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Research Paper

Sex Differences in the Personality Dimensions and Mental Health

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ABSTRACT

The main aim of the present study was to explore the sex differences in the personality dimensions and mental health among undergraduates. The study comprised of 60 undergraduates, including 30 male students and 30 female students from various departments of Feroze Gandhi colleges, Rae-Bareli. The age range of the respondents was from 19 to 22 years with mean age 20.60 (SD=.91). Personality dimensions i.e. Neuroticism and Extraversion were measured by using Jalota and Kapoor's (2000) Hindi version of Eysenck's Maudsley Personality Inventory (M.P.I.). Mental health of the undergraduates' was measured by using Pramod Kumar's (1992) Mental Health Check-List. Descriptive statistics (Mean & SD), Pearson's product moment coefficient correlation and t-test were calculated to analyze the data. The findings of correlation show that extraversion is linked with better mental health (r: .29; P<0.05). Younger students tend to exhibit higher levels of neuroticism (r: -.30; P<0.05). Female students too tend to exhibit higher levels of neuroticism (r: .29; P<0.05). Further, findings of t-test reveal that in two personality dimensions (i.e. neuroticism and extraversion) and mental health; only significant sex difference is observed in neuroticism (t: -2.33; P<0.05) where female students reported higher levels than male counterparts.

Keywords: *Personality Dimensions, Mental Health, Age, Sex, Undergraduates*

In recent years mental health has become most concerning aspect for peoples of all age, particularly in college students. To explore the relationship between personality dimensions, mental health and sex; we delve into three interconnected psychological constructs that significantly influence an individual's behavior, emotional well-being and overall quality of life. Generally, mental health can be defined as emotional, psychological and social well-being (SAMHSA, 2023). It influences how people think, feel and behave, and is also essential for managing stress, building relationships and making decisions. Mental health is crucial at every stage of life from childhood and adolescence through adulthood (SAMHSA, 2023). The World Health Organization (WHO, 2023) defines mental health as a state of well-being where individuals recognize their abilities, manage everyday stresses, work efficiently and contribute meaningfully to their communities. Mental health is influenced by a combination of factors, including genetic predisposition, environmental stressors, social support systems and internal psychological traits such as personality dimensions.

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Personality dimensions refer to the broad traits or characteristic patterns of thoughts, emotions and behaviors that define an individual. The most widely recognized two dimensions of personality; namely Neuroticism vs Stability and Introversion vs Extroversion play a crucial role in how individuals perceive stress and cope with challenges and interact with their environment.

Research indicates that personality dimensions like neuroticism are often linked to poorer mental health outcomes while extraversion is associated with resilience and better coping mechanisms. Lamers et al. (2012) pointed out that personality traits show distinct relationships with mental health outcomes aligning with the two-continuum model of mental health. Emotional stability (reversed neuroticism) is strongly linked to psychopathology while personality traits like extraversion and agreeableness are uniquely tied with positive mental health. Raihan and Surat (2023) reported that undergraduates exhibit a strong tendency toward conscientiousness and agreeableness. However, their mental health tends to reflect social dysfunction.

Kang et al. (2023) conducted a study on personality traits and mental health dimensions and found that neuroticism was positively associated with all dimensions of mental health including social dysfunction and anhedonia, depression and anxiety, and loss of confidence. In contrast, extraversion was negatively related to social dysfunction and anhedonia, and depression and anxiety. The personality traits agreeableness and conscientiousness showed negative associations with social dysfunction and anhedonia, and loss of confidence while openness was negatively linked to depression and anxiety.

Furnham and Cheng (1999) conducted a study in Britain, China (Hong Kong) and Japan and concluded that British participants reported higher levels of happiness, mental health and extraversion compared to their counterparts in China and Japan. Interestingly, no significant gender differences emerged in the measures. Across all three countries, extraversion was strongly correlated with happiness while neuroticism was a key correlate of mental health. In the regression analyses they found a consistent pattern across cultures with personality accounting for approximately 20% of the variance in both happiness and mental health.

