RESEARCH PAPER

A Comprehensive Study of Personality, Communication Skills, Perceived Stress, and Coping Mechanisms among Undergraduate Medical Students

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ABSTRACT

First-year medical education introduces significant academic and psychosocial transitions that heavily impact students' psychological well-being and interpersonal functioning. The primary aim of this study was to examine personality traits and communication skills in first-year medical students and understand how these factors are associated with their perceived stress and coping mechanisms. To achieve this, three specific objectives were established: first, to assess the baseline levels of these variables; second, to examine the relationships existing among them; and third, to identify how stress levels and coping styles differ across distinct personality profiles. A cross-sectional design utilizing purposive sampling was employed to recruit 108 first-year MBBS students (aged 18–25 years). Standardized psychometric evaluations were conducted using the EPQ-R,Self-assessment Communication Inventory, COPE Inventory, and PSS-10. Continuous scores for coping and stress were categorized via sample distribution splitting to serve as independent grouping factors for One-Way ANOVA. **Results,** descriptive analysis for the first objective assessed that the sample exhibited moderate baseline levels of perceived stress and coping mechanisms, alongside relatively higher communication skills. For the second objective, Pearson correlation matrix indicated that Extraversion shared significant positive associations with both communication skills ($r = .36$, $p < .01$) and adaptive coping mechanisms ($r = .43$, $p < .01$). Conversely, Neuroticism ($r = -.20$, $p < .05$), Psychoticism ($r = -.20$, $p < .05$), and Lie Scale scores ($r = -.35$, $p < .01$) were significantly inversely correlated with coping capacity, while perceived stress showed a non-significant negative trend with communication skills ($r = -.04$). For the third objective, One-Way ANOVA identified that stress levels and coping styles significantly differ across distinct personality profiles, showing highly significant variations in Extraversion ($F = 19.51$, $p < .001$) and Lie Scale scores ($F = 5.30$, $p = .002$) across coping levels, and significant variations in Neuroticism ($F = 5.56$, $p = .005$) across stress tiers. **In conclusion,** these findings underscore that extraverted personality structures foster robust communication and adaptive coping, whereas neurotically predisposed students exhibit heightened vulnerability to stress. Early psychological screening and structured stress management interventions are strongly recommended to enhance adaptive coping styles among medical undergraduates

Keywords: Medical Students, Personality, Communication Skills, Perceived Stress, Coping Mechanisms

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INTRODUCTION

Medical education is widely recognized as one of the most academically demanding and psychologically challenging professional training programs. Students entering medical school must adapt to a rigorous academic curriculum, high expectations of performance, intense competition, and increasing professional responsibilities. The transition into medical education, particularly during the first year, often represents a critical period of adjustment in which students experience significant psychological and academic pressures.

A large body of research has documented elevated levels of stress among medical students across different countries. A systematic review conducted by Dyrbye, Thomas, and Shanafelt (2006) found that medical students frequently report higher levels of psychological distress than their age matched peers in the general population.

Similarly, Firth-Cozens (2001) reported that the demanding structure of medical education contributes to anxiety, emotional exhaustion, and stress among students. Subsequent studies have consistently highlighted the high prevalence of stress in medical education settings.

Global evidence indicates that perceived stress among medical students is widespread. For example, Ishak et al. (2013) reported that between 31% and 63% of medical students experience significant levels of stress during their training. High levels of stress have been associated with various negative outcomes including burnout, depression, impaired academic performance, reduced empathy toward patients, and decreased overall wellbeing. In the Indian context, studies such as Sreeramareddy et al. (2007) and Shankar et al. (2010) have similarly reported high levels of psychological distress among medical students, identifying academic workload, examination pressure, and limited leisure time as major contributors to stress.

Personality traits play a crucial role in shaping how individuals perceive and respond to stressful situations. Personality influences emotional regulation, behavioural tendencies, and coping patterns. According to the personality model proposed by Eysenck (1975), personality can be conceptualized across four primary dimensions: psychoticism, extraversion, neuroticism, and lie scale. Among these traits, neuroticism has been strongly associated with emotional instability, heightened sensitivity to stress, and increased vulnerability to anxiety and negative affect (Matthews, Deary, & Whiteman,2009). In contrast, extraversion has been linked with positive affect, sociability, and greater psychological resilience.

