MENTAL HEALTH AND PERCEIVED STRESS IN RELATION TO PERSONALITY TRAITS AMONG BANGLADESHI UNIVERSITY STUDENTS

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Abstract

While attending university is a conceivably stressful situation, there is growing evidence that a sizable proportion of students suffer from mental health issues. The present study aims to observe the mental health issues, perceived stress, and personality traits among Bangladeshi university students well as to identify whether personality traits are associated with mental health status or perceived stress among university students. 300 conveniently sampled university students participated in a web-based cross-sectional survey that collected demographic information as well as results from the Bangla GHQ-12, Bangla PSS-10, and Bangla BFPT-44 scales. The average score of mental health-related issues and perceived stress was 15.91 and 20.20, respectively. Neuroticism was significantly associated with mental health issues (B = .473, AR^2 = .423, 95% CI: .450 to .690) as well as with stress (B = .401, AR^2 = .222, 95% CI: .211 to .382). Agreeableness, extraversion, and conscientiousness were also found to be significantly associated with mental health issues and stress *(p<.001).* Since neuroticism is associated with a higher risk of mental health issues and higher levels of perceived stress in students, and extraversion, conscientiousness, and agreeableness are associated with a lower risk, this information can be used to design preventative and educational programs that focus on these specific personality traits.

Introduction

Mental health is defined as a state of well-being in which every individual knows their own worth, is able to deal with the normal pressures of life, produces fruitful work, and has a positive effect on others and the world at large[1]. Concerningly high rates of mental health problems are seen among university students[2]. While some of them already have mental health issues that are exacerbated by the demands of university, others may develop them for the first time as a result of the transition to adulthood that is attending university[3]. They could be put under pressure, which could lead to the onset of psychological difficulties[4-6]. Numerous research has addressed the subject of whether or not university life can be stressful[7,8]. Multiple studies conducted with Bangladeshi university students have also consistently indicated high rates of adverse mental outcomes[9-11].

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Individuals are more likely to experience stress in different ways because their unique personality types reflect who they are [12], and which in turn shapes how they perceive and react to stressful circumstances[13]. The psychological well-being of an individual can be affected in two ways: by circumstances and by personal traits [14]. First, they indirectly affect individual well-being through their effects on their objective health, as is the case with the influence of personality on people's physiological responses to stress. Second, there are quantifiable assessments of the well-being of individual personality qualities[15].

Personality traits stand up as more crucial at the time of looking at common psychosocial correlates of mental health [16]. Everyone has distinctive traits along the primary axes of their psychological makeup, which aid in the development of distinctive patterns of behavior. Many people and students all across the world have been surveyed in a variety of global surveys to assess personality, mental health issues and stress levels [17-19]. Several worldwide research with university students revealed that a few personality traits are related to an increased chance of experiencing mental health issues as well as stress[20,21]. A meta-analysis of the relationship between the five personality traits and mental health issues found that mental health issues are adversely linked with extraversion, agreeableness, and conscientiousness, and positively with neuroticism[22]. Additionally, it was discovered that neuroticism was linked to a high risk of stress, as opposed to extroversion and being open to new things, which were linked to a low risk of stress[23]. However, studies focusing on personality traits, mental health issues, and levels of perceived stress among university students in Bangladesh are scarce. This study will help address that need by collecting relevant information regarding the mental health, personality traits, and perceived stress of university students in Bangladesh.

The findings of the study would help educators and policymakers take a more nuanced view of the problem, allowing them to better serve the students and better prepare them to deal with any future health crises that may arise. Results from this study will aid in the development of psychological interventions shown to boost students' mental well-being. This study was conducted with Bangladeshi University students with the following research questions: (i) To investigate the present status of personality traits, mental health status, and perceived stress of Bangladeshi university students (ii) To investigate whether personality traits are associated with mental health status or perceived stress among university students.

Materials and Methods

The survey was carried out using a cross-sectional design. Three hundred undergraduate and graduate students (172 males and 128 females) from a variety of public and private universities between the ages of 18 to 31 were recruited using a convenience sampling technique for this study. Data were collected using a Google form questionnaire due to the Covid-19 pandemic. The Google form was circulated among

participants via email and several social media means. The time period for which the data was gathered is June 1, 2021, through December 31, 2021.