Lu and Shih (1997) conducted a qualitative research in Taiwan with Chinese population and LISREL analysis pointed out a direct positive link between extraversion and happiness while neuroticism directly reduced happiness and also indirectly effect through mental symptoms. Social desirability also had a direct positive influence on happiness along with an indirect effect through mental symptoms. Additionally, mental symptoms were found to have a direct negative relationship with happiness. In a meta-analysis Bucher, Suzuki and Samuel (2019) found a clear connection between personality traits and mental health treatment outcomes. As expected, individuals with lower neuroticism and higher levels of extraversion, agreeableness, conscientiousness and openness tended to experience better outcomes.

The interaction between personality dimensions and mental health varies across sexes. Studies suggest that personality traits manifest differently based on gender roles, cultural norms and biological factors influencing mental health outcomes. Empirical evidence shows that gender differences across various personality traits—such as the Big Five traits, Dark Triad traits, self-esteem, well-being, depression and values—tend to be more pronounced in cultures that promote greater gender equality, socialization and equity in sociopolitical contexts (Schmitt et al., 2017).

Ghorbani Amir, Ahmadi Gatab and Shayan (2011) reported a strong relationship between Type A personality and mental health. The individuals exhibiting Type A personality tending to have lower mental health compared to those with Type B personality. But no significant differences were found in the average mental health between male and female respondents. Singh, Khan and Osmany (2014) pointed out significant gender differences in gratitude among young adult with females showing high level of gratitude but no significant differences were observed between genders on two dimensions of health i.e. depression/ anxiety and social dysfunction.

Buresova et al. (2020) conducted a study on mental health in adolescence and revealed that mental health is closely linked to various personality dimensions with the strongest associations observed in extraversion and neuroticism. Moreover, mental health is strongly correlated with dispositional optimism and perceived social support. The data also revealed that males exhibited higher levels of mental health while late adolescents experienced lower levels.

Objectives:

The present study was aimed to fulfill the following objectives:

- To find out how personality dimensions (i.e. neuroticism and extraversion), mental health, sex and age of undergraduates' are correlated with each others.
- To find out sex differences in personality dimensions (i.e. neuroticism and extraversion) and mental health.

Hypotheses:

The study proposed the following hypotheses:

1. There will be significant positive correlation between sex and mental health.
2. There will be significant positive correlation between age and mental health.
3. There will be significant negative correlation between neuroticism and mental health.
4. There will be significant positive correlation between extraversion and mental health.
5. Male and female students will differ significantly on neuroticism.
6. Male and female students will differ significantly on extraversion.
7. Male and female students will differ significantly on mental health.

METHODOLOGY

Participants:

The 60 undergraduate students were selected randomly from various departments of Feroze Gandhi College, Rae-Bareli. Both male and female students were selected in equal numbers (30 in each). Age range of the respondents was 19 to 22 years.

Tools:

The following tests were administered to examine the respondent's personality dimensions and mental health conditions:

- **Hindi Version of Eysenck's Maudsley Personality Inventory (M.P.I.):** To assess the personality dimensions namely; neuroticism and extraversion of the students Jalota and Kapoor's (2000) Hindi version of Eysenck's Maudsley Personality Inventory (M.P.I.) was used. The test has 48 items and each item contributes exclusively to one of the two dimensions. Thus, each dimension has 24 items and each item has three response alternatives viz; "Yes", "?" and "No". The total neuroticism or extraversion score is calculated by summing the raw scores of all 24

items across the two dimensions. The correlation between neuroticism and extraversion for the long scale was 0.223. The reliability coefficient comparing the first half with the second was +.567 for neuroticism and +.358 for extraversion. But when adjusted to the long scale, the reliability coefficients increased to +.71 for neuroticism and +.42 for extraversion. Scoring was carried out using a stencil where each item's response alternatives are assigned weightage of 0, 1 and 2 scores, reflecting increasing levels of neuroticism and extraversion.

