

Emotional Intelligence as A Moderator Between Personality Traits and Mental Health Issues Among Undergraduates

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Abstract: This study aimed to explore the moderating role of emotional intelligence between personality traits and mental health issues (depression, anxiety, and stress) among university students in Bangladesh. A total of 302 students (151 males, 151 females) from Gopalganj Science and Technology University participated using a convenience sampling method. A cross-sectional design was employed. Data were collected using the Bangla versions of the Big Five Inventory-10 (BFI-10), the Emotional Intelligence Scale (EIS), and the Depression Anxiety Stress Scale-21 (DASS-21). Correlational analysis revealed that personality traits and EI were significantly associated with mental health variables. Specifically, extraversion, agreeableness, conscientiousness, openness, and EI were negatively correlated with depression, anxiety, and stress, while neuroticism showed positive correlations. Hierarchical regression analyses showed that personality traits significantly predicted depression, anxiety, and stress. Adding EI increased explained variance across all outcomes, and interaction terms revealed that EI significantly moderated the relationships between certain personality traits and mental health. Notably, interactions between EI and conscientiousness, openness, and neuroticism significantly influenced depression; EI with extraversion, agreeableness, conscientiousness, and openness influenced anxiety; and EI with extraversion, conscientiousness, openness, and neuroticism influenced stress. These findings suggest that emotional intelligence serves as a protective factor, buffering the impact of certain personality traits on mental health outcomes. The study highlights the importance of integrating personality and emotional skills into mental health support strategies for young adults.

Keywords: personality traits, emotional intelligence, depression, anxiety, stress

I. Introduction

The transition to university life can be challenging for many students, often leading to increased stress, anxiety, and other mental health concerns (Rupande, 2015). These challenges include the rigors of coursework and the complexities of social and emotional development that undergraduate students must navigate (Jan et al., 2016). Additionally, factors such as personality traits and emotional intelligence significantly impact students' mental health during this critical period (Toševski et al., 2009). The Big Five personality traits, also known as the OCEAN model, have become a widely accepted framework for understanding and describing an individual's personality (Paunonen & Ashton, 2001). These five broad dimensions are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience (DeYoung, 2010). University students high in neuroticism tend to report higher stress levels and are more susceptible to conditions like anxiety and depression (Toševski et al., 2009). Additionally, introverted students who withdraw from social situations may be at greater risk, as they may lack the social support and coping mechanisms that can help mitigate the effects of stress (Alkhawaldeh et al., 2023). Conversely, traits such as extraversion and conscientiousness have been linked to more adaptive coping strategies and greater resilience in the face of academic and social stressors (Rioli et al., 2012). In addition to personality traits, emotional intelligence plays a significant role in mental health. Emotional intelligence is the ability to perceive, understand, and manage emotions, and it greatly impacts how individuals handle stress and maintain good mental health (Schutte et al., 2006). Students with higher emotional intelligence tend to manage university life challenges more effectively by recognizing, regulating their emotions, and empathizing with others, leading to better coping strategies, stronger social support, and lower risks of mental health issues (Kang et al., 2023). Research indicates that components like emotional perception, cognitive enhancement through emotions, emotional understanding, and regulation are linked to improved mental and physical health among university students (Jiménez-Rodríguez et al., 2022). Interestingly, while personality traits have been found to significantly predict mental health issues, some research suggested that emotional intelligence may moderate this relationship (Schutte et al., 2006).