Communication skills also represent an essential component of professional competence in medical education. Effective communication facilitates interpersonal relationships, improves teamwork, and enhances the ability to seek and provide social support during stressful situations. Strong communication abilities may therefore act as a protective factor that helps students navigate academic challenges and maintain psychological well-being. Research by Hargie (2011) emphasizes that effective interpersonal communication contributes to better emotional regulation, improved social functioning, and enhanced coping in demanding environments.

Another important factor influencing psychological adjustment among students is the use of coping strategies. Coping refers to the cognitive and behavioural efforts individuals employ to manage internal or external demands that are perceived as stressful. Carver, Scheier, and Weintraub (1989) conceptualized coping as a multidimensional construct that includes problem-focused coping, emotion-focused coping, and avoidance strategies. Adaptive coping strategies such as planning, problem solving, and seeking social support have been shown to reduce stress levels and promote psychological well-being, whereas maladaptive coping strategies may increase vulnerability to stress and emotional distress.

Although a considerable amount of research has examined stress among medical students, most existing studies have focused on individual variables such as stress levels, coping strategies, or personality traits independently. Relatively few studies have explored the combined interaction between personality traits, communication skills, perceived stress, and coping mechanisms within a single integrated framework. This represents an important limitation in the current literature, particularly because psychological variables often interact dynamically to influence students' experiences and responses to stress.

Another limitation in the existing literature relates to the measurement of communication skills. Many studies conducted in the Indian context rely on self-constructed or unvalidated questionnaires that may not capture the multidimensional nature of communication competence. There is limited research utilizing standardized assessment tools such as the Texas Education Agency Self-Assessment Communication Inventory, which evaluates several domains including listening ability, empathy, clarity of expression, respectfulness, and non-verbal communication. The use of standardized instruments may therefore provide more reliable and comprehensive assessment of communication competence among medical students.

Furthermore, many personality–stress–coping models applied in medical education are based primarily on Western theoretical frameworks. There remains a need for contextually relevant research that considers how cultural factors, academic hierarchy, institutional expectations, and peer dynamics influence coping patterns and personality expression among medical students in the Indian educational context.

The first year of medical education is particularly significant because students are required to adjust to new academic demands, teaching styles, and professional expectations. Despite the importance of this transitional stage, relatively limited research has focused specifically on first-year MBBS students and the psychological factors that may influence their stress experiences and coping behaviours.

In view of these gaps in the existing literature, the present study seeks to explore how personality traits and communication skills are associated with perceived stress and coping mechanisms, and whether stress levels and coping styles vary across different personality profiles among first-year medical students.

The aim of the present study is examining personality and communication skills in first year medical students and understanding how these factors are associated with their perceived stress and coping mechanisms. The objectives of

the study also seek to assess personality, communication skills, perceived stress, and coping mechanisms among first-year medical students, to examine the relationships among these variables, and to identify how stress levels and coping styles differ across distinct personality profiles.

Based on these objectives, the following hypotheses were formulated. The alternate hypotheses propose that there will be significant relationship between personality, communication skills, perceived stress, and coping mechanisms among first-year medical students, and there will be significant differences in stress levels and coping styles across different personality profiles among first-year medical students. The corresponding null hypotheses state that there will be no significant relationship between personality, communication skills, perceived stress, and coping mechanisms, and no significant differences in stress levels or coping styles across different personality profiles among first-year medical students.

MATERIALS AND METHODS

The present study employed a cross-sectional research design to examine the relationship between personality, communication skills, perceived stress, and coping mechanisms among first-year medical students. The study was conducted at the Department of Clinical Psychology in collaboration with the Department of Paediatrics at Santosh Medical College and Hospital, Ghaziabad. A total sample of 108 first-year MBBS students participated in the study. Participants were selected using purposive sampling, ensuring that individuals who met the study criteria were included in the sample.