- **Mental Health Check-List:** To examine the mental health condition of the students Mental Health Check-List constructed and standardized by Pramod Kumar (1992) was used. The test has two parts i.e. (a) mental and (b) somatic. The test consists of 11 items, divided into 6 mental and 5 somatic. Each item have to rate on a 4-point scale by putting mark (✔) on any one of the options viz; 'rarely', 'at times', 'often' and 'always', given against each symptom. Responses are scored from 1 to 4 for 'rarely' to 'always'. The higher scores indicate a poorer mental health condition of the person.

Procedure:

All the respondents were approached individually by the investigator. After establishing good rapport, they were told that the sole purpose of the study is academic and their respondent would be kept confidential. They were requested to read the instructions thoroughly printed on the front cover of the each test and asked query and doubts; if any. They were also requested to fill his/her name, age, sex and all other necessary entries on the front page of the tests. The respondents were instructed that answer must be marked inside the boxes/places provided for the alternatives of the given items. After completing both tests, responses were reviewed to ensure no questions were left unanswered. Scoring was conducted in accordance with the guidelines outlined in the test manual.

RESULTS

The obtained data was analyzed by using SPSS version 25. Descriptive statistics (Mean & SD), Pearson's product moment correlation coefficient and t- test were computed and results are given below:

Table-1: Mean, SD and Intervariable Correlations (N=60)

Sl. No.	Variables	Mean	SD	1	2	3	4	5
1.	Sex	1.50	.50	-				
2.	Age	20.60	.91	-.45**	-			
3.	Neuroticism	24.32	6.97	.29*****	-.30*	-		
4.	Extraversion	24.12	3.94	-.17	.24	-.13	-	
5.	Mental Health	27.83	3.67	-.25	.21	-.16	.29*	-

** P<0.05* *** P<0.01*

Table-1 reveals the means, standard deviations and correlation coefficients among the variables for a sample size of 60 undergraduate students. The sample's mean age is 20.6 years (SD = 0.91). It means that most students are around 20 to 21 years old. Mean scores for neuroticism, extraversion and mental health are 24.32 (SD = 6.97), 24.12 (SD = 3.94) and 27.83 (SD = 3.67), respectively. It shows that undergraduates' neuroticism levels have more variability than extraversion levels and mental health conditions.

The general picture of correlation amongst the variable is that sex and age has negatively correlated with each other and the coefficient of correlation is significant at .01 level of confidence (r: -.45; Table-1). But sex has moderate positive correlation with the neuroticism (r: .29; P<.05). This shows that female students are more prone towards neuroticism than their male counterparts. It has no significant relationship with extraversion and mental health. Hence, findings of this study do not support the proposed hypothesis no. 1 which state that there will be significant positive correlation between sex and mental health. Age has no significant relationship with extraversion and mental health. Thus, findings of this study do not support the proposed hypothesis no. 2 which state that there will be significant positive correlation between age and mental health. It has moderate negative correlation with neuroticism (r: -.30; P<.05). It means that as age increases neuroticism tends to decrease slightly. Neuroticism has no significant correlation with extraversion and mental health. Thus, findings of this study also do not support the proposed hypothesis no. 3 which state that there will be significant negative correlation between neuroticism and mental health. But extraversion has moderate positive correlation with mental health (r: .29; P<.05). It indicates that higher levels of extraversion are associated with better mental health. The findings of the study substantiate the proposed hypothesis no. 4 which state that there will be significant positive correlation between extraversion and mental health.

Table-2: Sex Differences in the Personality Dimensions and Mental Health (N=30)

Variables	Sex	Mean	SD	SEM	SED	t-value
Neuroticism	Male	22.30	6.22	1.14	1.74	-2.33*
	Female	26.33	7.18	1.31		
Extraversion	Male	24.77	2.90	.53	1.01	1.29
	Female	23.47	4.72	.86		
Mental Health	Male	28.73	3.26	.60	.93	1.95
	Female	26.93	3.88	.71		