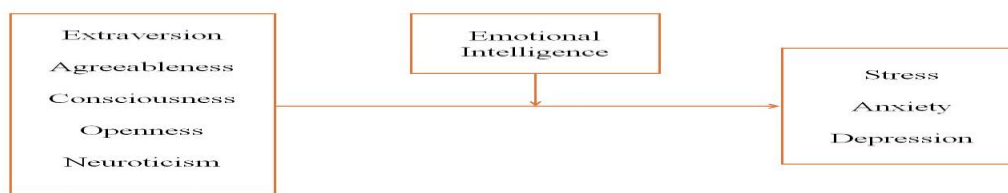


Figure 1: Conceptual framework

Specifically, students with high levels of both neuroticism and emotional intelligence may be better able to recognize and regulate their emotions, potentially buffering the negative impact of their personality traits on their mental health (Mohzan et al., 2013). Conversely, students with high neuroticism and low emotional intelligence may be more vulnerable to mental health problems, as they may struggle to cope with the stress and negative emotions associated with their personality characteristics (Liu & Lin, 2019). While studies have explored emotional intelligence (EI) and personality traits in Western contexts, limited research exists on their role in Bangladeshi university students' mental health. Given Bangladesh's unique cultural, academic, and socio-economic challenges, understanding how EI moderates the relationship between personality traits and mental health issues is crucial. This study addresses this gap by investigating EI's moderating effect, providing insights for targeted mental health interventions in Bangladeshi universities.

Objectives

The objectives of this study were:

- To examine the relationship among Big Five personality traits, emotional intelligence, and mental health issues among undergraduate students.
- To investigate the moderating role of emotional intelligence in the relationship between personality traits and mental health issues.

II. Methodology

Participants

The study included a total of 302 participants from Gopalganj Science and Technology University, Bangladesh. Among them, 151 (50%) were female, and 151 (50%) were male, with ages ranging between 18 and 26 years ($M = 22.72$ years, $SD = 2.11$). The participants were selected using a convenience sampling method.

Study design

Cross-sectional survey design was used.

Measures

Age and gender were collected as demographic information of the participants. This study utilized three measures:

The Big Five Inventory (BFI)

Personality traits were assessed using the Big Five Inventory-10 (BFI-10), a brief 10-item measure of five factors-extraversion, agreeableness, conscientiousness, neuroticism, and openness-originally developed by Rammstedt and John (2007) and adapted into Bangla by Ahmed and Hossain (2018). Among items, item 1 and 6 measure extraversion, item 2 and 7 measure agreeableness, item 3 and 8 measure conscientiousness, item 4 and 9 measure neuroticism, and item 5 and 10 measure openness. Participants expressed their opinions using a 5-point Likert-type scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Item 1, 3, 4, 5, and 7 are negative items which are reverse scored. The Bangla version demonstrated acceptable test-retest reliability (.688–.830) and inter-item correlations (.342–.526). In this study, the Bangla version showed good internal consistency ($\alpha = .79$).

Emotional Intelligence Scale

The original scale was developed by Hyde et al. (2002). There are 34 items, of which 13 were negative. The negative items are (7, 8, 9, 10, 12, 13, 14, 15, 18, 20, 22, 25, 26). This scale is a 5-point Likert-type scale ranging from (*strongly agree*) 5 to (*strongly disagree*) 1 and reverse for negative items. A higher score expressed a higher amount of emotional intelligence. Bangla versions of Cronbach alpha ranged between .92 to .93 and it has a strong convergent and discriminant validity (Uzzaman & Karim, 2017). In this study, the Bangla version showed good internal consistency ($\alpha = .82$).

The Depression Anxiety Stress Scale

The Bangla version of the DASS-21 (Alim et al., 2014) had been developed by Lovibond et al. (1995) was used. The scale consists of 21 items that are evaluated using a four-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much). The DASS-21 questionnaire consists of specific items that evaluate depression (items 3, 5, 10, 13, 16, 17, 21), anxiety (items 2, 4, 7, 9, 15, 19, 20), and stress (items 1, 6, 8, 11, 12, 14, 18). The total score for each category (depression, anxiety, and stress) should be doubled. In this study, the Bangla version showed good internal consistency ($\alpha = .84$).

Procedure

Data collection was conducted using self-administered questionnaires, which included demographic questions along with the BFI, EIS, and DASS-21. Participants were provided with clear instructions and were assured of the confidentiality of their responses. The surveys were completed in a classroom setting, and participants were given adequate time to respond.

Ethical Considerations

Participants were informed about the purpose of the study, their right to withdraw at any time, and the confidentiality of their responses. Written informed consent was obtained before participation. No personally identifiable information was collected to maintain anonymity.

