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Emotional exhaustion, academic self-efficacy, and career aspiration among engineering college students

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Abstract

Emotional exhaustion is described as a psychological state characterized by decreased energy, feelings of emotional and physical exhaustion, and a sense of frustration and failure. This state often arises from the initial phases of stress, leading to emotional and cognitive distance from academic activities. The study aims to check the relationship between emotional exhaustion with career aspiration and academic self-efficacy among engineering college students. A sample of n=201 engineering students (174 Males and 25 Females) was taken with all the participants being between the age range of 18-25. The results obtained indicated no relationship between emotional exhaustion, academic self-efficacy, and Career Aspiration among engineering students. However, there is a significant positive relationship between career aspiration and academic self-efficacy among these students

Keywords: Burnout; Career Aspiration; Emotional Exhaustion; Engineering Students; Mental Fatigue

1 Introduction

All individuals must acquire fundamental knowledge and skills throughout their lives, particularly to exercise a profession. In an increasingly demanding world, the attendance of higher education is, for many, essential. A state of psychological and physical fatigue perpetuates thorough, basically termed emotional exhaustion. Usually, intense intellectual pressure, which lasts results in emotional exhaustion. An individual experiencing emotional exhaustion might exhibit decision fatigue. The seriousness of the consequences of the worst-case scenario mediating the relationship in the student's life. It is essential to explore how individual factors such in academic self-efficacy and career aspirations contribute to or mitigate emotional exhaustion in this specific demographic, as understanding these relationships can have profound implications for their academic success, personal development, and overall quality of life. Essentially, emotional exhaustion is an aspect of burnout. Burnout can be identified by experiencing one or more of the following: feeling drained of energy or exhausted, becoming detached or mentally distant from one's work, seeing a decline in professional effectiveness, or feeling a reduced sense of personal achievement (Koutsimani, et al.,2019).

Emotional tiredness causes people to make unsafe choices, which may end up being difficult and unsatisfying experiences in their own lives. Furthermore, engineering schools are notorious for their demanding schedules, high standards, and competitive atmosphere. Because of this, engineering students frequently deal with significant pressures that may hurt their health and academic performance. Among the many difficulties faced, emotional tiredness stands out as a major issue that has an impact on student's mental well-being and academic performance. Prior research has demonstrated that mental exhaustion can impact decision-making under various circumstances. Researchers discovered that mental workload interferes with risk decision-making processing and that those with heavier workloads are more likely to make conservative decisions (Whitney, 2008). Career aspirations, representing the desired professional paths and goals, play a pivotal role in shaping students' motivation, persistence, and overall satisfaction with their academic journey. As a result, career aspirations play a crucial role in education. Vaughan and Roberts (2007)

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assert that a person's career path is an intricate, non-linear path that endures multiple twists throughout their lifetime. Therefore, it's critical to comprehend how uncertainty affects career decisions and what tools may be available to help manage it. Furthermore, academic performance and psychological well-being are significantly influenced by self-efficacy in academia, which is characterized as a person's confidence in their capacity to complete assignments and achieve desired results. Despite the growing recognition of these constructs' importance, empirical research exploring their influence on emotional exhaustion within the context of engineering education remains limited. This research seeks to bridge this gap by investigating the relationship between career aspirations, academic self-efficacy, and emotional exhaustion among engineering students. By doing so, it aims to provide valuable insights into the factors contributing to emotional well-being and academic success within this population. Emotional exhaustion is defined as a psychological state characterized by decreased energy, feelings of emotional and physical exhaustion, and a sense of frustration and failure. This state often arises from the initial phases of stress, leading to emotional and cognitive distance from academic activities. In the university environment, students commonly experience psychological manifestations that are influenced by the level of academic demands they encounter, particularly during the first year when they are adapting to the new student environment. This period can be particularly challenging as students face various academic pressures and expectations. Not all students can successfully navigate these challenges, and many may experience emotional exhaustion due to the overload of activities and stress they face. There are several adverse psychological, physiological, and work-related repercussions related to emotional fatigue. In the context of burnout, emotional tiredness can result in diminished individual self-care, absenteeism, work turnover, low morale, physical exhaustion, restless nights, increased drug or alcohol use, and troubles with marriage and family (Maslach & Jackson, 1981). Agbo et al. (2015) hold the view that career aspiration is the professional path one wishes to follow and maintain; it is a lifelong process that demands accurate perceptions of ability, potential, and achievement. Career aspiration is defined as long-term individual work-related goals. According to these authors, career aspirations revolve around the ambitions and inspirations of students. Ambition, as defined is the perception that an activity is important as a means to achieve a future goal. Thus, if a student has the desire to achieve a future goal, she or he will be more ambitious and strive for the goal she or he has set for him/herself. Quaglia and Cobb further assert that inspiration reflects activity that is exciting and enjoyable to the individual (Cobb, 2015). According to Sachien's (1975) theory of occupational anchors, individuals have a variety of job interests. A person's intrinsically acquired requirements, drives, talents, expertise, and core values are all part of their career aspirations. It offers justification for decisions that support one's sense of self. According to Sachien, eight job preferences—technical and functional competence, managerial capacity, independence, safety, a sense of assistance, pure difficulties, lifestyle, integration, and entrepreneurship proficiency—direct people's desires for their careers. Comprehending these goals is essential to understanding people's career paths and how they affect people's performance at work.