Participants included first-year MBBS students within the age range of 18–25 years who were enrolled at Santosh Medical College and Hospitals, Ghaziabad and who voluntarily agreed to participate in the study. Individuals who provided informed consent were included in the study. Students with diagnosed psychiatric, neurological, or chronic medical conditions, or those currently receiving psychological treatment or medication, were excluded from participation. Additionally, participants who failed to complete the entire set of questionnaires or provided incomplete responses were excluded from the final analysis.

The study utilized standardized psychological instruments to assess the variables of interest. Personality were assessed using the Eysenck Personality Questionnaire-Revised (EPQ-R) developed by Eysenck and Eysenck (1985), which measures four dimensions of personality including psychoticism, extraversion, neuroticism, and lie scale. Communication skills were evaluated using the Self-Assessment Communication Inventory developed by the Texas Education Agency, CTE (2014), which assesses various aspects of communication including listening skills, empathy, clarity of expression, respectfulness, and non-verbal communication. Perceived stress was assessed using the Perceived Stress Scale (PSS) 10-item version developed by Cohen, Kamarck, and Mermelstein (1983), which measures the degree to which individuals perceive situations in their lives as stressful. Coping strategies were measured using the COPE Inventory 60-item version developed by Carver, Scheier, and Weintraub (1989), which evaluates different coping mechanisms used by individuals in response to stressful situations.

The procedure of the study was conducted in a systematic and ethically appropriate manner. Participants were approached and provided with a brief explanation of the purpose and nature of the study. Ethical considerations such as voluntary participation, confidentiality of responses, and the right to withdraw from the study at any time were explained prior to participation. After obtaining informed consent, participants were provided with a personal identification and screening form to collect demographic information and to determine eligibility for inclusion in the study. This form also included questions regarding any current or past physical or psychological conditions that might affect participation.

Following confirmation of eligibility, participants were administered the set of standardized questionnaires designed to assess personality, communication skills, perceived stress, and coping strategies. Clear instructions were provided to ensure that the participants understood how to complete the questionnaires accurately. Upon completion of the questionnaires, the responses were compiled and entered into a structured Microsoft Excel spreadsheet for data organization and management. Data screening and filtering procedures were applied to identify and remove incomplete or inconsistent responses. The finalized dataset was subsequently transferred into the Statistical Package for the Social Sciences (SPSS) version 26 for statistical analysis. Descriptive statistics were used to summarize the characteristics of the sample and the study variables, while Pearson correlation analysis was conducted to examine the relationships among personality, communication skills, perceived stress and coping strategies. Analysis of variance (ANOVA) was also used to identify how stress levels and coping styles differ across distinct personality profile. To evaluate these differences across personality structures, continuous parameters for coping and stress were transformed into distinct categorized groups via sample distribution splitting (yielding 4 distinct levels for Coping and 3 distinct adjustment levels for Perceived Stress) to serve as independent grouping factors within subsequent One-Way Analyses of Variance (ANOVA).

RESULTS

Table-1:*Descriptives of Study Variables*

Variables	Mean	Standard Deviation
Psychoticism	6.38	3.28
Extraversion	13.74	8.07
Neuroticism	12.99	4.57
Lie Scale	9.68	4.85
Communication Skills	42.95	9.10
Coping Mechanisms	146.67	28.31
Perceived Stress	20.13	6.72

Note. N = 108. The scores show that students have moderate levels of perceived stress and coping, relatively high communication skills, and average scores across all personality traits.

Table 2:*Pearson Correlation Matrix Among Study Variables*

Variables	Psychoticism	Extraversion	Neuroticism	Lie Scale	Communication	Coping	Stress
Psychoticism	—						
Extraversion	.07	—					
Neuroticism	-.01	-.12	—				
Lie Scale	.01	-.03	-.12	—			
Communication	-.27**	.36**	.13	-.21	—		
Coping	-.20*	.43**	- .20*	-.35**	.41**	—	
Stress	-.01	.17	.05	-.12	-.04	.02	—

Note. *p < .05, **p < .01. Communication skills showed a significant positive correlation with extraversion and coping mechanisms, whereas coping demonstrated significant negative correlations with psychoticism, neuroticism, and lie scale. Perceived stress was not significantly associated with the study variables.

