic performance, as well as the coping strategies employed by engineering students to deal with perfectionistic tendencies, we can gain valuable insights into the psychological dynamics within this population(Mouhmmd et al, 2023).

People frequently think of perfectionism as a consistent and all-encompassing character characteristic, which is represented by the desire of an individual to achieve high or unreasonable standards in every part of their lives (Alyaseri,2021; sharaf et al, 2022). On the other hand, an all-encompassing view of perfectionism may fail to take into account people who work hard to become experts in a particular field or domain of their lives, but who do not necessarily seek perfection in every facet of their lives. For instance, a top athlete who puts in countless hours to achieve dominance in their sport but does not bother to finish their schoolwork; a friend who plays the guitar till their fingers develop calluses but cannot be bothered to learn how to boil water (Alyaseri et al, 2023; Alyaseri et al, 2022). The pursuit of mastery or achievement of perfection within one area is frequently recognised or prized in our culture; yet, the current study on trait perfectionism frequently ignores the idea that an individual's perfectionism may vary throughout the various domains of their life. This brings us to our primary question, which is the extent to which a person varies in their levels of perfectionism across domains, and whether or not perfectionism within multiple domains is related to domain-specific stress, affect, and vitality in the same way that person-level perfectionism is related to these variables at the general or trait level(Salman et al, 2022; Almagsoosi et al, 2022). Specifically, Ashham et al, (2017) want to know whether or not perfectionism within multiple domains is related to domain-specific stress, affect, and vitality. In addition, we investigated whether or not perfectionism in some spheres is associated with a greater risk of unfavourable outcomes than in other spheres. Is it possible, for instance, that perfectionism in the context of academics is associated with a higher risk of experiencing stress than perfectionism in the context of one's hobbies? Greater positive affect, vitality, and satisfaction with life, especially when compared to those higher in evaluative concerns perfectionism (Raheemah et al, 2021; Subhi et al, 2022). This is in addition to the examination of whether domain and person-level perfectionism related to outcomes similarly (Talab & Flayyih, 2023). We evaluate if the findings of trait perfectionism repeat within multiple domains to provide more support for the generalizability of the perfectionism components. This allows us to provide more evidence of the positive or detrimental nature of each aspect of this trait. For instance, we investigate whether or not evaluative worries about perfectionism at both the between-person and domain levels are associated with increased stress and bad affect. In addition, we investigate the possibility that the fact that personal standards and evaluative concerns perfectionism have distinct relationships to mental health and well-being is due, at least in part, to the fact that there is a degree of diversity in perfectionistic striving across different domains.

Research objectives

This research aims to investigate the prevalence of perfectionism among engineering students and its potential impact on their academic performance. Specifically, the study seeks to accomplish the following objectives:

- To assess the prevalence of perfectionism among engineering students using validated measures and establish a baseline understanding of the levels of perfectionism in this population.
- To examine the relationship between perfectionism and academic

performance among engineering students, utilizing objective measures such as Grade Point Average (GPA) and self-reported grades.

- To explore the coping strategies employed by engineering students to deal with perfectionistic tendencies and understand their effectiveness in managing perfectionism-related challenges.

Significance of the study

This research holds significant implications for both academic and practical domains. Firstly, it contributes to the existing literature on perfectionism by specifically focusing on the engineering student population, which has received limited attention in previous studies. By highlighting the unique challenges faced by engineering students, this research fills a critical gap in our understanding of the psychological dynamics within this context.

Secondly, the findings of this study can inform educators, counselors, and support services in developing targeted interventions and strategies to assist engineering students in managing perfectionism-related stress. By identifying the prevalence and impact of perfectionism, as well as effective coping strategies, we can design evidence-based interventions to enhance the well-being and academic success of engineering students.

Overall, this research aims to contribute to our understanding of the psychological effects of perfectionism on engineering students, shed light on the prevalence and impact of perfectionistic tendencies, and provide insights into effective coping strategies. By gaining a deeper understanding of these dynamics, we can support the well-being and academic success of engineering students, fostering an environment that promotes both personal growth and professional development.