Academic self-efficacy, rooted in Bandura's self-efficacy concept is defined as an individual's sureness in their capacity to plan, carry out, and control performance to achieve a defined degree of aptitude and competence in a particular academic field (Bandura, 1997). It is a multidimensional construct that influences individuals' task selection and performance across various domains of functioning. In self-efficacy theory, academic self-efficacy varies based on effort and is situational rather than stable (Linnenbrink & Pintrich, 2002). Within academic expectancy beliefs, two categories are distinguished: academic outcome expectations and academic efficacy expectations. The former refers to beliefs about the relationship between specific behaviours and outcomes (e.g., doing homework improves grades), while the latter pertains to views about one's ability to execute necessary behaviours to achieve desired outcomes. Understanding these distinctions is crucial, as individuals may believe in the effectiveness of certain behaviours but doubt their aptitude to achieve them (Eccles & Wigfield, 2002).

1.1 Need and Significance of the Study

The engineering learning environment has been described as a "meritocracy of difficulty" (Stevens et al., 2007), a "suffering and mutual hardship" (Godfrey & Parker, 2010), and an overall "culture of stress"(Jensen & Cross, 2021). According to Ban et al. (2022), students may encounter stress as a result of demanding and unsupportive learning environments, difficulties managing their time, and high expectations for their academic achievement. The engineering field frequently normalizes stress, which may hurt students' mental health (Beddoes & Danowitz, 2022). The prevalence of issues with mental health among engineering students has been a focus of numerous research, with varying levels of attainment based on the demographic group. Greater rates of psychological distress have been identified among first-generation, female, and gender-expansive students in engineering. These results are extremely alarming. (Jensen, et al ., 2021). Additionally, feelings of despair and anxiety were more prevalent among engineering students who viewed their classrooms as competitive environments (Posselt & Lipson, 2016). When compared with an average of 39.4% of students for the whole university student population, approximately 25.1% of undergraduate students in engineering who disclosed symptoms of mental health distress had undergone counselling in the year prior (Lipson et al., 2016). Also, hardly 16.4% of engineering students received a diagnosis, even though 28.4% of them reported symptoms

consistent with an identified mental health illness (Danowitz & Beddoes, 2020). This indicates an enormous treatment gap for mental health within engineering students, those who are unwilling to reach out for help thus fail to obtain the professional guidance wanted to get a diagnosis. The literature on the engineering community can also provide a glimpse into how engineering students might perceive mental health and seeking help. The normative assortment of beliefs, tasks, rituals, and values establishes what it entails to "be" an engineer (Cech, 2013; Jensen & Cross, 2021). Hence, the current study fills a gap in the literature on emotional exhaustion among graduate students—the core of burnout—and how it pertains to involvement. The main objective of the investigation is to carry out a quantitative evaluation of the relationships between interpersonal assistance, engagement, and self-efficacy in the emotional exhaustion of graduate students. Burnout and emotional exhaustion may lead students to become more absenteeism-prone, less inclined to complete necessary coursework, and eventually drop out of college (Ramist, 1981).

2 Material and methods

2.1 Research Design

Correlational Research Design including descriptive statistics has been adopted for this study.

2.2 Statement of the Problem:

Students from all engineering fields have been exposed to stress. Academic factors were one of the most important stressors. The introduction of emotional exhaustion and implementing education into the curriculum could prove useful in combating this problem. The examination of emotional exhaustion within the student community is a real cause for worry and the issue of stress among students has to be addressed immediately. Taking this into consideration the study braces out to inspect the influence of such emotional exhaustion on student's career aspirations and academic self-efficacy.

2.3 Objectives of the study

To assess the relationship between emotional exhaustion, career aspirations, and academic self-efficacy.

