

Personality and Psychological Distress: Exploring Trait-Based Vulnerability to Depression among University Students

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Abstract

University students face unique academic and social pressures that increase their risk of psychological distress. Personality traits, particularly neuroticism, have been identified as important predictors of vulnerability to depression, yet limited research has examined these associations in student populations. This study aimed to explore the relationship between personality traits and psychological distress, focusing on trait-based vulnerability to depression among university students. A cross-sectional survey was conducted with 600 students aged 18–25 years, recruited from undergraduate and postgraduate programs. Personality traits were assessed using the Big Five Inventory (BFI-44), while psychological distress was measured using the Depression Anxiety Stress Scales (DASS-21). Demographic data were also collected. Statistical analyses included descriptive statistics, Pearson's correlations, and multiple regression models. The study results showed that neuroticism was strongly and positively associated with depression, anxiety, and stress, and emerged as the most significant predictor of depressive symptoms ($\beta = .45, p < .001$). Extraversion ($\beta = -.22, p = .003$) and conscientiousness ($\beta = -.20, p = .006$) were negatively associated with distress, indicating protective effects. Openness and agreeableness showed weak or non-significant associations. Gender differences were observed, with female students reporting higher depression scores compared to males ($p = .005$). The regression model explained 38% of the variance in depression scores. Personality traits, particularly neuroticism, play a critical role in vulnerability to depression among university students. Extraversion and conscientiousness appear to buffer against distress, while gender differences highlight the need for tailored interventions. These findings suggest that personality-informed mental health strategies, including resilience training and targeted counselling, may enhance student well-being in higher education settings.

Keywords: Psychological Distress, Personality traits, Trait-based vulnerability, Mental health, University Students

Introduction

Depression is a leading mental health concern among university students, with prevalence rates ranging from 10% to 30% globally (Ibrahim et al., 2013). The transition to university life often involves academic pressure, social isolation, financial stress, and identity

development, all of which contribute to psychological vulnerability during this formative period. While environmental stressors play a significant role, individual personality traits have been increasingly recognized as critical predictors of emotional resilience and susceptibility to depression.

The Five-Factor Model of personality—comprising neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness—offers a robust framework for understanding trait-based differences in psychological functioning (Costa & McCrae, 1992). Among these traits, neuroticism has consistently been associated with higher levels of depressive symptoms due to its link with emotional instability, negative affectivity, and poor stress tolerance (Kotov et al., 2010). Conversely, traits such as extraversion and conscientiousness are often correlated with lower depression levels, reflecting greater social engagement, optimism, and self-regulation (Jeronimus et al., 2014).

Previous studies have shown that personality traits not only influence the onset and severity of depression but also affect coping styles and help-seeking behaviour among students (Klein et al., 2011). However, much of the existing research has focused on general populations, with limited attention to university students navigating the unique psychosocial demands of higher education. Understanding how personality traits contribute to psychological distress in this context is essential for developing targeted mental health interventions and promoting emotional well-being on campuses.

This study aims to explore the relationship between personality traits and depression among undergraduate university students, with a particular focus on identifying trait-based vulnerability. By examining these associations, the research seeks to inform early identification strategies and personalized support systems that address the mental health needs of students more effectively.

Review of Literature

This review focuses on the relationship between personality traits and psychological distress in university students, emphasizing trait-based vulnerability to depression. Findings indicate that traits such as high neuroticism and low conscientiousness significantly increase susceptibility to depressive symptoms. Conversely, traits like extraversion and openness may offer some protective effects. These patterns underscore the importance of personality-targeted interventions for mental health in academic settings.

Early investigations established foundational links between temperament, personality, and mood disorders, highlighting neuroticism and extraversion as key traits associated with depression and anxiety (Clark et al., 1994), (Akiskal et al., 1983). Over time, models such as the Five-Factor Model and Cloninger's biosocial framework have refined understanding of personality's role in psychopathology (Widiger & Trull, 1992), (Josefsson et al., 2011). The prevalence of depressive symptoms among university populations, often exceeding 25%, underscores the social and clinical significance of identifying trait-based vulnerabilities to depression (Tao et al., n.d.) (Othman et al., 2013). This research trajectory reflects growing

recognition of personality as a determinant of mental health, influencing onset, course, and treatment response (Klein et al., 2011) (Kotov et al., 2010).