III. Results

Before applying inferential statistics, the normality of the collected data on all the variables were checked. Regarding the Shapiro-Wilk and Kolmogorov-Smirnov test, p values were above .05 indicating the variables were normally distributed (Goodman, 1954).

Table 1

Pearson Correlations Among Personality Traits, Emotional Intelligence, and Mental Health Variables

Variables	1	2	3	4	5	6	7	8	9
1. Extraversion	-								
2. Agreeableness	.828**	-							
3. Conscientiousness	.803**	.808**	-						
4. Openness	.822**	.847**	.693**	-					
5. Neuroticism	-.828**	-.890**	-.826**	-.840**	-				
6. Emotional Intelligence	.866**	.917**	.862**	.847**	-.883**	-			
7. Stress	-.745**	-.796**	-.777**	-.713**	.733**	-.811**	-		
8. Anxiety	-.747**	-.805**	-.808**	-.766**	.822**	-.843**	.758**	-	
9. Depression	-.799**	-.851**	-.778**	-.764**	.827**	-.848**	.783**	.773**	-

Note. ** $p < .01$

Table 1 revealed significant interconnectedness of personality traits, emotional intelligence, and mental health outcomes. Extraversion is positively correlated with agreeableness ($r = .828, p < .01$), conscientiousness ($r = .803, p < .01$), openness ($r = .822, p < .01$), and emotional intelligence ($r = .866, p < .01$), indicating that individuals with higher levels of extraversion tend to exhibit higher levels of agreeableness, conscientiousness, openness, and emotional intelligence. In contrast, extraversion is negatively correlated with neuroticism ($r = -.828, p < .01$), stress ($r = -.745, p < .01$), anxiety ($r = -.747, p < .01$), and depression ($r = -.799, p < .01$). Furthermore, agreeableness is positively associated with conscientiousness ($r = .808, p < .001$), openness ($r = .847, p < .01$), and emotional intelligence ($r = .917, p < .01$), and it is negatively correlated with neuroticism ($r = -.890, p < .01$), stress ($r = -.796, p < .01$), anxiety ($r = -.805, p < .01$), and depression ($r = -.851, p < .01$). Likewise, conscientiousness is positively correlated with openness ($r = .693, p < .01$) and emotional intelligence ($r = .862, p < .01$), while it is negatively associated with neuroticism ($r = -.826, p < .01$), stress ($r = -.777, p < .01$), anxiety ($r = -.808, p < .01$), and depression ($r = -.778, p < .01$). Similarly, openness showed a positive correlation with emotional intelligence ($r = .847, p < .01$), and negative correlations with neuroticism ($r = -.840, p < .001$), stress ($r = -.713, p < .01$), anxiety ($r = -.766, p < .01$), and depression ($r = -.764, p < .01$). Moreover, neuroticism is negatively correlated with emotional intelligence ($r = -.883, p < .01$), but positively correlated with stress ($r = .733, p < .01$), anxiety ($r = .822, p < .01$), and depression ($r = .827, p < .01$). In addition, emotional intelligence demonstrated strong negative correlations with stress ($r = -.811, p < .01$), anxiety ($r = -.843, p < .01$), and depression ($r = -.848, p < .01$). Lastly, the mental health variables-stress, anxiety, and depression showed significant positive correlations with one another, as stress is highly correlated with anxiety ($r = .758, p < .01$) and depression ($r = .783, p < .01$), while anxiety is also positively correlated with depression ($r = .773, p < .01$).