2.4 Hypotheses

- Ho_1: There is no significant relationship between emotional exhaustion and career aspiration among engineering students.
- Ho_2: There is no significant relationship between emotional exhaustion and academic self-efficacy.
- Ho_3: There is no significant relationship between career aspiration and academic self-efficacy.

2.5 Operational Definition

- ***Emotional Exhaustion:*** Emotional exhaustion is a chronic state of physical and emotional depletion that results from excessive work or personal demands, leading to a feeling of being emotionally overextended and exhausted by one's work.
- ***Career Aspiration:*** Career aspiration refers to the job path someone aims for and wants to pursue. It involves understanding one's abilities, potential, and achievements, and shaping their long-term professional goals.
- ***Academic Self-Efficacy:*** Academic self-efficacy is based on the idea that individuals believe in their ability to handle academic tasks effectively. It's about feeling confident in organizing and completing tasks or solving problems related to academics.

2.6 Variables

- ***Independent Variable:*** Emotional Exhaustion
- ***Dependent Variable:*** Career Aspiration and Academic Self-Efficacy

2.7 Demographic Variables

The demographic variables in this study encompass age, which denotes the chronological age of the participants; gender, indicating whether they identify as male, female, or another gender identity; branch of engineering, specifying the field or specialization within engineering in which they are involved; and educational qualification, which refers to the highest level of education attained by the participants.

2.8 Geographical Area

A total of 201 Engineering College Students in Hyderabad made up the sample for this study.

2.9 Sample Distribution- Inclusion and Exclusion Criteria

2.9.1 Inclusion Criteria

- Male and Female
- College-going students
- Individuals who enrolled in engineering courses

2.9.2 Exclusion Criteria:

Individuals who are above 25

2.10 Sample and Techniques:

The study will focus on people aged 18 to 25 who regularly attend engineering college. The total sample population was 201. The sampling technique used in this study is Convenient sampling. Convenience Sampling is a non-probability sampling method where units are selected for inclusion in the sample because they are the easiest for the researcher to access.

2.11 Research Ethics Followed

To collect data for the study, an online questionnaire consisting of the tools, required demographic details, informed consent, and relevant details regarding the study was created using Google Forms. The link for the online questionnaire form was shared on social media platforms such as WhatsApp. Data was collected for four weeks. Following the data collection, analysis was conducted using IBM SPSS Statistics Software. Throughout the study, utmost care was taken to ensure the confidentiality of the participants. No grants or incentives were provided to participants for completing the test. Before their involvement, participants willingly consented to take part in the study, and no coercion was involved in their participation process.

2.12 Description of the tools

2.12.1 Emotional Exhaustion Questionnaire (EEQ))

The Emotional Exhaustion Questionnaire (EEQ), which consists of nine items measured on a 5-point Likert scale from 0 (“Not at All”) to 4 (“Extremely”) Hills (2019). The total score on the EEQ ranged from 9 to 45. They reported a Cronbach’s alpha of 0.85 for the EEQ (Moalemi et al, 2018).

2.12.2 Career Aspiration Scale (CAS)

The updated career aspirations scale developed by Gregor and O'Brien in 2015, which spans from 0 (not relevant) to 4 (highly relevant), was employed to assess the career aspirations of young individuals. There are 24 items in the scale with three factors; leadership Aspirations, Educational Aspirations, and Achievement Aspirations.

2.12.3 Academic Self-efficacy (ASE)

The survey questionnaire comprised 20 items rated on a five-point Likert scale, ranging from strongly disagree to strongly agree. The Cronbach’s alpha coefficient was calculated to be 0.791, surpassing the threshold of 0.7, which suggests that the items measured were appropriate.

2.13 Statistical Analysis

The sample population comprised 201 responses from engineering college students. The data was analyzed using SPSS version 26. The data was tested, revealing that it was not normally distributed within the sample population. Therefore, non-parametric tests, such as the Spearman correlation, were selected to assess the relationships between variables.

3 Results and discussion

Table 1 shows the correlation between Emotional exhaustion and Career Aspiration. The results were as follows: (ρ= -.017, $p < 0.05$), N=201. The correlation is not significant at the 0.01 level. The obtained significant value is .815 which is

greater than the significant value that is 0.05. The table proves from the data that there is no significant relationship found between Emotional exhaustion and Career Aspiration among Engineering Students.