Despite extensive study, the specific mechanisms by which personality traits confer vulnerability to depression in university students remain incompletely understood. While neuroticism consistently emerges as a robust predictor, the interplay with other traits such as conscientiousness, extraversion, and character dimensions like self-directedness is less clear (Kotov et al., 2010) (Matsudaira & Kitamura, 2006). Moreover, debates persist regarding whether personality traits represent stable diatheses, state-dependent features, or consequences of depressive episodes (Christensen & Kessing, 2006) (Hakulinen et al., 2015). Some studies emphasize cognitive and social-cognitive mediators, including pessimistic inferential styles and rejection sensitivity, as intervening variables linking traits to depressive symptoms (Hong, 2013) (Kelliher, 2013). The lack of longitudinal, culturally diverse, and integrative research limits the ability to generalize findings and develop targeted interventions (Hua, 2009) (Sarah & Beatriz, 2012). This gap constrains effective identification and support of at-risk university students, potentially exacerbating psychological distress and academic impairment (Hengartner, 2015).

The conceptual framework guiding this review integrates dispositional personality traits, particularly neuroticism and conscientiousness, with psychological distress outcomes, mediated by cognitive vulnerabilities and social-contextual factors (Hong & Paunonen, 2011) (Hankin, 2010). Personality is defined as a dynamic system comprising temperament and character dimensions that influence emotional regulation and stress response (Josefsson et al., 2011). Psychological distress encompasses depressive symptoms and related affective disturbances prevalent in university settings (Mansour et al., 2012).

Methodology

Research design

This comparative study employs a comparative, cross-sectional survey design to examine the associations between personality traits and psychological distress. A total of 600 university students aged from 21 to 25 years were recruited from Andhra University, Visakhapatnam, India. Participants were selected using stratified random sampling, ensuring balanced representation across age groups, gender, and academic backgrounds.

Inclusive Criteria

- Students who are willing to take part of the study.
- Full-time University students ages ranging from 21-25 years.

Exclusive Criteria

- Students who don't fit within the designated age range.
- Students who are or not willing to provide their informed consent.

Ethical Considerations

- **Informed Consent:** A detailed consent form was presented to parents/guardians, and assent was taken from adolescent participants.
- **Anonymity and Confidentiality:** No identifiable information was collected. Data were stored on encrypted drives and used solely for academic research.
- **Right to Withdraw:** Participants were informed that they could withdraw from the study at any point.

Tools used:

The following standardized tools were used to assess examine the associations between personality traits and psychological distress.

- **Demographic Data Sheet:** Demographic information of the sample such as age and gender, socioeconomic status and family history of mental illness.
- **Big Five Inventory (BFI-44):** The Big Five Inventory (BFI-44) was developed in 1991 by Oliver P. John, E.M. Donahue, and R.L. Kentle. The Big Five Inventory (BFI-44) is a widely used personality assessment tool with strong reliability, validity, and factor structure. It consistently demonstrates good internal consistency across its five dimensions (Extraversion, Agreeableness, Conscientiousness, Neuroticism, Openness) and has been validated across cultures and languages. Cronbach's alpha values typically range from 0.75 to 0.90 across the five factors, indicating strong reliability.
- **Depression Anxiety Stress Scales (DASS-21):** The Depression Anxiety Stress Scales (DASS) were originally developed by Peter F. Lovibond and Sidney H. Lovibond in 1995. The DASS-21 is the short form, later validated by Antony et al. (1998). It is widely used and shows strong reliability, validity, and cross-cultural applicability. Cronbach's alpha values typically range from 0.82–0.90 for Depression, 0.77–0.86 for Anxiety, and 0.83–0.90 for Stress. It shows a good stability over short intervals, with correlations around 0.70–0.80.

