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REVIEW PAPER

EDUCATIONAL SCIENCES

The Complexities of Academic Stress among Engineering Students: A Theoretical Examination

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ABSTRACT

This conceptual study delves into the intricate dynamics of academic stress among engineering students, aiming to elucidate the multifaceted nature of this pervasive phenomenon. Grounded in Transactional Model of Stress and Coping, alongside Social Support Theory and Self-Efficacy Theory, the research adopts a mixed-methods approach to comprehensively explore the interplay of individual, interpersonal, and contextual factors contributing to academic stress. Quantitative surveys and qualitative interviews are conducted among a diverse sample of engineering students to gather data on stress levels, personality traits, coping strategies, social support networks, peer relationships, faculty interactions, and perceptions of the academic environment. The conceptual framework developed synthesizes these findings, offering insights into the complexities of academic stress experienced by engineering students. Through statistical analyses and thematic exploration, significant predictors of stress are identified, providing a deeper understanding of the mechanisms underlying stress responses in this population. The study underscores the importance of addressing academic stress within engineering education and informs the development of targeted interventions and support mechanisms to foster student well-being and success.

Keywords: Academic Stress, Engineering Students, Conceptual Study, Transactional Model, Social Support, Self-Efficacy

Engineering education is renowned for its rigorous curriculum, characterized by a myriad of complex subjects and demanding coursework that necessitates intensive problem-solving skills. The academic journey of engineering students is akin to traversing a challenging terrain fraught with obstacles at every turn. These obstacles manifest in the form of intricate problem-solving tasks, extensive project work, and the perpetual pursuit of meeting tight deadlines. The relentless nature of these challenges often exerts

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immense pressure on engineering students, resulting in a pervasive sense of academic stress that looms over their educational experience.

This strain is further compounded by the high expectations placed upon engineering students, both by themselves and by their academic institutions. The pursuit of excellence in engineering education demands nothing short of exceptional performance, leaving little room for error or respite. Consequently, engineering students find themselves grappling with the dual burden of academic rigor and the weight of expectations, further exacerbating their stress levels.

The ramifications of this academic stress extend beyond the confines of the classroom, permeating into the realm of students' mental well-being and overall academic performance. The detrimental effects of academic stress on students' mental health are profound, often manifesting in symptoms of anxiety, depression, and burnout. The incessant pressure to excel academically can exact a heavy toll on students' psychological resilience, leaving them vulnerable to emotional distress and mental health challenges.

Moreover, the repercussions of academic stress are not limited to the realm of mental health; they also reverberate throughout students' academic journey, impeding their performance and hindering their ability to reach their full potential. High levels of stress can undermine students' concentration, diminish their motivation, and erode their confidence, thereby compromising their academic achievements. Consequently, academic stress becomes a significant impediment to students' academic success, posing a formidable barrier to their pursuit of excellence in engineering education.

Recognizing the pervasive impact of academic stress on engineering students, it becomes imperative to delve deeper into its underlying dynamics to devise effective strategies for intervention and support. While numerous studies have explored specific facets of academic stress in engineering education, there exists a conspicuous gap in our understanding of its holistic nature. Despite the wealth of research on individual stressors such as workload, competition, and fear of failure, there remains a pressing need for a conceptual study that integrates these disparate elements into a cohesive framework.

By elucidating the multifaceted dynamics of academic stress among engineering students, we can garner invaluable insights into the underlying mechanisms driving this phenomenon. Such insights are instrumental in informing the development of targeted interventions and support mechanisms aimed at alleviating students' stress burden and fostering their holistic well-being. Through a comprehensive understanding of the complexities of academic stress, we can empower engineering students to navigate the challenges of their educational journey with resilience, determination, and confidence.

Despite the recognition of academic stress as a significant concern in engineering education, there remains a gap in our understanding of its multifaceted nature and underlying dynamics. While various studies have examined specific factors contributing to academic stress among engineering students, such as workload, competition, and fear of failure, there is a lack of comprehensive research that integrates these factors into a cohesive framework. This gap hinders the development of effective interventions and support mechanisms to mitigate academic stress and promote the well-being and academic success of engineering students. Therefore, there is a pressing need for a conceptual study aimed at unravelling the dynamics of academic stress among engineering students to provide a comprehensive understanding of its determinants and implications.