Table 2

Hierarchical Regression Results for Mental Health Issues

Model	Variables	Depression				Anxiety				Stress			
		β	p	R^2	ΔR^2	β	p	R^2	ΔR^2	β	p	R^2	ΔR^2
1	Constant		.001	.76	.76***		.001	.75	0.75***		.001	.69	.69***
	Extraversion	-.19	.003			.08	.205			-.10	.140		
	Agreeableness	-.42	.001			-.12	.092			-.44	.001		

	Conscientiousness	-.13	.019			-.41	.001			-.40	.001		
	Openness	-.02	.760			-.25	.001			-.14	.043		
	Neuroticism	.18	.016			.23	.003			-.19	.020		
2	Constant		.001	.77	.01*		.001				.001	.70	.01**
	Extraversion	-.16	.012			.13	.044	.76	0.01***	-.07	.359		
	Agreeableness	-.34	.001			.01	.948			-.34	.001		
	Conscientiousness	-.08	.186			-.32	.001			-.33	.001		
	Openness	.01	.847			-.20	.002			-.10	.160		
	Neuroticism	.17	.022			.21	.004			-.21	.013		
	Emotional intelligence	-.19	.034			-.33	.001			-.26	.013		
3	Constant		.240	.79	.02**		.002				.001	.74	.04***
	Extraversion	.05	.893			-.50	.147			-.99	.011		
	Agreeableness	.16	.719			-1.44	.001	.80	0.04***	-.40	.412		
	Conscientiousness	.57	.075			1.18	.001			.47	.186		
	Openness	.82	.026			1.68	.001			1.03	.011		
	Neuroticism	1.76	.001			-.29	.430			-1.79	.001		
	Emotional intelligence	1.25	.001			.01	.977			-.48	.192		
	E × EI	-.20	.677			1.01	.028			1.28	.014		
	A × EI	-.64	.270			2.00	.001			.18	.779		
	C × EI	-.97	.027			-2.12	.001			-1.15	.017		
	O × EI	-1.16	.024			-2.73	.001			-1.66	.004		
	N × EI	-1.17	.001			.24	.348			1.01	.001		

Note. E = Extraversion; A = Agreeableness; C = Conscientiousness; O = Openness; N = Neuroticism; EI = Emotional Intelligence.
* $p < .05$, ** $p < .01$, *** $p < .001$

Table 2 revealed the predictive roles of personality traits and emotional intelligence (EI) on depression, anxiety, and stress across three models. For depression, the five-factor model in Model 1 explained 76% of the variance ($R^2 = .76$, $p < .001$). Significant predictors included extraversion ($\beta = -.19$, $p < .05$), agreeableness ($\beta = -.42$, $p < .05$), conscientiousness ($\beta = -.13$, $p < .05$), and neuroticism ($\beta = .18$, $p < .05$). Openness was non-significant. In Model 2, the addition of EI increased explained variance by 1% ($\Delta R^2 = .01$, $p < .01$), with EI negatively predicting depression ($\beta = -.19$, $p < .05$). Extraversion ($\beta = -.16$, $p < .05$), agreeableness ($\beta = -.34$, $p < .05$), and neuroticism ($\beta = .17$, $p < .05$) remained significant. In Model 3, the inclusion of interaction terms accounted for an additional 2% of variance ($\Delta R^2 = .02$, $p < .01$). Significant interactions were found for EI × Conscientiousness ($\beta = -.97$, $p < .05$), EI × Openness ($\beta = -1.16$, $p < .05$), and EI × Neuroticism ($\beta = -1.17$, $p < .05$), indicating that EI moderates the effect of these traits on depression. Interactions involving extraversion and agreeableness were non-significant.

For anxiety, Model 1 showed that personality traits accounted for 75% of the variance ($R^2 = .75$, $p < .001$). Conscientiousness ($\beta = -.41$, $p < .05$), openness ($\beta = -.25$, $p < .05$), and neuroticism ($\beta = .23$, $p < .05$) significantly predicted anxiety. Extraversion and agreeableness were not significant predictors. Model 2 included EI and explained 1% more variance ($\Delta R^2 = .01$, $p < .001$). EI negatively predicted anxiety ($\beta = -.33$, $p < .05$), while conscientiousness ($\beta = -.32$, $p < .05$), openness ($\beta = -.20$, $p < .05$), and neuroticism ($\beta = .21$, $p < .05$) remained significant. Extraversion also became a significant predictor ($\beta = .13$, $p < .05$). Model 3 added interactions with EI and further increased the variance explained ($\Delta R^2 = .04$, total $R^2 = .80$, $p < .001$). Significant interactions were observed for EI × Extraversion ($\beta = 1.01$, $p < .05$), EI × Agreeableness ($\beta = 2.00$, $p < .05$), EI × Conscientiousness ($\beta = -2.12$, $p < .05$), and EI × Openness ($\beta = -2.73$, $p < .05$). These interactions indicate that EI moderates the associations between personality and anxiety.

