

# Evaluation of perceived stress and its correlation with personality traits in undergraduate students



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## ABSTRACT

**Background:** Stress is a normal psychological, physiological, and behavioral response of any individual. It is the struggle of an individual to cope up with the situation doing more than one's ability. It can lead to ill health over a period of time, if ignored. Personality refers to one's behavior toward the environment and oneself. Stress can regulate personality of an individual. It may create great impact on their educational and emotional behavior in student's life. It is essential to identify and counsel the students undergoing excessive stress and having negative personality. **Aims and Objectives:** The aim of this study is to evaluate perceived stress and correlate it with personality traits in undergraduate students. (i) To evaluate perceived stress in undergraduate students using Perceived Stress Scale (ii) To evaluate personality traits using Eysenck Personality Inventory Scale (iii) To classify students having different personality traits (iv) To correlate perceived stress levels with different personality traits. **Materials and Methods:** This study evaluates perceived stress and personality in 130 nursing and paramedical students attending a corporate college. Two scales – EPI scale proposed and PSS were used. Mean, standard deviation, and Pearson's correlation were calculated to determine the relationship between personality traits and perceived stress. **Results:** Mean values of neuroticism, extraversion, and lie score are greater in males than in females. Females had statistically significant higher mean stress values than males. Majority of the students were under moderate stress with 72.6% and 81.1% among male and female subjects, respectively. On comparison, percentage of neuroticism cases was higher in females (49.1%) than males (35.6%). More introvert percentages were found in male subjects compared to females. More ambivert percentages were noted in females than in males. Percentage reliability was greater in females compared to males. **Conclusion:** This study reveals that higher the neurotic factor greater is the perceived stress and higher the values of extraversion lower are the perceived stress values. Gender differences were noticeable in perceived stress. Hence, the aspect of counseling can be adopted accordingly to understand the psychology of the fresher's and modulate their mind set to help them cope with academic and personal life situations in an efficient way.

**Key words:** Perceived stress; Extrovert; Introvert

## INTRODUCTION

Stress is the psychological, physiological, and behavioral response of an individual when they perceive a lack of equilibrium between the demands placed on them and their ability to meet those demands, which over a period

of time leads to ill health. Stress in student's life may have great effect on their educational and emotional behavior. Stress creates both positive and negative impacts on every individual. One should learn to tackle the stress that they are undergoing in a proper way. Good stress can act as force to refine one self. Stress in

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a negative way generates anger, humiliation, and even develop suicidal tendencies.

Stress is one of the serious issues faced by the educational institutions. Students who are approaching to the medical and paramedical institutes have new enthusiasm and are in a transition phase. In their initial phase, they have some shy and fear of new environment. Some may try to hide their fear and try to impress the fellow people. The way how the students cope with the new environment can be assessed in the form of perceived stress.

Perceived stress is the person's way of appraisal to stress as threatening or non-threatening, as well as one's own ability to cope. According to health surveys, young people from 12 to 25 years old suffer from an insufficient level of psychological health.<sup>1</sup>

Personality is the way as to how one relates to, perceive and thinks about the environment and oneself. It is the total quality of an individual behavior seen in the habits, thinking, attitudes, interests, the manner of acting, and the personal philosophy of life. It is the totality of one's being. There is a huge difference between person to person in the way that they react to the situation.

Personality can be further classified into extrovert, introvert, and ambivert. Extroverts are individuals who are sociable and impulsive and who like excitement and oriented toward external reality. Introverts are introspective persons who are more oriented toward inner reality and tend to exhibit preference toward a well-ordered life. An ambivert is someone who exhibits qualities of both introvert and extrovert. They cannot be labeled as pure introvert (shy) or extrovert (outgoing). Depending on their mood, context, situation, goals, and people around them, ambiverts can switch to extroversion or introversion. Ambiverts have excellent communication skills, because they are perceptive when it comes to timing. A great communicator knows when to speak and when to listen. An ambivert can better judge the situation well before they interpose.

Hence, personality in toto depends entirely on the mental status of an individual. Stress is an inherent factor, more or less persists in each individual. Psychological stress is one process that may play a role in shaping personality, especially aspects of personality involving negative affectivity.

### Rationale of the study

The stress in its adverse form leads to the development of suicidal tendencies in students. To analyze the personality of a student how one can overcome the stress factor and to guide, the students accordingly are essential until the

freshers acclimatize themselves in a new environment. Keeping these parameters in view this study focus on determining the levels of perceived stress and personality and their relationship as well.

### Aims and Objectives

The aim of this study is to evaluate perceived stress and correlate it with personality traits in undergraduate students.

### Objectives

- To evaluate perceived stress in undergraduate students using Perceived Stress Scale
- To evaluate personality traits using Eysenck Personality Inventory Scale
- To classify students having different personality traits
- To correlate perceived stress levels with different personality traits

## MATERIALS AND METHODS

### Setting and participants

The present study was undertaken at Rajshree Medical Research Institute, Bareilly with the permission of the Institutional Ethical Committee. The study involved 130 male and female students pursuing MBBS. The age of study subjects was between 19 and 25 years.

