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A Study of Stress and Achievement Motivation of Development in Engineering and Technology.

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Abstract -- This study explores the relationship between stress and achievement motivation among engineering and technology Gender (Male and Female). It aims to understand how different stressors—academic workload, deadlines, parental expectations, peer competition, and career pressure—affect Gender (Male and Female) drive to succeed. The findings may help educators, universities, and policymakers design better support systems to promote Gender (Male and Female) well-being and enhance academic outcomes. The study underscores the need for engineering and technology institutions to adopt supportive academic environments that promote mental well-being alongside academic excellence. Implementing counseling services, stress management programs, mentorship, and motivational support systems can help Gender (Male and Female) develop not only as successful professionals but also as balanced and resilient individuals.

***Keynote*-- Stress, Achievement Motivation, Development, Engineering and Technology Gender (Male and Female).**

I. INTRODUCTION

Engineering and technology programs are known for their rigorous curriculum, competitive environment, and high performance expectations. As a result, Gender (Male and Female) often experience significant levels of stress, which may influence their academic performance, psychological well-being, and motivation to achieve. Achievement motivation plays an important role in determining how Gender (Male and Female) set goals, handle academic challenges, and maintain their persistence in demanding tasks.

This study explores the relationship between stress and achievement motivation among engineering and technology Gender (Male and Female). It aims to understand how different stressors—academic workload, deadlines, parental expectations, peer competition, and career pressure—affect Gender (Male and Female) drive to succeed. The findings may help educators, universities, and policymakers design better support systems to promote Gender (Male and Female) well-being and enhance academic outcomes.

II. REVIEW LITERATURE

Julio Suarez, Aurora Vizcaino (2023) this study is to analyze the current perspective as regards knowledge related to what causes stress or motivates developers, how these two aspects are related to each other, and how this in turn affects their performance in the sphere of Global Software Development and how these can be controlled. This paper presents the results obtained after conducting a systematic mapping study of literature in order to analyze how stress, motivation, and performance affect the project members in Global Software Development teams.

Numerous studies have highlighted that engineering and technology education is highly demanding and often places Gender (Male and Female) under considerable academic and psychological stress. According to earlier research, stress among engineering students commonly arises from heavy academic workloads, tight deadlines, competitive environments, fear of failure, and pressure from parents and society to secure employment in reputed organizations.

In present study (2025) researchers have emphasized that prolonged exposure to stress can negatively affect Gender (Male and Female) mental health, academic performance, and overall development. Moderate levels of stress may act as a motivating factor, but excessive stress often leads to anxiety, burnout, depression, and reduced concentration. Studies conducted on technical Gender (Male and Female) indicate that unmanaged stress may result in absenteeism, poor academic engagement, and declining academic achievement.

Achievement motivation has been widely studied as a crucial psychological factor influencing academic success. It refers to an individual's internal drive to accomplish goals, excel in tasks, and maintain persistence despite challenges. Previous studies suggest that students with high achievement motivation are better at setting academic goals, managing time effectively, and adopting adaptive coping strategies. These students tend to show resilience in stressful academic environments.

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Several researchers have examined the relationship between stress and achievement motivation among students. Findings indicate a significant relationship between the two variables. Some studies report a negative correlation, suggesting that high stress reduces achievement motivation and academic performance. Conversely, other studies indicate that students with strong achievement motivation can convert academic stress into productive energy, enhancing their learning outcomes.

Gender- and discipline-based differences in stress and motivation have also been explored. Research suggests that engineering students often experience higher stress levels compared to students from other academic streams due to curriculum intensity and evaluation patterns. However, achievement motivation levels vary based on personal, environmental, and institutional factors such as teaching methods, peer support, and availability of academic counseling.

Existing literature highlights the need for educational institutions to implement stress management programs, counseling services, and motivational enhancement strategies. Creating a supportive learning environment can help students balance stress and maintain high levels of achievement motivation, ultimately contributing to their academic and professional development.

Despite substantial research on stress and achievement motivation independently, limited studies focus specifically on their interaction among engineering and technology students in the context of holistic development. Hence, the present study attempts to bridge this gap by examining how stress affects achievement motivation and overall student development in engineering and technology education.