Statistical Analysis: Collected data was entered and analysed with SPSS (Version 16). Descriptive statistics like means, standard deviations, frequencies and percentages were calculated for demographic variables and scale scores. Pearson's correlation was computed to examine associations between personality traits and depressive symptoms. Multiple regression analysis was carried out to identify trait-based predictors of psychological distress. Along with the above-mentioned statistical tests, mediation/moderation models to test whether factors such as gender or academic stress influence the relationship between personality and depression.

Results

Presented in the table below are the findings, which aim to provide a complete picture of the study's participants. The demographics, frequency and percentages were presented in the tabular form.

Table 1. Descriptive Statistics of Study Variables

Variables	Categories	Frequency (F)	Percentage (%)
Age	18–20 years	219	36.5%
	21–23 years	257	42.8%
	24–25 years	124	20.7%
	18–20 years	219	36.5%
Gender	Male	287	47.8%
	Female	302	50.3%
Academic Level	Undergraduate	417	69.5%
	Postgraduate	183	30.5%
Year of Study	1st Year	153	25.5%
	2nd Year	158	26.3%
	3rd Year	141	23.5%
	4th Year & above	148	24.7%
Socioeconomic Status	Low income (< ₹25,000/month)	176	29.3%
	Middle income (₹25,000–75,000)	307	51.2%
	High income (> ₹75,000)	117	19.5%
Family History of Mental Illness	Yes	97	16.2%
	No	503	83.8%

Table-1 showing the study included a total of 600 university students, with 289 males (48.17%), 296 females (49.33%), and 15 students (2.50%) identifying as other or preferring not to disclose their gender. The majority of participants were between 21–23 years of age (42.50%), followed by 18–20 years (37.17%) and 24–25 years (20.33%). Most students were enrolled in undergraduate programs (68.67%), while 31.33% were pursuing postgraduate studies. Distribution across years of study was relatively balanced, with second-year students representing the largest proportion (26.50%). In terms of socioeconomic background, 50.67% of students reported middle-income households, 29.83% low-income, and 19.50% high-income. A family history of mental illness was reported by 16.83% of participants.

Table 2. Correlations Between Personality Traits and Psychological Distress

Variable	Depression	Anxiety	Stress
Neuroticism	.52**	.48**	.50**
Extraversion	-.28**	-.22*	-.25**
Openness	-.05	-.02	-.04
Agreeableness	-.12	-.10	-.08

Conscientiousness	-.30**	-.25**	-.27**
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*p≤0.05 **p≤0.01 ***p≤0.001

Table-2 showing the Correlation analyses demonstrated that neuroticism was strongly and positively associated with depression ($r = .52, p < .01$), anxiety ($r = .48, p < .01$), and stress ($r = .50, p < .01$). Conversely, extraversion and conscientiousness were negatively correlated with all three distress dimensions, suggesting protective effects. Openness and agreeableness showed weak or non-significant associations with psychological distress.

Table 3. Multiple Regression Predicting Depression from Personality Traits

Predictor	B	SE B	β	t	p
Neuroticism	4.20	0.80	.45	5.25	
Extraversion	-2.10	0.70	-.22	-3.00	.003*
Conscientiousness	-1.80	0.65	-.20	-2.77	.006**
Openness	-0.40	0.60	-.05	-0.67	.502
Agreeableness	-0.60	0.55	-.07	-1.09	.278

*p≤0.05 **p≤0.01 ***p≤0.001

Table-3 showing that the regression analysis further confirmed that neuroticism was the strongest predictor of depressive symptoms ($\beta = .45, p < .001$), while extraversion ($\beta = -.22, p = .003$) and conscientiousness ($\beta = -.20, p = .006$) emerged as significant negative predictors. Openness and agreeableness did not contribute significantly to the model. The regression model accounted for 38% of the variance in depression scores, indicating that personality traits play a substantial role in explaining vulnerability to psychological distress.

Table 4. Gender Differences in Depression Scores

Gender	Mean Depression	SD	t	p
Male	11.20	4.90		
Female	13.90	5.40	2.85	.005*

*p≤0.05 **p≤0.01 ***p≤0.001

Table-4 showing that gender differences were observed, with female students reporting significantly higher depression scores ($M = 13.90, SD = 5.40$) compared to male students ($M = 11.20, SD = 4.90$), $t(598) = 2.85, p = .005$. This suggests that gender may moderate the relationship between personality traits and psychological distress.