### Study design

It is a cross-sectional study design. Subjects were selected by purposive sampling method. Informed consent was obtained from every study participant following Helsinki Declaration. Subjects who did not give their consent were excluded from the study.

### Study tools

Two scales were used for this study – perceived stress scale (PSS) and Eysenck personality inventory (EPI) scale.

### PSS scale

In this study, we adapted the PSS to evaluate stress factor in students. It is a classic stress assessment instrument developed in 1983. It is useful to understand how different situations affect our feelings and our perceived stress. Questions regarding feelings and thoughts of the subject during the last month were posed. Swift answers were expected for each question from the subject. This avoids the subject giving answers likely to be reasonable than those what he/she exactly felt. Ranging from Never to Always, a score was allocated from 0 to 4 to each item. Some of the items were inversely scored. The score domain ranges from 0 to 40, and higher scores indicate that an individual perceives stress more. Stress levels have been categorized into three different kinds: Low stress (values

0–13); moderate stress (values 14–26); and high stress (values 24–40).<sup>2</sup>

### EPI scale

Using EPI scale two independent personality domains – Extraversion-Introversion and Neuroticism-Stability are measured. This scale possesses 57 “Yes/No” type items without any repetition. This scale assesses “Lie factor,” that detects the distortion of response. Analysis of EPI scale generates three scores – score for extrovert/introvert, neurotic/stable, and lie score.

Trait neuroticism was categorized as neurotic if N-score was >17 for males and >15 for females. Stable subjects were considered as those whose N-score was <7 for males and <5 for females. Basing on E-score, the extrovert was identified as the subject scoring >18 for males and >16 for females. Introvert was labeled as a person scoring E-score <10 for males and <8 for females. Person scoring any value in between these was considered as ambivert. Subjects whose lie score was 6 or >6 were considered not reliable.

### Study method

The students who were receiving tertiary education were included in the study. The tertiary level student in this study has been defined as the student pursuing his/her under graduation in India. Each subject was well explained about the purpose of the study. PSS and EPI scale questionnaires were distributed simultaneously.

## RESULTS

The mean values of N-score, E-score, Lie score, and stress factor are greater in males than in females. However, the gender differences were noted statistically significant for the stress and lie factors.

Majority of the study subjects were under moderate stress with 72.6% in male and 81.1% in female subjects. Low stress percentages were higher in males compared to females. High stress percentages were higher in females compared to males.

Majority of the study subjects are non-neurotic with 64.4% in male and 50.9% female subjects. Subjects with trait neuroticism were high in females compared to males.

More introvert percentages were found in male subjects compared to females.

Percentage reliability was higher among females compared to males.

The trait neuroticism characterized by depression, anxiety, and emotional volatility is associated with higher stress. On the other hand, extraversion, characterized by sociability, assertiveness, and energy, is associated with lower stress.

## DISCUSSION

Stress among undergraduate and graduate students is multifactorial, arising from both academic and non-academic factors, including sociocultural, environmental, and psychological attributes.<sup>3</sup> Mean age of male students is  $19.43 \pm 1.38$ . Mean age of female students is  $19.03 \pm 1.07$ .

Using PSS, the mean perceived stress values in this study were found to be higher in females compared to males. These mean values are suggestive of moderate stress for male and female subjects and gender differences were noted statistically significant (Tables 1 and 2).

In accordance with this a study conducted on 140 University students of Darbhanga, Kumari S found significant gender differences on the stress perceived. However, she used personal stress source inventory for stress evaluation.<sup>4</sup>

In contradiction to our results, a study conducted by Raman comprising of 40 male and 40 female undergraduate students revealed no characteristic gender differences in case of perceived stress.<sup>5</sup>

Several international studies were also conducted in the perspective of perceived stress. Costa et al., in their study on 395 subjects of 19–67 years age, noticed high perceived stress values among women than in men.<sup>6</sup>

**Table 1: Gender differences of personality and stress factors using independent t-test**

Factor	Mean±SD		Independent t-test		
	Male	Female	t-value	Df	Sig
N score	16.219±2.78	15.452±4.49	-1.180	124	0.240
E score	12.232±2.86	12.301±3.02	0.130	124	0.896
Lie score	4.534±1.45	3.830±1.68	-2.510	124	0.013
Stress	18.876±5.71	20.811±4.84	1.999	124	0.048

**Table 2: Frequency table of stress factor in both males and females**

Stress	Male		Female	
	Frequency	Percent	Frequency	Percent
High	6	8.2	7	13.2
Low	14	19.2	3	5.7
Moderate	53	72.6	43	81.1

A study conducted in University of Armenia on undergraduate students by Harutyunyan et al., reported high perceived stress among female subjects compared to males.<sup>7</sup>

The high rate of stress among college students has been greatly linked to a greater risk for suicide attempts and mental health diagnosis.

Stress is a major factor that determines coping ability of an individual. Coping has been described as “personality in action under stress.”<sup>8</sup> The process of coping comprises of efforts made to manage a stressful situation so that it becomes less stressful. The way of coping reflects on the personality of an individual. Perceived stress is one of the best methods to evaluate psychological stress.<sup>9</sup>

Personality and stress are expected to be interdependent factors. This study meant to analyze the relationship between stress and different parameters of personality.