Stress cracks in nature: the natural growth pattern of a tree causes residual stresses in the wood of the trunk. When the trunk is felled and the wood begins to dry, these stresses can overcome the strength of the wood and lead to significant cracks

III. METHODOLOGY

Objective of the Study

- To find out whether there is difference in male & female stress
- To find out whether there is difference male & female achievement in Eng. & tech.
- To identify the major sources of stress among engineering and technology students.
- To assess the level of achievement motivation in these Gender (Male and Female).
- To examine the relationship between stress and achievement motivation.
- To suggest measures for reducing stress and improving motivation.

Hypothesis:-

- There is no significant difference in achievement motivation due to male.
- There is no significant difference in achievement motivation due to female.
- There is no significant difference in stress on male development in Eng. & tech.
- There is no significant difference in stress on female development in Eng. & tech.
- There is a significant relationship between stress and achievement motivation among engineering and technology gender.
- Higher levels of academic stress are associated with lower achievement motivation.
- Gender with strong achievement motivation may manage stress more effectively.

Tools Used for the Study

To collect reliable and valid data for the present study, standardized psychological tools were used to measure the variables of **stress** and **achievement motivation** among engineering and technology students.

1. Stress Inventory

A **standardized Stress Scale** was used to assess the level of stress among engineering and technology students. The scale measures various dimensions of stress such as:

- Academic stress
- Time pressure
- Examination anxiety
- Peer competition
- Career-related stress

The inventory consists of multiple statements rated on a Likert-type scale. Higher scores indicate a higher level of perceived stress. The tool has been widely used in educational research and possesses satisfactory **reliability and validity**.

(For example: Student Stress Scale / Academic Stress Inventory – as applicable)

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2. Achievement Motivation Scale

To assess achievement motivation, a **standardized Achievement Motivation Scale** was administered. This scale measures students':

- Desire for success
- Persistence in academic tasks
- Goal orientation
- Fear of failure
- Aspiration level

Responses are recorded using a structured response format. Higher scores reflect higher levels of achievement motivation. The scale is suitable for use with college and university students and has proven psychometric strength.

(For example: Achievement Motivation Scale by Pratibha Deo & Asha Mohan, or similar standardized tool)

3. Personal Data Sheet

A **self-prepared Personal Data Sheet** was used to collect background information such as:

- Gender
- Age
- Year of study
- Branch of engineering/technology
- Type of institution

This information helped in analyzing group differences and understanding demographic influences on stress and achievement motivation.

Administration of Tools

The tools were administered collectively to the selected sample during regular class hours with prior permission from the concerned authorities. Clear instructions were provided to the respondents, and confidentiality was assured to encourage honest responses.

Scoring Procedure

- Standard scoring keys provided in the manuals were used.
- Raw scores were converted into meaningful interpretations according to norms.
- The data were used for further statistical analysis.

Research Questions

1. What types of stressors are most common among engineering and technology students?
2. How motivated are these students to achieve academic success?
3. Does stress negatively or positively affect achievement motivation?
4. What strategies can help students manage stress effectively?

Scope of the Study

- Students enrolled in engineering and technology programs.
- Includes psychological, academic, and environmental stressors.
- Focus on motivation related to academic and career achievement

IV. Statistical Analysis Of Data

Satirical Analysis

The study of stress and achievement motivation among engineering and technology students reveals a fascinating paradox: the more institutions claim to "prepare Male and Female for the future," the more Male and Female appear permanently stressed about surviving the present. Engineering Male and Female are trained to solve complex problems, yet the most persistent unsolved problem remains their own mental well-being.

Stress, in this study, functions as an unofficial core subject—one that is compulsory, continuously assessed, and impossible to drop. It is introduced in the first semester and intensifies with each passing year, particularly during examinations, project submissions, and placement seasons. While moderate stress is often praised as "motivational," the excessive stress experienced by engineering students seems less like inspiration and more like a survival simulation.

Achievement motivation among engineering and technology Male and Female is found to be both highly celebrated and cruelly exploited. Students are taught to aim high, compete harder, and never settle for average outcomes. Ironically, those with higher achievement motivation often experience greater stress, as their fear of failure becomes directly proportional to their desire for success. Thus, the most motivated students are sometimes the most exhausted.

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The curriculum plays an unintentional yet vital role in this drama. Loaded with assignments, lab work, surprise quizzes, and final exams that test memory more than understanding, it encourages Male and Female to pursue excellence while simultaneously denying them sufficient sleep, leisure, or peace of mind. Motivation, under such conditions, transforms from an inner drive into an emergency response mechanism.