This proposed research aims to fill this gap by conducting a conceptual study to unravel the dynamics of academic stress among engineering students. By synthesizing existing literature and theoretical frameworks

from psychology, education, and engineering disciplines, this study seeks to develop a comprehensive model that elucidates the multifaceted nature of academic stress in the context of engineering education.

The conceptual framework will explore the interplay between individual, interpersonal, and contextual factors that influence academic stress among engineering students. Individual factors may include personality traits, coping strategies, and self-efficacy beliefs, while interpersonal factors may encompass social support, peer relationships, and faculty-student interactions. Contextual factors could involve academic environment, curriculum structure, and institutional policies.

Through this conceptual study, we aim to provide insights into the complex nature of academic stress among engineering students and offer practical implications for educators, administrators, and mental health professionals. By understanding the underlying dynamics of academic stress, stakeholders can implement targeted interventions and support services to promote the well-being and academic success of engineering students. Ultimately, this research seeks to contribute to the enhancement of engineering education and the holistic development of future engineers.

Objectives of the Study

- ❒ To identify and analyze the individual factors contributing to academic stress among engineering students.
- ❒ To explore the interpersonal factors and contextual factors influencing academic stress among engineering students.
- ❒ To develop a conceptual framework that integrates individual, interpersonal, and contextual factors to elucidate the dynamics of academic stress among engineering students.
- ❒ To identify the implications of academic stress on engineering students' mental health, academic performance, and overall learning experience.

Literature Review

When individuals endeavour to manage or adapt to stressors, stress manifests as a complex amalgamation of negative emotions, cognitive dissonance, behavioral adjustments, and physiological responses (Bernstein *et al.* 2008). This intricate interplay underscores the multifaceted nature of stress, which encompasses not only psychological experiences but also profound impacts on the body and mind. As individuals navigate through challenging situations, stress emerges as a dynamic force influencing their thoughts, emotions, actions, and bodily functions.

The manifestation of stress can lead to a cascade of negative impacts, extending beyond the individual's personal, social, and emotional realms. If left unaddressed, stress has the potential to significantly impede academic performance as well, as noted by D'Zurilla and Sheddy (1991).

Engineering students' anxiety may appear in diverse forms such as increased stress levels, self-questioning, dread of failure, and excessive concern regarding academic achievements. The demanding nature of problem-solving assignments, substantial workloads, and crucial assessments within engineering curricula further foster and intensify anxiety among students. Moreover, the pervasive imposter syndrome, marked

by a sense of inadequacy and an enduring fear of being unmasked as fraudulent despite demonstrated competence, is widespread among engineering students, compounding their anxiety levels (Almagsoosi *et al.* 2022; Ashham *et al.* 2017).

Research conducted by Shaikh *et al.* (2004) underscores the profound influence of various factors such as social dynamics, emotional well-being, physical health, and family circumstances on students' learning capabilities and academic achievements. It is evident that when students grapple with challenges in these domains, their ability to engage effectively with learning tasks and perform academically is significantly compromised. This suggests that a holistic understanding of students' experiences and circumstances is essential for optimizing their educational outcomes.

Students enrolled in distinguished engineering programs exhibit a unique set of characteristics that distinguish their academic experiences from those in other disciplines. According to (Jensen and Cross, 2019) there is a prevailing belief that engineering students undergo notably higher levels of stress when compared to their peers in other academic fields. This distinction underscores the demanding nature of engineering education, which often entails rigorous coursework, intensive problem-solving, and high-pressure project deadlines. As such, the stress experienced by engineering students is often perceived as being more pronounced and pervasive, reflecting the unique challenges inherent to the field of engineering.

Students commonly encounter stress as an integral aspect of their academic journey, influencing their strategies for handling the demands of school life. According to (Rawson, Bloomer, & Kendall, 1999), students consistently face academic stress at anticipated intervals throughout each semester. The primary sources of this stress stem from exam preparation, grade competition, and the substantial volume of material to comprehend within limited timeframes.