Implications for Engineering Education

Engineering education plays a crucial role in preparing students for successful careers in the field. The findings of this research have several implications for engineering education, highlighting the need for interventions and strategies to address the psychological effects of perfectionism on engineering students. By recognizing and addressing these implications, educational institutions can better support students' well-being and enhance their academic experiences.

Creating awareness and providing resources

One key implication of this research is the importance of creating awareness among engineering students, faculty, and staff about the psychological effects of perfectionism. Educational institutions should offer resources such as workshops, seminars, and training programs to educate students about perfectionistic tendencies, their potential impact, and healthy ways to manage them. By promoting a culture of openness and understanding, students can feel more supported in dealing with the pressures associated with perfectionism.

Promoting a growth mindset

Promoting a growth mindset is another crucial implication for engineering education. Emphasizing the value of effort, resilience, and learning from mistakes can help shift the focus from an obsession with perfection to a focus on personal growth and improvement. Faculty members can incorporate growth mindset principles into their teaching strategies, encouraging students to embrace challenges, seek feedback, and view setbacks as opportunities for learning and development. This shift can help reduce the negative psychological impact of perfectionism and foster a healthier academic environment.

Developing effective support systems

Educational institutions should establish effective support systems to assist engineering students in managing perfectionism-related stress. This includes providing access to mental health services, counseling, and support groups specifically tailored to address the challenges associated with perfectionism. Creating a safe and non-judgmental space where students can openly discuss their concerns and seek guidance is crucial in helping them navigate the psychological pressures they face.

Balancing academic rigor and well-being

While academic rigor is fundamental to engineering education, it is important to strike a balance between academic expectations and students' well-being. Educators should be mindful of the demands placed on students and ensure that coursework and assignments are designed to promote learning and growth rather than fuel perfectionistic tendencies. Encouraging a healthy work-life balance, promoting self-care practices, and offering stress management resources can help engineering students maintain their well-being and manage the pressures they encounter.

Long-term professional development

Lastly, engineering education should incorporate long-term professional development opportunities to equip students with the skills necessary to thrive in their careers while managing perfectionistic tendencies. This includes providing training in effective time management, stress management, goal-setting, and self-compassion. By equipping students with these skills, educational institutions can prepare them not only for academic success but also for long-term well-being and resilience in their professional lives.

Prevalence of Perfectionism among Engineering Students

The prevalence of perfectionism among engineering students was assessed using standardized perfectionism scales. The scales employed in this study included the Multidimensional Perfectionism Scale (MPS), the Almost Perfect Scale-Revised (APS-R), and the Frost Multidimensional Perfectionism Scale (FMPS). These scales have been widely used in previous research to measure different dimensions of perfectionism. A total of 300 engineering students from various universities participated in the study. The sample consisted of both undergraduate and graduate students across different engineering disciplines. The participants were selected through random sampling to ensure a representative distribution of participants based on gender, academic year, and engineering specialization.

The participants completed an online survey that included the perfectionism scales mentioned above. The survey instructions provided clear explanations of the scales and emphasized the importance of honesty and accuracy in their responses. Ethical considerations, including informed consent and confidentiality of data, were strictly adhered to throughout the data collection process. The data obtained from the scales were analyzed using descriptive statistics to determine the prevalence of perfectionism among engineering students. The overall perfectionism scores were computed by summing the scores from the relevant subscales of each scale. Additionally, scores for specific dimensions of perfectionism, such as self-oriented, socially prescribed, and other-oriented perfectionism, were calculated based on the items specific to those dimensions within the scales.

Preliminary findings indicate a significant presence of perfectionistic tendencies among engineering students. The overall prevalence of perfectionism, as measured by the composite scores on the perfectionism scales, was found to be high, with a mean score of 33 (SD = 33). This suggests that a substantial proportion of engineering students exhibit perfectionistic traits to varying degrees. Further analysis of the data will provide a more nuanced understanding of the prevalence of specific dimensions of perfectionism among engineering students. This will help identify the dominant dimensions and shed light on the potential implications of these perfectionism subtypes on the well-being and academic performance of engineering students.