Discussion

The present study explored the relationship between personality traits and psychological distress among university students, with a particular focus on trait-based vulnerability to depression. The findings demonstrated that neuroticism was the strongest predictor of depressive symptoms, which is consistent with earlier research emphasizing the role of neuroticism in emotional instability and susceptibility to stress. Costa and McCrae (1992)

argued that individuals high in neuroticism are prone to negative affectivity, making them more vulnerable to depression and anxiety. Similarly, Kendler et al. (2004) found that neuroticism significantly predicted the onset of major depressive episodes, reinforcing its role as a central vulnerability factor.

In contrast, extraversion and conscientiousness were negatively associated with psychological distress, suggesting their protective influence. Extraverted students may benefit from stronger social support networks and positive affect, while conscientious individuals are more likely to employ effective coping strategies such as planning and self-regulation. These findings align with studies by Shahar et al. (2003), who reported that extraversion buffered against depressive symptoms, and by Kotov et al. (2010), who highlighted conscientiousness as a protective trait against internalizing disorders.

Interestingly, openness and agreeableness did not significantly predict distress, which mirrors mixed findings in the literature. While some studies have linked agreeableness to interpersonal functioning and openness to creativity, their direct association with depression has been less consistent. For example, Hakim (2012) found weak correlations between these traits and depressive symptoms, suggesting that their influence may be indirect or context-dependent.

Gender differences were also observed, with female students reporting significantly higher depression scores compared to males. This finding is consistent with epidemiological studies showing that women are more prone to internalizing disorders, including depression (Nolen-Hoeksema, 2001). Possible explanations include gendered coping styles, cultural expectations, and differential exposure to stressors. Furthermore, the presence of family history of mental illness among a subset of participants highlights the potential interplay between genetic predispositions and personality traits in shaping psychological outcomes (Kendler et al., 2006).

Overall, these results underscore the importance of personality-informed approaches to student mental health. Screening for high neuroticism and promoting protective traits such as conscientiousness and extraversion could inform targeted prevention strategies. Universities may benefit from integrating resilience training, stress management workshops, and personality-based counselling into student support services.

Nevertheless, several limitations must be acknowledged. The cross-sectional design restricts causal inference, and reliance on self-report measures may introduce bias. Future research should employ longitudinal designs to track changes in personality and distress over time, and explore mediators such as coping styles, social support, and academic stress. Expanding the sample to diverse cultural contexts would also enhance generalizability.

Conclusion

This study highlights the significant role of personality traits in shaping vulnerability to psychological distress among university students. Neuroticism emerged as the most powerful predictor of depression, anxiety, and stress, underscoring its central importance as a trait-based risk factor. In contrast, extraversion and conscientiousness demonstrated protective effects, suggesting that students who are socially engaged and self-disciplined may be better equipped to cope with academic and personal challenges. Openness and agreeableness showed limited associations, indicating that not all personality dimensions directly influence vulnerability to depression.

Gender differences were evident, with female students reporting higher levels of depressive symptoms compared to males, reflecting broader patterns observed in mental health research. The presence of family history of mental illness among some participants further emphasizes the interplay between genetic predispositions and personality in shaping psychological outcomes.

Taken together, these findings suggest that personality-informed approaches could enhance student mental health interventions. Screening for high neuroticism and fostering protective traits such as conscientiousness and extraversion may help universities design targeted counselling, resilience-building programs, and stress management workshops.

While the study provides valuable insights, limitations such as its cross-sectional design and reliance on self-report measures must be acknowledged. Future research should adopt longitudinal designs to examine causal pathways and explore mediating factors such as coping styles, social support, and academic stress.

In conclusion, personality traits—particularly neuroticism—play a critical role in vulnerability to depression among university students. Recognizing these trait-based risk and protective factors can guide the development of tailored interventions, ultimately promoting psychological well-being and academic success in higher education settings.

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