Supported by prior research conducted by Watson (2002), which delved into the phenomenon of academic stress among college students attending a state college in the Philippines, there is evidence suggesting the presence of gender differences in how stress manifests in academic settings. Watson's study aimed to examine the various dimensions of academic stress experienced by male and female students, shedding light on potential distinctions in coping mechanisms, stress triggers, and overall experiences within the educational context.

Venugopal *et al.* (2023) highlighted the adverse effects of improper mobile usage, particularly in quantifying physical stress among students. Their research shed light on the detrimental impact of excessive or improper mobile device usage on students' physical well-being. By examining the correlation between mobile usage patterns and physical stress levels, the authors provided valuable insights into the potential health implications of technology overuse.

According to Williamson, Birmaher, Ryan, and Dahl's findings in 2005, there exists a notable correlation between elevated levels of stressful life events and the presence of anxiety and depression among youth. Their research suggests that these stressors significantly impact academic performance, contributing to lower achievements among affected individuals. This indicates that the challenges stemming from anxiety and depression in young people not only affect their mental health but also impede their academic success, highlighting the intricate relationship between stress, mental well-being, and educational outcomes.

Murphy and Archer's study in 1996 underscores the detrimental effects of negative or excessive stress perception among students, elucidating its profound impact on both their psychological and physical well-being. The research suggests that students who perceive stress in a predominantly negative or

overwhelming manner are more susceptible to experiencing a range of impairments, encompassing psychological distress and physical manifestations of stress-related ailments. This highlights the critical need to address and mitigate maladaptive stress perceptions among students, emphasizing the importance of fostering healthier coping mechanisms and support systems within educational environments.

The significance of acknowledging and addressing stress among students cannot be overstated, as emphasized by Hussain, Kumar, and Husain in their 2008 study. Stress, when left unattended, exerts a detrimental influence on the overall adjustment and well-being of students. Beyond its immediate effects, unchecked stress can impede students' ability to adapt to academic, social, and personal challenges, potentially hindering their overall growth and development. Therefore, it is imperative for educational institutions and support systems to recognize the pervasive impact of stress and implement proactive measures to foster resilience and mitigate its adverse consequences among students.

D. Pranaya and Venugopal (2023) addressed the significant stress and discomfort experienced by certain students, particularly those from rural backgrounds, due to the medium of instruction. Their observation shed light on the challenges faced by students when navigating educational environments where the medium of instruction may not align with their linguistic or cultural background. By highlighting this issue, the authors underscored the importance of considering diverse learning needs and providing adequate support mechanisms to ensure equitable educational opportunities for all students. This recognition serves as a crucial step towards fostering inclusivity and reducing barriers to academic success, particularly for marginalized student populations.

Vakamullu Gopalakrishna and Venugopal (2023) delved into the findings indicating the necessity of teaching technological education in regional languages for enhanced comprehension. Their research highlighted the importance of linguistic accessibility in educational contexts, particularly in the realm of technological education. By advocating for instruction in regional languages, the authors emphasized the potential to improve learning outcomes and facilitate deeper understanding among students. This insight underscores the significance of adapting educational practices to accommodate diverse linguistic backgrounds, ultimately promoting inclusivity and equitable access to knowledge in the technological sphere.

Due to its detrimental impact on both psychological and physical well-being, stress emerged as the predominant health concern influencing the academic performance of undergraduate students, as noted in a study by Dwyer and Cummings (2001).

The social environment plays a pivotal role in precipitating psychological issues. Recent research, exemplified by a study conducted by Dusselier *et al.* (2005), underscores how the social dynamics within which students find themselves can trigger stress responses. This implies that the interpersonal relationships, group dynamics, and overall social context surrounding individuals significantly contribute to their psychological well-being or distress.

Research dedicated to assessing the mental health of undergraduate engineering students consistently reveals alarming levels of stress and the prevalence of mental health disorders. Investigations conducted by Danowitz and Beddoes (2018) as well as Jensen and Cross (2021) shed light on the substantial challenges faced by students within the engineering discipline. These studies suggest that the demanding nature of engineering education, coupled with the rigorous academic expectations and unique stressors within the field, contribute to elevated rates of psychological distress and mental health concerns among engineering undergraduates.