For stress, Model 1 included the five-factor personality traits and explained a substantial proportion of variance ($R^2 = .69, p < .001$). Significant predictors were agreeableness ($\beta = -.44, p < .05$), conscientiousness ($\beta = -.40, p < .05$), openness ($\beta = -.14, p < .05$), and neuroticism ($\beta = -.19, p < .05$). Extraversion was not a significant predictor ($p > .05$). Model 2 introduced emotional intelligence, which increased the explained variance by 1% ($\Delta R^2 = .01, p < .01$), with EI emerging as a significant negative predictor ($\beta = -.26, p < .05$). The significant effects of agreeableness, conscientiousness, and neuroticism remained, while extraversion and openness remained non-significant. In Model 3, interactions between EI and each trait were added, leading to a further significant increase in explained variance ($\Delta R^2 = .04, p < .001$). Significant interaction effects included EI $\times$ Extraversion ($\beta = 1.28, p < .05$), EI $\times$ Conscientiousness ($\beta = -1.15, p < .05$), EI $\times$ Openness ($\beta = -1.66, p < .05$), and EI $\times$ Neuroticism ($\beta = 1.01, p < .05$), suggesting that EI moderates the effects of these traits on stress levels.

IV. Discussion

The study was set out to identify the moderating role of emotional intelligence in the relationship between personality traits and mental health issues among university students. The first objective was to examine the relationship between the Big Five personality traits, emotional intelligence, and mental health issues among undergraduate students. The findings indicated that positive personality traits such as Extraversion, Agreeableness, Conscientiousness, and Openness were significantly associated with higher levels of emotional intelligence and better mental health. Students high in Extraversion, Agreeableness, Conscientiousness, and Openness often demonstrate enhanced emotional regulation, adaptive coping mechanisms, and healthier interpersonal relationships, all of which contribute to improved mental health (Mbuh, 2024). This aligns with findings that individuals who exhibit Extraversion, Agreeableness, Conscientiousness, and Openness tend to be more emotionally intelligent and better equipped to handle psychological challenges (Cui et al., 2024). Conversely, Neuroticism was found to be negatively associated with emotional intelligence and positively correlated with mental health difficulties. This supports earlier research linking Neuroticism to poor self-rated health and lower life satisfaction (Mbuh, 2024). Furthermore, the significant associations observed among stress, anxiety, and depression suggest that these mental health variables were highly interrelated. Individuals experiencing one are likely to experience the others, highlighting the comorbid nature of psychological distress. This observation is consistent with prior findings, which emphasize the overlapping nature of these emotional states and their shared risk factors (Hossain, 2025).

The second objective was to investigate the moderating role of emotional intelligence (EI) in the relationship between personality traits and mental health issues, namely stress, anxiety, and depression. The findings revealed that personality traits significantly predicted stress levels, with agreeableness, conscientiousness, openness, and neuroticism emerging as key predictors. This supports previous research that emphasizes the role of personality in the stress process (Davis & Nichols, 2016; Fiorilli et al., 2020). Specifically, individuals high in agreeableness and conscientiousness tended to report lower levels of stress, likely due to their tendency to utilize more effective coping mechanisms (Vollrath, 2001). Importantly, when emotional intelligence was introduced with personality traits findings showed that EI added predictive value beyond personality traits alone. This aligns with earlier studies suggesting that emotional intelligence can buffer the adverse effects of stress by enhancing adaptive coping responses (Enns et al., 2018). Notably, significant interactions were observed between EI and specific personality traits—namely extraversion, conscientiousness, openness, and neuroticism—indicating that the effect of personality traits on stress is moderated by emotional intelligence. This supports the notion that emotional abilities shape the influence of personality on stress appraisals and coping responses, consistent with the transactional model of stress (Flores-Kanter & Medrano, 2020; Vollrath, 2001). This is supported by earlier findings showing that higher emotional intelligence is associated with lower perceived stress, partly through the use of both adaptive and maladaptive coping mechanisms (Schutte et al., 2006).