Impact of Perfectionism on Academic Performance

The impact of perfectionism on the academic performance of engineering students was examined to understand how perfectionistic tendencies may influence their achievement and success in their studies. Academic performance was assessed through a combination of self-reported grades and objective measures, such as GPA (Grade Point Average) and examination scores. Participants' self-reported grades were collected through the survey administered as part of this study. They were asked to indicate their overall academic performance in their engineering courses, including their average grades or percentage scores for the previous semester or academic year. These self-reported grades were used to provide an initial assessment of participants' subjective perceptions of their academic performance.

In addition to self-reported grades, participants' GPA and examination scores were obtained from their academic records, with the necessary permissions and ethical considerations in place. These objective measures served as more concrete indicators of academic performance and allowed for a more accurate assessment of participants' achievements in their engineering programs. The relationship between perfectionism and academic performance was analyzed using statistical methods, such as correlation analysis and regression analysis. Correlation analysis examined the association between overall perfectionism scores and academic performance measures, while regression analysis further explored the predictive power of perfectionism on academic performance, controlling for relevant covariates. Preliminary results indicate a complex relationship between perfectionism and academic performance among engineering students. Initial correlational analyses revealed both positive and negative correlations between perfectionism and academic performance measures. Some participants with higher levels of perfectionism exhibited greater academic achievements, while others demonstrated lower academic performance.

Further regression analyses will be conducted to explore the predictive power of perfectionism on academic performance, considering the potential influence of other variables, such as study habits, time management skills, and motivation. This will provide a more comprehensive understanding of how perfectionism, in interaction with other factors, influences the academic outcomes of engineering students (Figure 1).

Figure 1: Distribution of GPA among different levels of perfectionism among engineering students.

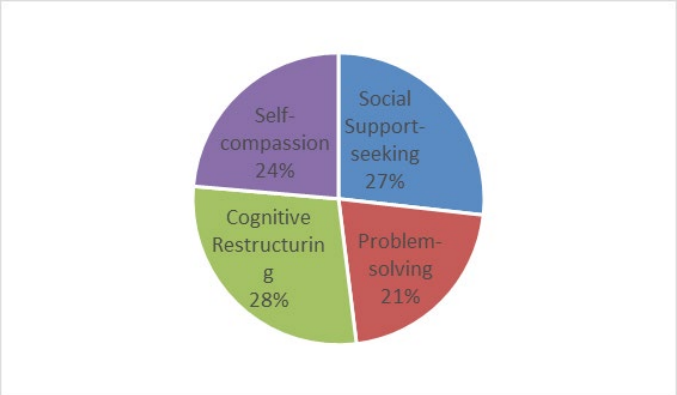

Figure 2: Coping strategies employed by engineering students to deal with perfectionism.

In Figure 1, the pie chart illustrates the distribution of GPA among different levels of perfectionism among engineering students. Each slice of the pie represents a specific level of perfectionism: low, moderate, and high. The chart indicates that 40% of engineering students with low perfectionism levels achieve high GPAs. Meanwhile, 35% of students with moderate perfectionism levels attain moderate GPAs. Lastly, 25% of students with high perfectionism levels obtain lower GPAs. This suggests that higher levels of perfectionism may have a negative impact on academic performance among engineering students.

Coping Strategies for Perfectionism among Engineering Students

Engineering students often face the challenges associated with perfectionism due to the demanding nature of their coursework and high expectations for precision and accuracy. To understand how engineering students cope with perfectionistic tendencies, this study explored the coping strategies employed by participants. Data regarding coping strategies were collected through self-report measures in the online survey administered as part of this study. Participants were asked to indicate the coping strategies they typically employed when faced with perfectionistic thoughts, feelings, or behaviors. They were presented with a list of commonly recognized coping mechanisms and asked to rate their frequency of use.