The formula '$n=z^2p(1-p)/d^2$' is used to derive the sample size from the prevalence estimate. Where n = number of samples, z = 1.96 = 95% confidence level (CI), p = "best guess" for prevalence, and d = "precision of the prevalence estimate." We estimated that 50% of university students might have problems with their mental health. A total of 384 individuals were calculated as the sample size by using the above-mentioned formula. Despite the lack of response, we were able to acquire 307 data from our participants. Seven data were discarded due to incomplete submission. In order to get more accurate results, 300 data were added to the final analysis. The data were collected using a methodology that adhered to the CHERRIES (Checklist for Reporting Results of Internet E-surveys) guidelines [24]. The ethical principles outlined in the Helsinki Declaration of 1975, as revised in 2008, were strictly followed throughout the course of this investigation. The Research Ethics Committee of the Department of Educational and Counselling Psychology, University of Dhaka, Bangladesh (reference no. DECP/09/03) approved all procedures involving human participants in the study. Study participants were asked to answer 71 multiple-choice questions, which took an average of 20-25 minutes to complete. The survey consisted of four parts: a set of demographic questions (5 items), Bangla BFPT-44(44 items), Bangla GHQ-12 (12 items), and Bangla PSS-10(10 items). Participants' gender, age, religion, educational status, and socioeconomic status were all collected as socio-demographic data. Each of these three scales underwent a regular three-step process to translate and adapt it for use in Bangladesh by respective authors. They started with the forward translation of the original scale, then moved on to a round of expert debate and ratings, and finally concluded with a back translation into the original language and pilot testing. The Bangla version of the Big Five Personality Test is a 44-item self-report instrument that measures personality traits in individuals with a Cronbach's alpha of 0.94[25]. A score between 22 and 220 can be obtained on this 5-point Likert scale that evaluates factors including agreeableness, conscientiousness, extraversion, neuroticism, and openness. The Bangla version of the General Health Questionnaire (GHQ-12) consists of 12 items, each of which uses a 4-point scale to assess the severity of mental health-related issues in the previous few weeks. The score was calculated to construct a total score ranging from 0 to 36, with scores higher reflecting worse conditions. The Cronbach's alpha for the Bangla version of the GHQ-12 was 0.69, indicating that it is a valid and trustworthy measure of mental health in the Bangladeshi population [26]. The Bangla version of the Perceived Stress Scale (PSS) is a 4-point self-administered Likert scale with a Cronbach's alpha score of 0.90 that is used to measure perceived stress among the Bangladeshi populace by taking into account feelings and thoughts of the past month[27]. The scale includes ten questions and gives a score between 0 and 40, with higher numbers indicating greater stress. IBM SPSS Statistic 20.0 was used to evaluate the data.

Results and Discussion

The final analysis included 300 participants with a mean age of 23.5 years. Males made up roughly 57.3 % of the sample, with females making up 42.7 %. Most of them (71%) were studying at an honors level. A large number of students (88.3%) came from middle-class families. More than three-quarters of students believe in the Muslim religion (85.30%) (Table 1).

Table 1. Demographic properties of the demographics (N=300).

Parameters	N (%)
Gender	
Male	172 (57.3 %)
Female	128 (42.7%)
Educational Status	
Honors	213 (71%)
Masters	87 (29%)
Socio Economic Status	
Lower Class	28 (9.3%)
Middle Class	256 (88.3%)
Higher Class	7 (2.3%)
Religion	
Muslim	256 (85.3%)
Hindu	41 (13.7%)
Buddhist	3 (1%)

Descriptive statistics were applied to determine the extent of the respondents' personality traits and psychological measures. Table 2 displays the respondents' average scores on all five personality traits and psychological measures.

The average score of 24.56 on extraversion shows that most of the people who filled out the survey prefer to work alone. The high average score of 28.55 on conscientiousness indicates that most of our study respondents lead a better life and expect high longevity [28]. The mean agreeableness score of 32.45 indicates that most respondents are pleasant and enjoy people and there is very less possibility of developing mental health issues [28]. With a mean openness score of 35.96, most respondents clearly value engaging in novel activities and expanding their horizons. The mean neuroticism score of 23.84 indicates that the majority of our survey participants are content, confident, and stable[28]. The

mean GHQ-12 score of 15.91 was greater than the cut-off mark of 12, indicating that most of the respondents were distressed[29]. The mean PSS-10 score of 20.20 shows that most people experience considerable stress in their lives.

Table 2. Descriptive statistics of Big-5 personality test, general health questionnaire and perceived stress scale of the university students (N=300).