According to EPI scale two independent personality domains – Extraversion-Introversion and Neuroticism-Stability were measured. The previous studies proved that the trait extraversion was associated with frequency and intensity of positive effect and the trait neuroticism was related to negative psychological effects such as depression and anxiety.<sup>10</sup>

Significant gender differences were also noted in lie scores. The frequency of reliability was more among females compared to male subjects (Table 3).

Neuroticism refers to the presence of negative feelings such as anger, irritability, self-consciousness, instability, and depression.<sup>11</sup> It has several public health implications affecting psychopathological and physical health-care concerns. It impairs the persons’ ability to address the daily situations. Neuroticism is associated with diminished quality of life, excessive worry, occupational failure, and others.

Mean neuroticism (N -score) in males is  $16.219 \pm 2.78$  and in females is  $15.452 \pm 4.49$  (Table 1). These mean values indicate neurotic traits in females and approaching close to the neurotic trait in males. These scores of neurotic personalities are reflected on the stress faced by the individuals. Neurotic percentage being 35.6% in males and 49.1% in females (Table 4).

Extraversion refers to the quality of social interaction, as well as the level of activity, energy, and ability to feel positive emotions.<sup>12</sup>

Mean E-scores were  $12.232 \pm 2.86$  in males and  $12.301 \pm 3.02$  in females indicating no statistically significant difference between them (Table 1). These mean E-score values are indicative of ambivert personality. About 92.5% of females and 79.5% of male subjects in this study were ambiverts. It indicates higher ambivert percentages in females compared to male subjects (Table 5).

Stress and neurotic factors are positively correlated in female subjects and are statistically significant. Stress and E-score are negatively correlated and the results are statistically significant in male subjects. Stress and lie factors are positively correlated in males and negatively correlated in females but with no statistically significant correlation.

In this study, stronger positive correlation was noted between neurotic trait and perceived stress in females than in males (Table 6).

**Table 3: Frequency table of Lie (L) factor in both males and females**

Lie factor	Male		Female	
	Frequency	Percent	Frequency	Percent
Not reliable	20	27.4	8	15.1
Reliable	53	72.6	45	84.9

**Table 4: Frequency table of neurotic (N) factor in both males and females**

N Factor	Male		Female	
	Frequency	Percent	Frequency	Percent
Neurotic	26	35.6	26	49.1
Non-neurotic	47	64.4	27	50.9

**Table 5: Frequency table of extrovert (E) factor in both males and females**

E-Factor	Male		Female	
	Frequency	Percent	Frequency	Percent
Ambivert	58	79.5	49	92.5
Extrovert	1	1.4	2	3.8
Introvert	14	19.2	2	3.8

**Table 6: Correlation among stress and personality traits**

	Male		Female	
	Pearson's R value	Approx. Sig	Pearson's R value	Approx. Sig
Stress and N score	0.117	0.323	0.466	0.000*
Stress and E score	-0.264	0.024*	-0.081	0.562
Stress and L score	0.107	0.369	-0.228	0.101

The previous studies found that neuroticism causes psychological distress in medical students.<sup>13</sup> According to Navrady *et al.*, neuroticism scores were strongly associated with an increased risk of depression and higher psychological distress.<sup>14</sup> Neuroticism appears to be the personality trait most strongly associated with suicidality.<sup>15</sup> Interventions targeting neuroticism may be important for the early suicide prevention.

A study on Chinese women concluded the presence of significant association between neuroticism and suicidal attempts even after controlling comorbidities such as depression and stressful life events. It was hypothesized that neuroticism may increase negative perceptions of stressful life events.<sup>16</sup>

In a study conducted by Abbasi, high neurotic group reported significantly higher perceived stress.<sup>17</sup>

The perceived stress had negative relationships with extraversion. Therefore, the subjects with high extraversion scores experience lower levels of stress. The findings of this study showed significant negative correlation between extraversion and stress in male subjects.

These results were in accordance with the study conducted by Mirhaghi and Sarabian, on emergency medical experts in Razavi Khorasan Province.<sup>18</sup> According to their study, the results indicated that there were a negative and significant relationship between extraversion and the perceived stress in Emergency Medical Personnel.

### Limitations of the study

Study was conducted on a small sample. Results could be generalized with increase in sample size.

## CONCLUSION

The analysis of data significantly concluded that the students experiencing different personality traits had different stress levels. The higher the neurotic factor greater is the perceived stress and higher the values of extraversion lower are the perceived stress. Gender differences were noticeable in perceived stress. Hence, the aspect of counseling can be adopted accordingly to understand the psychology of the freshers and modulate their mind set to help them cope up with academic and personal life situations in an efficient way.

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**Authors Contribution:**

**SVV-** Concept and design of the study, prepared first draft of manuscript; **AK-** Reviewed the literature and manuscript preparation; **DK-** Statistical analysis and interpretation of results, preparation of manuscript and revision of the manuscript.

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