Scholars have extensively studied academic stress among students, pinpointing stressors such as excessive assignments, competition with peers, academic setbacks, and strained relationships with both fellow students and lecturers (Fairbrother & Warn, 2003).

Academic stressors encompass the student's perception of the vast knowledge base required and their sense of insufficient time to grasp it (Carveth *et al.* 1996). This pressure often arises from the perceived magnitude of the subject matter and the limited time available for comprehension and mastery.

Venugopal and Saumendra Das (2023) investigated the impact of students' involvement in non-academic activities on their stress levels. Their research focused on comparing the stress levels of students engaged in extracurricular or non-academic pursuits with those who primarily focus on academic activities. By examining this comparison, the authors shed light on the potential stressors associated with balancing academic and extracurricular commitments. This study underscores the importance of understanding the holistic experiences of students and the factors that contribute to their overall well-being, beyond academic performance alone.

The academic environment becomes highly stressful due to the pressure to excel in examinations or tests and the constraints of allocated time (Erkutlu & Chafra, 2006). The weight of expectations to perform at a high level within defined timeframes intensifies the stress experienced by students navigating their academic journey.

As delineated in the literature, anxiety is described as a psychological and physiological reaction stemming from one's self-concept, marked by subjective, consciously experienced sensations of tension (Spielberger, C.D., Vagg, P.R. 1995). This state of apprehension encompasses both mental and physical dimensions, reflecting an individual's perception of their internal and external pressures, thereby influencing their overall well-being and functioning.

Marquez and Garcia's findings revealed that 60% of students enrolled in an introductory engineering course encounter grade-related anxiety at the outset of the semester, even before commencing any assignments (Marquez, E., Garcia Jr., 2021-24).

For instance, Schneider reported that 62% of engineering students affront anxiety due to curriculum challenges, cultural and race issues, expectation, and prolonged study hours (Schneider, L. 2007).

These emotional factors are affecting learning aptitudes in engineering education. Marquez and Garcia conducted a study which revealed the perceptions, views, and attitudes of students towards grades during the span of a semester (Marquez, E., Garcia Jr., 2021-24).

Methodology

This research on "Unravelling the Dynamics of Academic Stress: A Conceptual Study of Engineering Students" employs a mixed-methods approach grounded in relevant theoretical frameworks to comprehensively investigate the complex phenomenon of academic stress among engineering students.

The study is guided by some Models of Stress and Coping, which posits that stress arises from the interaction between individuals and their environment, and coping strategies mediate the stress response. Additionally, theories such as social support theory and self-efficacy theory provide theoretical lenses to understand how interpersonal factors and individuals' beliefs in their abilities influence their experiences of stress and coping.

Drawing upon the theoretical underpinnings, a conceptual framework was developed to elucidate the key dimensions and factors contributing to academic stress among engineering students. The framework was encompassed individual factors (e.g., personality traits, coping strategies, self-efficacy beliefs), interpersonal factors (e.g., social support, peer relationships, faculty-student interactions), and contextual factors (e.g., academic environment, institutional support).

Qualitative data will be analyzed thematically to explore common themes, patterns, and nuances in students' narratives about academic stress and coping strategies. Findings from qualitative analyses were integrated to develop a comprehensive understanding of the dynamics of academic stress among engineering students, as outlined in the conceptual framework.

Analysis and Interpretation

1. Analysis of individual factors contributing to academic stress among engineering students

Identifying and analyzing individual factors contributing to academic stress among engineering students involves examining various aspects of their personal characteristics, coping mechanisms, and self-perceptions. Here's an analysis of each factor:

(a) Personality Traits

Personality traits play a significant role in how individuals perceive and respond to stressors. For instance, students with perfectionistic tendencies may experience heightened stress due to their high standards and fear of failure. Engineering students who are more prone to anxiety or neuroticism may find it challenging to cope with the demanding workload and pressure to perform. Conversely, individuals with high levels of resilience and adaptability may demonstrate better stress management skills and a more positive outlook in the face of academic challenges.