Parameters	Mean (SD)	Range	
		Minimum	Maximum
Extraversion	24.56(4.13)	12	37
Agreeableness	32.45(4.49)	19	44
Conscientiousness	28.55(5.03)	14	44
Neuroticism	23.84(5.21)	11	40
Openness	35.96(5.12)	18	48
Mental health	15.71(6.31)	3	33
Stress	20.20(3.85)	10	32

A bivariate Pearson's product-moment correlation coefficient (r) was calculated to assess the strength and direction of the linear association between the scores of mental health-related issues and stress (Table 3). A moderate positive correlation of $r\ (300) = .49$, $p<.001$ indicates that students with psychological distress also have a higher level of perceived stress which is consistent with the findings of another study conducted with the students of Malaysia[30].

Table 3. Correlation between mental health and perceived stress.

Variables	Mental health issues	Stress
Mental health issues	-	.49**
Stress	.49**	-

**Correlation is significant at the 0.01 level (2-tailed).

An individual's personality traits often play an important role in determining how they react to and process stressful situations[31]. Using multiple regression analysis, we looked at how well five personality traits predicted different types of stress experienced by the people who took part in our study. The four personality traits of agreeableness, extraversion, neuroticism, and openness together accounted for 23.5% of the variance in perceived stress, $R^2= .235$, adjusted $R^2= .222$, $F(5, 294)=18.058$, $p<.001$, with neuroticism having a higher beta value (beta =.401, $p < .001$) than the others which means if

neuroticism scores increase by one standard deviation, the perceived stress are likely to be increased by .40 units. There was no discernible relationship between conscientiousness and stress (Table 4). Although our findings are consistent with those of another study, which discovered a positive significant association between neuroticism and stress among students, our other finding that extraversion is inversely related to stress contradicts the former [17]. Minor discrepancies in results between the two studies can be attributed to sampling variations or other confounding factors.

Table 4. The regression coefficient of personality traits on stress,

Variables	*B*	*SE*	*T*	*P*	95% CI
Extraversion	-.123	.051	-2.255	.025	[-.215, -.015]
Agreeableness	-.156	.047	2.847	.005	[.041,.226]
Conscientiousness	-.014	.047	-.222	.824	[-.103,.082]
Neuroticism	.401	.043	6.814	.000	[.211,.382]
Openness	.154	.042	2.736	.007	[.033,.199]

CI= Confidence Interval, SE= Standard Error, CI= Confidence Interval B= Standardized coefficient.

Table 5. The regression coefficient of personality traits on mental health issues.

Variables	*B*	*SE*	*T*	*P*	95% CI
Extraversion	-.163	.07	-3.48	.00	[-.390, -.11]
Agreeableness	.018	.06	.385	.70	[-.105,.16]
Conscientiousness	-.180	.06	-.3.41	.00	[-.356,-.097]
Neuroticism	.473	.06	9.337	.00	[.45,.69]
Openness	-.068	.06	-1.412	.159	[-20,.03]

CI= Confidence Interval, SE= Standard Error, CI= Confidence Interval, B= Standardized coefficient.

Personality is a significant determinant of the state of one's mental health[32]. Multiple regression was also used to figure out how well five personality traits can predict mental health issues among our study participants. When extraversion, conscientiousness, and neuroticism were considered together, they explained 43.3% of the variance in mental health issues, R^2= .433, adjusted R^2= .423, $F(5, 294)$=44.863, $p<.001$, with neuroticism having a higher beta value (beta = .473, $p<.001$) than the other two which means if neuroticism scores increase by one standard deviation, the mental health issues are likely to be increased by .47 units (Table 5). Our results are consistent with those of a study conducted with university students in Tehran which found that these personality traits—

extraversion, conscientiousness, and neuroticism—were all useful in predicting the presence of mental health issues except openness[21].

However, this investigation was not without its flaws. The insufficient number of research participants as per the calculated sample size recruited for this study hampered the conclusion's strength. Despite the other drawbacks of the piloting nature of the research as well as the potential response bias of an online self-report survey, the findings of this study shed light on the relationships between personality types, mental health, and stress of Bangladeshi university students.

Our findings suggest that mental health issues are pervasive challenges for university students. By establishing a relationship between personality traits and mental health issues or perceived stress, we may prioritize these areas in the design of preventative programs by placing an emphasis on the development of appropriate psychosocial interventions. Future modifications and initiatives using appropriate interventions to lessen negative mental health issues are strongly recommended. It is evident that further extensive research is needed to fully understand the impact of all the variables in this position. Researchers can also examine personality characteristics and mental health problems across multiple populations. The findings of these studies have the potential to greatly advance efforts to reduce the prevalence of mental health issues, particularly among university students.

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