Table 3:*One-Way ANOVA for Personality Across Stress Levels*

Variable	F (df1, df2)	p-value
Psychoticism	0.10 (2, 105)	.903
Extraversion	1.20 (2, 105)	.305
Neuroticism	5.56 (2, 105)	.005
Lie Scale	2.44 (2, 105)	.092

Note. Neuroticism showed a significant difference across stress levels (p = .005), whereas psychoticism, extraversion, and lie scale did not demonstrate statistically significant differences.

Table 4:*One-Way ANOVA for Personality Across Coping Levels*

Variable	F (df1, df2)	p-value
Psychoticism	1.79 (3, 104)	.154
Extraversion	19.51 (3, 104)	< .001
Neuroticism	0.66 (3, 104)	.577
Lie Scale	5.30 (3, 104)	.002

*Note***.** Extraversion (p < .001) and lie scale (p = .002) showed significant differences across coping levels, whereas psychoticism and neuroticism did not show statistically significant differences.

DISCUSSION

The present study examined personality, communication skills, perceived stress, and coping mechanisms among first-year medical students, along with their interrelationships and the differences in stress levels and coping styles across distinct personality profiles.

The descriptive findings presented in Table 1 indicated that participants in the personality dimensions reflected average scores for psychoticism (M = 6.38, SD = 3.28), extraversion (M = 13.74, SD = 8. 07), neuroticism (M = 12.99, SD = 4.57), and lie scale (M = 9.68, SD = 4.85),moderate levels of perceived stress (M = 20.13, SD = 6.72) and coping mechanisms (M = 146.67, SD = 28.31), along with relatively higher communication skills (M = 42.95, SD = 9.10). These findings suggest that although first-year medical students experience considerable academic and adjustment-related challenges, they possess interpersonal and psychological resources that may assist them in managing these demands. The transition into medical education, characterized by increased workload, high performance expectations, and adaptation to a new academic environment, may contribute to the moderate stress levels observed in the present study.

The correlation analysis presented in Table 2 showed that perceived stress was not significantly associated with any of the personality traits, communication skills, or coping mechanisms. In other words, psychoticism, extraversion, neuroticism, lie scale, communication skills, and coping all showed non-significant correlations with perceived stress, indicating that no single psychological variable emerged as a direct linear predictor of stress in this sample. This pattern suggests that stress among medical students may be influenced more strongly by situational and academic factors, such as examination pressure, institutional expectations, and adjustment difficulties, rather than by individual psychological characteristics alone. The absence of a significant relationship between coping mechanisms and perceived stress (r = .02, p > .05) further indicates that the mere presence of coping strategies may not necessarily reduce stress levels; instead, the effectiveness and situational appropriateness of coping responses may play a more important role in determining psychological adjustment.

Psychoticism showed a significant negative correlation with communication skills (r = -.27, p < .01) and a significant negative correlation with coping mechanisms (r = -.20, p < .05). These findings suggest that students with higher levels of psychoticism tend to have poorer communication skills and use fewer adaptive coping strategies. Psychoticism did not show significant correlations with extraversion, neuroticism, lie scale, or perceived stress, indicating that its primary role in this sample relates to interpersonal functioning and coping rather than to direct stress levels.

Extraversion was significantly and positively correlated with communication skills (r = .36, p < .01) and coping mechanisms (r = .43, p < .01), indicating that more extraverted students are likely to report better communication skills and greater use of adaptive coping strategies. Extraversion did not show significant correlations with psychoticism, neuroticism, lie scale, or perceived stress, suggesting that its influence is expressed mainly through enhanced communication and coping rather than through direct associations with stress.

Neuroticism did not show significant correlations with psychoticism, extraversion, lie scale, communication skills, or perceived stress, but it demonstrated a significant negative correlation with coping mechanisms (r = -.20, p < .05). This pattern suggests that higher emotional instability is associated with less adaptive coping, even though neuroticism is not directly tied to stress levels at the correlational level in this sample.

Lie scale scores showed a significant negative correlation with coping mechanisms (r = -.35, p < .01), indicating that greater defensive responding is related to lower use of adaptive coping strategies. The lie scale was not significantly associated with psychoticism, extraversion, neuroticism, communication skills, or perceived stress, suggesting that defensiveness primarily undermines coping rather than broader personality or communication patterns.