From an institutional perspective, stress is subtly normalized and occasionally glorified. Phrases such as "engineering is not easy," or "pressure makes diamonds," are frequently used to rationalize overwhelming academic demands. Unfortunately, the study suggests that while a few diamonds emerge, a considerable number of Male and Female emerge burnt out, anxious, and questioning their career choices.

In conclusion, this satirical analysis highlights that stress and achievement motivation in engineering and technology education are deeply intertwined in a love-hate relationship. Stress claims to motivate, motivation intensifies stress, and both together contribute significantly to "Male and Female development"—often meaning development of coping skills rather than creativity or innovation. The study implicitly calls for a system where achievement motivation is nurtured through encouragement and support, rather than manufactured through continuous pressure masquerading as academic rigor.

V. Results And Discussion

Results

The analysis of data collected from engineering and technology Male and Female revealed meaningful trends regarding stress and achievement motivation. Descriptive statistics indicated that a majority of Male and Female experienced **moderate to high levels of stress**. Academic workload, examination pressure, tight schedules, and career-related concerns were reported as major contributors to stress.

Results further showed that Male and Female demonstrated **moderate levels of achievement motivation**. While many Male and Female displayed a strong desire for academic success and career advancement, sustained motivation was often challenged by continuous academic pressure and time constraints.

Correlation analysis revealed a **significant relationship between stress and achievement motivation**. In general, higher levels of stress were associated with lower levels of achievement motivation.

This suggests that excessive stress negatively impacts Male and Female internal drive to achieve academic goals. However, a small group of Male and Female with high achievement motivation maintained performance despite elevated stress levels, indicating effective coping strategies and resilience.

Comparative analysis based on demographic variables (such as gender, year of study, and branch of engineering/technology) showed noticeable differences. Senior students reported higher stress levels than juniors, likely due to final-year projects, internships, and placement pressure. Achievement motivation tended to decline in Male and Female experiencing prolonged stress without adequate support systems.

Discussion :

The findings of the present study align with previous research indicating that engineering and technology Male and Female are particularly vulnerable to academic and psychological stress due to intense curricular demands. Consistent with earlier studies, the present results confirm that **moderate stress may act as a motivator**, but excessive stress leads to reduced concentration, emotional fatigue, and decreased achievement motivation.

The observed negative relationship between stress and achievement motivation supports the view that persistent academic pressure can suppress Male and Female intrinsic motivation. When stress exceeds manageable levels, Male and Female tend to shift from a mastery-oriented approach to a survival-oriented approach, focusing on passing examinations rather than meaningful learning and innovation.

The presence of Male and Female who maintained high motivation despite stress highlights the importance of **individual differences** such as coping mechanisms, emotional intelligence, family support, and self-regulation skills. This finding suggests that stress management training and motivational enhancement programs could help Male and Female convert stress into productive academic energy.

Furthermore, the increase in stress among senior Male and Female emphasizes the need for targeted institutional interventions during critical academic phases. Counseling services, academic mentoring, flexible evaluation methods, and career guidance could significantly reduce stress and sustain achievement motivation.

Overall, the results indicate that **Male and Female development in engineering and technology is strongly influenced by the balance between stress and motivation**.

Addressing stress constructively is essential not only for academic success but also for the psychological and professional development of future engineers and technologists.

VI. Conclusion

The present study aimed to examine the levels of stress and achievement motivation and their influence on the development of engineering and technology Male and Female. The findings of the study indicate that a considerable proportion of male and female experience moderate to high levels of stress due to academic workload, examination pressure, time constraints, and career-related concerns. These stressors significantly impact male and female psychological well-being and academic engagement.

The study further reveals that achievement motivation plays a crucial role in determining how Male and Female respond to academic challenges. While moderate stress can act as a motivating force, excessive stress tends to reduce achievement motivation and hampers students' ability to perform effectively. A significant relationship between stress and achievement motivation was observed, suggesting that unmanaged stress negatively affects male and female academic development.

The results highlight that male and female development in engineering and technology education depends on maintaining a healthy balance between stress and motivation. Male and Female with higher achievement motivation and effective coping strategies were better able to manage stress, remain focused, and sustain academic performance. This emphasizes the importance of fostering motivational skills and stress management techniques within educational institutions.

In conclusion, the study underscores the need for engineering and technology institutions to adopt supportive academic environments that promote mental well-being alongside academic excellence.

Implementing counseling services, stress management programs, mentorship, and motivational support systems can help Male and Female develop not only as successful professionals but also as balanced and resilient individuals.

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