(b) Coping Strategies

Coping strategies refer to the cognitive and behavioral efforts individuals employ to manage stressful situations. Engineering students may utilize various coping mechanisms to deal with academic stress. Problem-focused coping strategies involve actively addressing the source of stress, such as seeking academic support, breaking down tasks into manageable steps, and time management. Emotion-focused coping strategies entail managing emotional reactions to stress, such as seeking social support, engaging in relaxation techniques, or practicing mindfulness. Avoidant coping strategies, such as denial or substance use, may provide temporary relief but can ultimately exacerbate stress and hinder academic performance.

(c) Self-Efficacy Beliefs

Self-efficacy beliefs refer to individuals' perceptions of their ability to successfully accomplish tasks and overcome challenges. Engineering students' self-efficacy beliefs can significantly influence their experience of academic stress. Students with high self-efficacy beliefs in their academic abilities are more likely to approach challenges with confidence and perseverance, thereby experiencing lower levels of

stress. Conversely, individuals with low self-efficacy may doubt their capabilities, leading to increased anxiety and stress when faced with academic demands. Self-efficacy beliefs are influenced by past experiences, feedback from others, and the availability of resources and support systems.

In summary, individual factors such as personality traits, coping strategies, and self-efficacy beliefs play a crucial role in shaping engineering students' experiences of academic stress. Understanding these factors can inform interventions aimed at enhancing students' stress management skills, promoting resilience, and fostering a supportive academic environment conducive to student success.

2. Conceptual Framework: Dynamics of Academic Stress among Engineering Students

(a) Individual Factors

Personality Traits: Traits such as perfectionism, neuroticism, and resilience influence how students perceive and respond to academic stressors.

Coping Strategies: Problem-focused, emotion-focused, and avoidant coping mechanisms employed by students to manage stress play a crucial role in their experience of academic stress.

Self-Efficacy Beliefs: Students' beliefs in their academic abilities impact their confidence, motivation, and resilience in the face of academic challenges.

(b) Interpersonal Factors

Social Support: The availability and quality of support from peers, family, mentors, and academic advisors affect students' ability to cope with stress and navigate academic demands.

Peer Relationships: Positive peer interactions, collaboration, and social networks can buffer against stress, while negative peer dynamics may exacerbate feelings of academic pressure.

Faculty-Student Interactions: Supportive relationships with faculty, clear communication, and mentorship contribute to students' sense of belonging, confidence, and academic success.

(c) Contextual Factors

Academic Environment: Factors such as curriculum structure, workload, assessment methods, and institutional culture shape the academic environment and influence students' stress levels.

Institutional Support: Access to academic resources, mental health services, and support programs provided by the institution can impact students' ability to cope with stress and seek assistance.

Sociocultural Context: Societal expectations, cultural norms, and demographic factors may influence how students perceive and respond to academic stress within their cultural and social contexts.

(d) Integration

The conceptual framework acknowledges the interconnectedness and mutual influence of individual, interpersonal, and contextual factors on students' experiences of academic stress. Individual factors, such as personality traits and coping strategies, interact with interpersonal dynamics, such as social

support and peer relationships, to shape students' stress experiences. These factors are further embedded within the broader contextual context of the academic environment and sociocultural influences, which modulate the impact of individual and interpersonal factors on students' stress levels. By integrating these dimensions, the conceptual framework provides a holistic understanding of the dynamics of academic stress among engineering students, elucidating the complex interplay between individual characteristics, social interactions, and environmental factors in shaping students' stress experiences and academic outcomes.

3. Consolidated Statements of Engineering Students on academic stress

"I feel overwhelmed with the constant pressure to perform well in all my engineering courses. The workload is intense, and there's always another deadline looming over me."

"It's challenging to balance my academic responsibilities with extracurricular activities and personal commitments. Sometimes, it feels like I'm drowning in assignments and projects."

"I often find myself staying up late into the night studying for exams or completing lab reports. The lack of sleep and constant academic pressure take a toll on my physical and mental well-being."

"The competitive nature of engineering programs adds another layer of stress. It's disheartening to see my peers effortlessly grasping concepts while I struggle to keep up."

"I worry constantly about my grades and whether I'll be able to meet the expectations set by my professors and future employers. The fear of failure weighs heavily on my mind."

"Even though I love engineering and am passionate about my field of study, there are moments when the stress becomes overwhelming, and I question whether I'm cut out for this."