Communication skills were positively associated with extraversion (r = .36, p < .01) and coping mechanisms (r = .41, p < .01), and negatively associated with psychoticism (r = -.27, p < .01). These findings suggest that students who are more outgoing and lower in psychoticism tend to have better communication abilities, which are in turn linked to more adaptive coping. Communication skills did not show a significant correlation with neuroticism, lie scale, or perceived stress.

Coping mechanisms were positively correlated with extraversion (r = .43, p < .01) and communication skills (r = .41, p < .01), and negatively correlated with psychoticism (r = -.20, p < .05), neuroticism (r = -.20, p < .05), and lie scale scores (r = -.35, p < .01). This overall pattern suggests that students who are more extraverted, better at communication, and lower in psychoticism, neuroticism, and defensiveness tend to use more adaptive coping strategies, whereas those with higher scores on these maladaptive traits rely less on effective coping.

The ANOVA findings presented in Table 3 indicated that neuroticism differed significantly across stress levels [F(2,105) = 5.56, p = .005]. This finding suggests that neuroticism may contribute to variations in stress experience across groups, with emotionally unstable individuals potentially demonstrating greater sensitivity to academic and environmental pressures. In contrast, psychoticism, extraversion, and lie scale scores did not differ significantly across stress levels.

The ANOVA findings presented in Table 4 supported these associations by examining personality differences across coping levels. Extraversion differed significantly across coping groups [F(3,104) = 19.51, p < .001], with higher levels of extraversion associated with more adaptive coping styles, consistent with the positive correlation between extraversion and coping. Lie scale scores also differed significantly across coping levels [F(3,104) = 5.30, p = .002], suggesting that greater defensiveness is linked with less adaptive coping behaviour. Psychoticism and neuroticism did not show statistically significant differences across coping levels, indicating that although they are related to coping in the correlation analysis, they may be less influential in distinguishing between coping categories.

Overall, the findings indicate that stress and psychological adaptation among medical students are multidimensional in nature. While personality traits and communication skills may not directly determine perceived stress, they appear to shape the coping patterns and interpersonal resources utilized by students during the early phase of medical education. The results also clarify how stress levels and coping styles differ across distinct personality profiles, with extraversion and effective communication emerging as protective factors and higher psychoticism, neuroticism, and defensive responding emerging as potential risk factors for less adaptive coping.

CONCLUSION

In conclusion, the present study partially supported the first hypothesis, as extraversion and communication skills showed positive associations with coping mechanisms, whereas neuroticism, psychoticism, and defensiveness demonstrated negative associations with coping capacity. However, perceived stress did not show a significant direct relationship with these psychological variables. The second hypothesis was supported, as significant group differences indicated that extraversion and lie scale scores varied across coping categories, while neuroticism differed significantly across stress levels. These findings suggest that stress among first-year medical undergraduates is a multidimensional phenomenon influenced not only by personality traits but also by communication abilities and coping patterns. Therefore, strengthening interpersonal communication skills and promoting adaptive coping strategies may help students adjust more effectively to the academic and psychological demands of medical education.

FUTURE IMPLICATIONS

The findings highlight the need for a multidimensional understanding of stress among medical students. Future research may examine age- and gender-related differences in personality traits, communication skills, perceived stress, and coping mechanisms to provide a more comprehensive understanding of psychological adjustment across diverse student groups. Although demographic variables such as age and gender were included for descriptive purposes in the present study, comparative analyses based on these variables were not specifically explored.

Longitudinal and multi-center studies involving larger and more diverse samples may provide broader insights into how these psychological factors evolve across different

stages of medical training and may help establish clearer relationships among personality, communication, coping, and stress. Future studies may also explore the role of academic environment, social support, institutional pressures, and cultural factors in influencing stress responses and coping patterns among medical students.

From an applied perspective, integrating structured programs aimed at enhancing communication skills and promoting adaptive coping strategies within medical curricula may improve emotional well-being and psychological adjustment among medical students. Early identification of vulnerable students, particularly those with higher neuroticism, may facilitate timely psychological support and intervention. At the institutional level, strengthening mental health services, promoting stress-management initiatives, and fostering a supportive academic environment are essential for enhancing overall student well-being and resilience.

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