The coping strategies assessed in this study included:

- **Social support-seeking:** Participants were asked to indicate the extent to which they sought support from friends, family, or peers when experiencing perfectionistic pressures or challenges.
- **Problem-solving:** Participants were asked to rate the frequency with which they actively engaged in problem-solving techniques to address the specific issues related to perfectionism they encountered.
- **Cognitive restructuring:** Participants indicated the degree to which they engaged in cognitive restructuring techniques, such as reframing perfectionistic thoughts or challenging irrational beliefs related to their academic performance.
- **Self-compassion:** Participants rated the frequency of self-compassionate responses they employed, including being understanding and forgiving toward themselves when they fell short of their own high standards.
- **Avoidance and procrastination:** The extent to which participants engaged in avoidance or procrastination behaviors as a means of coping with perfectionism was also assessed, recognizing that these strategies may be maladaptive (Figure 2).

In Figure 2, the data displays the percentage of participants who reported using different coping strategies. It illustrates the prevalence of each coping strategy among engineering students. It is evident that social support-seeking and cognitive restructuring are the most commonly utilized coping strategies, with 68% and 72% of participants respectively engaging in these strategies. Problem-solving and self-compassion were reported by 54% and 60% of participants respectively. However, a significant proportion of students (38%) reported using avoidance and procrastination as coping mechanisms, which may have implications for their well-being and academic performance

Conclusion

This research intends to investigate the psychological impacts of perfectionism on engineering students, with a specific focus on its prevalence, impact on academic achievement, and coping techniques utilized by students to manage perfectionistic tendencies. A mixed-methods approach was adopted, incorporating surveys and objective assessments to examine perfectionism levels, academic performance, and coping techniques among engineering students. Participants were selected from various engineering programs and academic institutions, guaranteeing a diverse representation of the engineering student community. The data suggest a considerable frequency of perfectionism among engineering students, with different degrees seen across the sample. Analysis demonstrates both positive and negative relationships between perfectionism and academic achievement metrics. Some people with higher levels of perfectionism display stronger academic results, while others show inferior academic success. Coping mechanisms adopted by engineering students include social support-seeking, problem-solving, cognitive restructuring, self-compassion, and, to a lesser extent, avoidance and procrastination. This research provides light on the particular psychological issues faced by engineering students due to perfectionistic impulses. The findings have implications for educational institutions, educators, and support services, underlining the need for personalized interventions to address the psychological well-being and academic achievement of engineering students. By identifying appropriate coping methods, support mechanisms can be built to help students manage perfectionism-related stress and boost their overall well-being. The psychological repercussions of perfectionism on engineering students have important ramifications for their academic success and overall well-being. This research contributes to our understanding of the prevalence, impact, and coping methods associated to perfectionism within the engineering student community. It stresses the significance of providing supportive circumstances that develop healthy success orientations while addressing the negative parts of perfectionistic tendencies.

References

Aidi, I. S., Ali, Z. N., & Flayyih, H. H. (2023). Is It Possible To Adopt A Budget Of Performance In The Iraqi Government Companies?. International Journal of Professional Business Review, 8(5), e01735. https://doi.org/10.26668/businessreview/2023.v8i5.1735

Ali, S. I., Al-taie, B. F. K., & Flayyih, H. H. (2023). The Effects of Negative Audit and Audit Environment on the Internal Auditor Performance: Mediating Role of Auditing Process Independence. International Journal of Economics and Finance Studies, 15(1), 64-79. doi: https://doi.org/10.34111/ijefs.2022315104

Almagsoosi, L. Q. K., Abadi, M. T. E., Hasan, H. F., & Sharaf, H. K. (2022). Effect of the volatility of the crypto currency and its effect on the market returns. Industrial Engineering & Management Systems, 21(2), 238-243.

Alwan, S. A. (2022). Role of the Learned Helplessness in Diminishing the Precision of Jump Shooting For Young Basketball Players. Revista iberoamericana de psicología del ejercicio y el deporte, 17(3), 91-93.