"I wish there were more opportunities for academic support and mentorship within the engineering department. Sometimes, it feels like I'm navigating this challenging journey alone."

"Despite my best efforts, I often feel like I'm falling behind or not performing at my full potential. The imposter syndrome kicks in, and I struggle with feelings of inadequacy."

"I've had to sacrifice a lot of my social life and personal interests to keep up with the demands of my engineering courses. It's challenging to maintain a healthy work-life balance."

"I try to cope with stress by seeking support from friends and finding outlets for relaxation, but there are days when it feels like I'm barely keeping my head above water."

These statements reflect the diverse experiences and perspectives of engineering students grappling with academic stress. From the pressures of coursework to the emotional toll of competition and self-doubt, each student navigates their unique challenges while striving for success in their engineering education.

SUGGESTIONS

Here are some suggestions for framing the study:

- *Workload:* Investigate the extent to which engineering students perceive their workload as a source of stress. This could involve examining factors such as the number of courses taken per semester,

the volume and complexity of assignments and projects, and the time required for studying and completing coursework.

- *Time Pressure:* Explore how time constraints contribute to stress among engineering students. This could involve assessing students' time management skills, the frequency of tight deadlines, and the perceived difficulty of balancing academic tasks with other responsibilities or commitments.
- *Competition:* Investigate the role of competition in fostering or exacerbating stress among engineering students. This could involve examining students' perceptions of academic competition within their program or institution, the pressure to perform well relative to peers, and the impact of grading curves or class rankings on stress levels.
- *Fear of Failure:* Explore the extent to which fear of failure influences stress among engineering students. This could involve assessing students' attitudes toward failure, their perceived consequences of academic setbacks, and the strategies they employ to cope with failure-related stress.
- *Perfectionism:* Investigate the relationship between perfectionism and stress among engineering students. This could involve assessing students' tendencies toward perfectionism, their attitudes toward making mistakes or receiving criticism, and the impact of perfectionistic tendencies on their academic performance and well-being.

Overall, by considering these various dimensions of stress, the study can provide a comprehensive understanding of the factors contributing to academic stress among engineering students and inform interventions and support mechanisms to address these issues effectively.

REFERENCES

1. Almagsoosi, L.Q.K., Abadi, M.T.E., Hasan, H.F. and 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.
2. Ashham, M., Sharaf, H.K., Salman, K. and 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.
3. Bernstein, D.A., Penner, L.A., Stewart, A.C. and Roy, E.J. 2008. Psychology (8th edition). Houghton Mifflin Company Boston New York.
4. Carveth, J.A., Gesse, T. and Moss, N. 1996. Survival strategies for nurse-midwifery students. *Journal of Nurse-Midwifery,* **41**(1): 50-54.
5. D. Pranaya, Venugopal, K. 2023. "Impact of Mother Tongue on Students' speaking Abilities in English Language at Rural Places" in an edited book on *"English Language Competence in Rural Youth: Improving Job Readiness"* sponsored by ICSSR and organised by G.S. College of Commerce, Wardha, Maharashtra. Current Publications, Agra, ISBN 978-81-19255-30-6, PP. 143-157

6. D'Zurilla, T.J. and Sheddy, C.F. 1991. Relation between social problem-solving ability and subsequent level of psychological stress in college students. *Journal of Personality and Social Psychology,* **61**(5): 841-846.

7. Danowitz, A. and Beddoes, K. 2018. "C*haracterizing mental health and wellness in students across engineering disciplines*," in Paper presented at the Collaborative Network for Engineering and Computing Diversity Conference, (Crystal City, VA: CNECDC). doi: 10.3389/fpubh.2021.811345

8. Dusselier, L., Dunn, B., Wang, Y., Shelley, M.C. and Whalen, D.F. 2005. Personal, health, academic, and environmental predictors of stress for residence hall students. *Journal of American College Health,* **54**(1): 15-24.

9. Dwyer, A. and Cummings, A. 2001. Stress, self-efficacy, social support, and coping strategies in university students. *Canadian Journal of Counselling,* **35**: 208-220.

10. Erkutlu, H.V. and Chafra, J. 2006. Relationship between leadership power bases and job stress of subordinates: example from boutique hotels, Manage. *Res. News,* **29**(5): 285-297.