Table 1 The Non-Parametric Correlation Between Career Aspiration and Academic Self-Efficacy Among Engineering Students Using the Spearman Correlation

Variables	n	M	SD	p	1	2
Career Aspiration	201	52.99	10.451	0.815	--	
Emotional Exhaustion	201	15.68	8.102	0.815	-0.017	--

Table 2 The non-parametric correlation between emotional exhaustion and academic self-efficacy among engineering Students using the Spearman correlation

Variables	n	M	SD	p	1	2
Academic Self-Efficacy	201	68.95	12.296	0.727	--	
Emotional Exhaustion	201	15.68	8.102	0.727	-0.025	--

Table 2 shows the correlation between Emotional Exhaustion and Academic Self-Efficacy. The results were as follows: ($p= .727$, $p < 0.05$), N=201. The correlation is not significant at the 0.01 level 2-tailed levels. The obtained significant value is -.025 which is greater than the significant value that is 0.05. The table shows from the data that there is no significant relationship found between Emotional Exhaustion and Academic Self-Efficacy.

Table 3 The non-parametric correlation between Career Aspiration and Academic Self-Efficacy among Engineering Students using the Spearman correlation

Variables	n	M	SD	p	1	2
Career Aspiration	201	52.99	10.451	0.434	--	
Academic Self-Efficacy	201	68.95	12.296	0.434	0.000	--

Correlation is significant at 0.01 levels (2 tailed).

Table 3 shows the correlation between Career Aspiration and Academic Self-Efficacy. The results were as follows: ($\rho= 1.000$, $p < 0.05$), N=201and ($\rho= .434^{**}$, $p < 0.05$), N=201. The correlation is significant at the 0.01 level. The obtained significant value is -.000 which is less than the significant value that is 0.05. The table shows from the data that there is a significant relationship between Career Aspiration and Academic Self Efficacy.

4 Conclusion

In the sphere of higher education, particularly within disciplines like engineering, the well-being and academic achievements of students hold pivotal significance. Recent studies have shed light on the profound influence of emotional exhaustion, academic self-efficacy, and career aspirations on students' holistic educational journey and outcomes. Research findings have consistently underscored the prevalence of emotional exhaustion among university students, revealing its adverse repercussions on academic performance and overall well-being. Moreover, scholarly investigations have elucidated the intricate linkages between emotional exhaustion and dwindling motivation, potentially fostering disillusionment concerning career objectives. This study endeavours to delve deeper into this multifaceted relationship, employing a quantitative approach to scrutinize the interplay of emotional exhaustion, academic self-efficacy, and career aspirations among engineering students in India.

The correlation between emotional exhaustion and career aspiration was found to be non-significant. This suggests that there is no significant relationship between these two variables among engineering students. This finding indicates that emotional exhaustion, which may arise from various stressors, does not directly impact the career aspirations of engineering students. Similar to the previous finding, the correlation between emotional exhaustion and academic self-

efficacy was also non-significant. This implies that emotional exhaustion does not significantly influence the academic self-efficacy of engineering students. Academic self-efficacy refers to one's belief in their ability to perform academically, and this finding suggests that emotional exhaustion may not necessarily undermine this belief among engineering students. There was a significant positive correlation found between career aspiration and academic self-efficacy among engineering students. This implies that engineering students who have higher career aspirations tend to also have higher academic self-efficacy, indicating a positive relationship between these two variables. The findings suggest that emotional exhaustion alone may not directly impact the career aspirations or academic self-efficacy of engineering college students. However, there is a significant positive relationship between career aspiration and academic self-efficacy among these students. These results can have implications for interventions to support engineering students' well-being and career development. Additional research could further explore other potential factors influencing these variables and how they interact in the context of engineering education. The abovementioned findings suggest the students have good career aspirations and Academic self-efficacy. Thus, the null hypothesis has been proven to be correct. Compared to students who participate in any kind of paid professional activity, it would be reasonable to assume that students have academically fulfilling environments that might have decreased the levels of emotional exhaustion because they face greater challenges in juggling their studies and career paths. However, considering the study's results and the lack of references to comparable analyses in the revised literature, college students in Hyderabad may have more developed or adapted coping and emotional intelligence mechanisms than students with less challenging lives, which helps them better manage stress.

The immense nature of emotional exhaustion, career aspiration, and academic self-efficacy has rendered it a subject worth exploring through the perspective of human psychology and behavior. The main objective of the study was to assess the relationship between emotional exhaustion, career aspiration, and academic self-efficacy and to assess the influence of emotional exhaustion on academic self-efficacy and career aspiration. The study’s findings revealed that there exists a significant relationship between career aspiration and academic self-efficacy.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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