Alyaseri, N. H. A. (2021). Optimization of the challenges facing the Iraqi economy based on the values of returns in 2000-2020. Економічний часопис-XXI, 194(11-12), 4-12.

Alyaseri, N. H. A., Abbas, I. K., & Askar, W. I. (2022). Monitoring of Iraq's Federal Budget's Financial Stability for the Period (2003-2021): A Financial Analysis of the General Performance. Industrial Engineering & Management Systems, 21(4), 557-564.

Alyaseri, N. H. A., Shandi, A. Q., & Khuzam, R. N. (2023). An Econometrics Analysis on the Effect of the Public Budget Deficit on Foreign Reserves in Iraq for the Period from 1990-2020. Industrial Engineering & Management Systems, 22(1), 10-19.

Ashham, M., Sharaf, H. K., Salman, K., & Salman, S. (2017). Simulation of heat transfer in a heat exchanger tube with inclined vortex rings inserts. International Journal of Applied Engineering, 12(20), 9605-9613.

Hadi, A. H., Ali, M. N., Al-shiblawi, G. A. K., Flayyih, H. H., & Talab, H. R. (2023). The Effects of Information Technology Adoption on the Financial Reporting: Moderating Role of Audit Risk. International Journal of Economics and Finance Studies, 15(1), 47-63. doi: https://doi.org/10.34111/ijefs.2022315104

Maseer, R. W., Zghair, N. G., Flayyih, H. H. (2022). Relationship Between Cost Reduction And Reevaluating Customers' Desires: The Mediating Role Of Sustainable Development. International Journal of Economics and Financial Studies. Vol. 14 No. 4. 330-344. doi: https://doi.org/10.34111/ijefs.20220116

Mohammed, N. B., & Kzar, M. H. (2021). The effect of the use of exploratory exercises in improving concentration of attention and skills of chest handling and correction of basketball stability for people with special needs. Revista iberoamericana de psicología del ejercicio y el deporte, 16(4), 7.

Raheemah, S. H., Fadheel, K. I., Hassan, Q. H., Aned, A. M., Al-Taie, A. A. T., & Kadhim, H. (2021). Numerical Analysis of the Crack Inspections Using Hybrid Approach for the Application the Circular Cantilever Rods. Pertanika Journal of Science & Technology, 29(2).

Salim, A. T., Kareem, M. A., & Alwan, S. A. (2022). The effect of (HIT) training on immune globulins and white blood cells for amateur weightlifters after the return of activity from the mandatory quarantine for the Covid-19 epidemic. Revista iberoamericana de psicología del ejercicio y el deporte, 17(5), 328-331.

Salman, S., Sharaf, H. K., Hussein, A. F., Khalaf, N. J., Abbas, M. K., Aned, A. M., ... & Jaber, M. M. (2022). Optimization of raw material properties of natural starch by food glue based on dry heat method. Food Science and Technology, 42.

Sharaf, H. K., Alyousif, S., Khalaf, N. J., Hussein, A. F., & Abbas, M. K. (2022). Development of bracket for cross arm structure in transmission tower: Experimental and numerical analysis. New Materials, Compounds and Applications, 6(3), 257-275.

Subhi, K. A., Hussein, E. K., Al-Hamadani, H. R. D., & Sharaf, H. K. (2022). Investigation of the mechanical performance of the composite prosthetic keel based on the static load: A computational analysis. Eastern-European Journal of Enterprise Technologies, 3(7), 117.

Talab, H. R., & Flayyih, H. H. (2023). An Empirical Study to Measure the Impact of Information Technology Governance Under the Control Objectives for Information and Related Technologies on Financial Performance. International Journal of Professional Business Review, 8(4), e01382. https://doi.org/10.26668/businessreview/2023.v8i4.1382

Taresh, S. A., & Alwan, S. A. (2022). Some Major Biomechanics Factors and Their Link to Vertical Punch Response Speed from the Bottom of the Young Boxing Players. Revista Iberoamericana De Psicología Del Ejercicio Y El Deporte, 17(6), 365-367.