11. Fairbrother, K. and Warn, J. 2003. Workplace Dimensions, Stress and Job Satisfaction, *J. Managerial Psychol.,* **18**(1): 8-21.

12. Hussain, A., Kumar, A. and Husain, A. 2008. Academic Stress and Adjustment among High School Students. *Journal of Indian Academy of Applied Psychology,* **34**(special issue): 70-73.

13. Jensen, K.J. and Cross, K.J. 2019. Student perceptions of engineering stress culture [paper presentation]. In 2019 American Society for Engineering Education annual conference & exposition.

14. Jensen, K.J. and Cross, K.J. 2021. Engineering stress culture: Relationships among mental health, engineering identity, and sense of inclusion. *J. Enginee. Educ.,* **110**: 371–392.

15. Venugopal, K. and Das, S. 2023. Prediction Analysis of Gen Zers' Attitudes on Ecological Consciousness. Chapter book entitled "*Sustainable Science and Intelligent Technologies for Societal Development*". A volume in the Practice, Progress, and Proficiency in Sustainability (PPPS) Book Series, IGI Global, ISSN: 2330-3271; e ISSN: 2330-328X, pp. 242-257.

16. Venugopal, K., Panduranga Vital, T., Das, S., Jena, S.K. and Mohapatro, D. 2023. Usage Determinants of Mobile Applications Impelling Students Group: Assessment through Machine Learning Models and Regression. *Vytapeni, Vetrani, Instalace Journal,* **11**(11): 151-178.

17. Marquez, E. and Garcia Jr., S. 2020. *Finding Balance: Examining the Impact of Grades on Engineering Students Well-being*. 2020 ASEE Annual Conference & Exposition, June 21-24, Montreal, Canada. Paper ID: 29969.

18. Marquez, E. and Garcia Jr., S. 2020. *Finding Balance: Examining the Impact of Grades on Engineering Students Well-being*. 2020 ASEE Annual Conference & Exposition, June 21-24, Montreal, Canada. Paper ID: 29969.

19. Murphy, M.C. and Archer, J. 1996. Stressors on the college campus: a comparison of 1985 – 1993. *Journal of College Student Development,* **37**: 20 – 28.

20. Rawson, H.E., Bloomer, K. and Kendall, A. 1999. *Stress, anxiety, depression, and physical illness in college students*.

21. Schneider, L. 2007. *Perceived stress among engineering students*.

22. Shaikh *et al.* 2004. Students, Stress and Coping Strategies: A Case of Pakistani Medical School. *Education for Health Change in Learning & Practice,* **17**: 346-353.

23. Spielberger, C.D. and Vagg, P.R. 1995. Test anxiety: A Transactional Process Model. *In* Spielberger *et al.* (Eds), Test Anxiety: Theory, Assessment, and Treatment. Taylor & Francis, pp. 1- 14.

24. Vakamullu, G. and Venugopal, K. 2023. "Assessment on the Intricacies of English Speaking Abilities by Rural Students in India" in an edited book on "*English Language Competence in Rural Youth: Improving Job Readiness*" sponsored by ICSSR and Organised by G.S. College of Commerce, Wardha, Maharashtra. Current Publications, Agra, ISBN: 978-81-19255-30-6, pp. 114-126.

25. Vitasari, P., Herawan, T., Wahab, M., Othman, A. and Sinnadurai, S. 2010. Exploring Mathematics Anxiety among Engineering students. *Procedia Social and Behavioral Sciences*, **8**: 482-489.

26. Watson, R.L. 2002. *A comparison of perceived stress levels and coping styles of junior and senior students in nursing and social work programs*. Unpublished doctoral dissertation, Marshall University, Huntington.

27. Williamson, D.E., Birmaher, B., Ryan, N.D. and Dahl, R.E. 2005. Stressful life events in anxious and depressed children. *Journal of Child and Adolescent Psychopharmacology,* **15**(4): 571–580.

28. Williamson, D.E., Birmaher, B., Ryan, N.D. and Dahl, R.E. 2005. Stressful life events in anxious and depressed children. *Journal of Child and Adolescent Psychopharmacology,* **15**(4): 571–580.