Regarding anxiety, the findings demonstrated that conscientiousness, openness, and neuroticism significantly predicted anxiety levels. This aligns with prior research highlighting the influence of personality on anxiety, where higher levels of conscientiousness and openness were associated with lower anxiety, while higher neuroticism was linked to increased anxiety (Chaphalkar et al., 2017; Schutte et al., 2006). Individuals who are disciplined, intellectually curious, and emotionally stable tend to manage anxiety more effectively, whereas those who are emotionally reactive and prone to negative affectivity may be more vulnerable to anxiety-related symptoms (Smith et al., 2016). Importantly, when emotional intelligence was introduced with personality traits, the findings showed that EI added predictive value beyond personality traits alone. This supports earlier research indicating that emotional intelligence plays a crucial role in mitigating anxiety by facilitating better emotion regulation and adaptive coping strategies (Anglim et al., 2022; Smith et al., 2016). Notably, significant interactions were observed between emotional intelligence and personality traits—specifically extraversion, agreeableness, and conscientiousness—indicating that the effect of personality traits on anxiety was moderated by emotional intelligence. This suggests that emotional abilities can strengthen the protective effects of certain traits and buffer against anxiety, consistent with models of emotional competence and stress regulation (Crawford et al., 2007). For example, individuals high in both conscientiousness and EI reported the lowest levels of anxiety, illustrating the combined benefit of self-discipline and emotional awareness in reducing anxiety symptoms (Crawford et al., 2007; Smith et al., 2016).

The results further indicated that extraversion, agreeableness, conscientiousness, and neuroticism were significant predictors of depressive symptoms. Consistent with prior findings, extraversion, agreeableness, and conscientiousness were negatively associated with depression, while neuroticism had a positive association, indicating its strong predictive value for emotional instability and mood disturbance (Klein et al., 2011; Hakulinen et al., 2015; Schutte et al., 2006). Individuals characterized by social engagement,

cooperation, and self-discipline appear to be more resilient against depression, while those with heightened emotional reactivity are more vulnerable (DeNeve & Cooper, 1998). Upon the introduction of emotional intelligence with EI showing a significant negative association with depressive symptoms. These findings align with prior studies that the inclusion of EI reduced the predictive power of certain traits such as conscientiousness, suggesting some overlap between emotional intelligence and trait-based self-regulation (Li et al., 2022; Ghaffari et al., 2020). Furthermore, the interaction effects between EI and personality traits—including neuroticism, openness, and conscientiousness—were statistically significant, suggesting that EI buffers the impact of these traits on depression. These findings align with previous studies indicating that individuals with high neuroticism and low EI were especially prone to depression (Klein et al., 2011). Moreover, openness and conscientiousness may be amplified by EI in protecting against depression. For example, individuals high in openness may benefit from EI's facilitation of emotional awareness and reflection, while conscientious individuals may leverage EI's self-regulatory functions to manage depressive tendencies (Klein et al., 2011).

V. Conclusion

This study underscores the moderating role of emotional intelligence in the relationship between personality traits and mental health outcomes among Bangladeshi university students, indicating that higher emotional intelligence can buffer the negative effects of certain personality traits—such as neuroticism—on depression, anxiety, and stress. However, the study has several limitations. Its cross-sectional design prevents causal inferences, and the use of convenience sampling from a single university limits generalizability. Additionally, reliance on self-report measures may introduce social desirability and response biases. Future research should employ longitudinal or experimental designs to explore causality and include more diverse and representative samples across different regions or institutions. Furthermore, incorporating qualitative data or mixed-method approaches could deepen understanding of the contextual factors influencing emotional intelligence and mental health. Despite these limitations, the findings provide valuable insights for developing targeted interventions that foster emotional intelligence to enhance student well-being.

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Conflict of Interest

The author stated that there were no conflicts of interest.

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