* *P<0.05*

The data were also analyzed using t-test to determine whether there was a significant difference between male and female students' personality dimensions and mental health (Table-2). For neuroticism dimension, female students scored higher (M = 26.33; SD=7.18) than male students (M = 22.30; SD= 6.22) with calculated *t*-value -2.33 which is statistically significant at 0.05 level of confidence. This means that female students have higher neurotic tendencies than their male counterparts. The findings of the study substantiate the proposed hypothesis no. 5 which state that male and female students will differ significantly on neuroticism dimension. In extraversion dimension, male students have slightly higher mean (M=24.77; SD=2.90) than female students (M=23.47; SD=4.72) but the calculated *t*-value 1.29 is not statistically significant. It indicates that both genders have comparable levels of extraversion. Thus, findings of this study do not support the proposed hypothesis no. 6 which state that male and female students will differ significantly on extroversion dimension. In terms of mental health, male students scored somewhat higher (M = 28.73; SD=3.26) than female students (M = 26.93; SD=3.88) but calculated *t*-value 1.95 is also not statistically significant. It suggests that there is no notable difference in mental health conditions of male and female students. Thus, findings of this study also do not support the proposed hypothesis no. 7 which state that male and female students will differ significantly on mental health.

DISCUSSION

Mental health results indicate interaction of different factors. Keeping this perspective in the mind, the current study was designed to examine how personality traits (neuroticism and extraversion), age and sex influence the mental health of undergraduate students in India. The findings are discussed below:

- The moderate positive correlation between sex and neuroticism indicates that female students show higher neuroticism levels than males. Similarly, t-test analysis also show that female students scored higher than male students on neuroticism and obtained t-value is significant. Thus, we can conclude that female students experience heightened emotional instability or be more prone to experiencing stress and anxiety than their male counterparts. This aligns with previous research which reported that neuroticism positively associated with poorer mental health outcomes including social dysfunction and anxiety (Kang et al., 2023 and Schmitt et al., 2017).
- No significant sex differences in extraversion and mental health indicates that both male and female students show similar levels of extraversion and mental health conditions. This align with the finding of Singh, Khan and Osmany (2014) who also observed no significant gender differences in dimensions of health (like anxiety and social dysfunction) in young adults. Similarly, GhorbaniAmir et al. (2011) also reported that male and female students did not show significant differences in overall mental health scores.
- The moderate negative relationship between age and neuroticism indicates a slight decrease in neurotic tendencies as students grow older. This trend suggests that as students mature, they develop better coping mechanisms and leaded to more emotional stability. This is consistent with general personality development theories that suggest neuroticism decreases with age as individuals develop coping mechanisms and emotional resilience (Buresova et al., 2020).
- Extraversion shows a moderate positive correlation with mental health. It indicates that students with higher levels of extraversion have better mental health outcomes. This align with Lamers et al. (2012) who found that extraversion is linked to resilience and positive coping mechanisms which contribute to better mental health. The positive correlation between extraversion and mental health is also supported by Furnham and Cheng's (1999) cross-cultural study which showed a positive relationship between extraversion and happiness across British, Chinese and Japanese populations. The finding is also in line with Lu and Shih (1997) who pointed that extraversion positively correlated with happiness.
- Although neuroticism is not significantly correlated with mental health in the present study but past research has often found a notable negative association between neuroticism and mental health (Kang et al., 2023; Furnham & Cheng, 1999). This discrepancy may be due to sample-specific factors such as cultural or academic pressures unique to the Indian undergraduates.

CONCLUSION

Overall, the findings suggest that personality traits like neuroticism and extraversion play an important role in the mental health of college students in India. The positive relationship between extraversion and mental health implies that fostering social engagement and resilience could benefit mental health. The gender differences in neuroticism but not in extraversion and mental health reflect culturally embedded gender roles and expectations. Schmitt et al. (2017) also pointed out that gender differences in personality might be more evident in societies with greater social equity. This also suggests that in the Indian context,

female students experience and expressed neuroticism differently than their male peers due to varying social and academic stressors. Thus, by examining personality dimensions, mental health, age and sex together, we can better understand individual differences and create more tailored interventions to promote mental health across diverse populations.

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Conflict of Interest

The author(s) declared no conflict of interest.

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