

PERSONALITY TRAITS AS PREDICTORS OF DEPRESSIVE SYMPTOMS AMONG YOUNG ADULTS

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ABSTRACT

Individual differences in susceptibility to depressive symptoms have been linked to personality traits, although little evidence has been found in young adults in Pakistan. This research investigated the statistical predictability of depressive symptoms by the personality traits of the young adults and how personality traits and depressive symptoms varied between the genders. It was a cross-sectional study involving 200 university students (100 women and 100 men) aged between 18-30 years old ($M = 22.6$, $SD = 3.6$) to study in government universities in Karachi, Pakistan. The participants were recruited through convenience sampling and received a demographic form, 44-item Big Five Inventory and 20-item Center for Epidemiologic Studies Depression Scale. Analysis in SPSS version 23 was done using multiple regression and independent-samples t tests. The personality model had a 22.2% variance in depressive symptoms ($R^2 = .222$, p less than .05). Extraversion ($\beta = -.188$, $p = .008$), agreeableness ($\beta = -.165$, $p = .022$), and conscientiousness ($\beta = -.145$, $p = .041$) were significant negative predictors, whereas openness was a significant positive predictor ($\beta = .323$, $p < .001$). The positive value of neuroticism was not significant enough to meet the conventional .05 level of significance (1.42 , $p = 0.511$). There was a higher female than male score on neuroticism and lower male than female score on conscientiousness; no significant gender differences were observed on extraversion, agreeableness, openness or depressive symptoms. The personality factors explained a significant percentage of the variation in depressive symptoms in the present university sample, but the openness result and the insignificant neuroticism coefficient should be viewed with some reservations and repeated. The cross-sectional design lacks causality.

I. INTRODUCTION

Personality traits refer to fairly consistent ways of thinking, feeling, and acting that help differentiate people. These patterns are grouped under extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience as the Five-Factor Model (FFM) (also called the Big Five) (Goldberg, 1992; McCrae and Costa, 2008). The model has been among the most popular frameworks that have been applied in personality research due to its parsimonious description of broad individual differences and the fact that it has shown to be cross-culturally applicable (McCrae et al., 2005). Despite the high levels of stability in personality traits, longitudinal studies show that there is, nevertheless, slow change in the means, throughout adulthood, and that there may be state-specific fluctuation of personality through periods of psychological distress (Roberts et al., 2006; Costa et al., 2005; Karsten et al., 2012). Depressive symptoms include constant low mood, loss of interest or pleasure, cognitive and behavioral or body changes. Depressive symptoms are of particular importance in university-age groups since the

young adult stage is characterized by educational, social, occupational, and relational changes that can lead to a higher exposure to stress. These experiences may be appraised and managed by personality, and trait-based differences can be relevant in explaining variations in the levels of depressive symptoms. The current research targeted a population of young adults enrolled in government universities in Karachi, Pakistan, where a dearth of locally based evidence exists regarding personality and depressive symptoms. The study was aimed at achieving two objectives: (a) to test the hypothesis of the statistical predictability of depressive symptoms scores by the five personality traits and (b) to test the hypothesis of gender differences in personality traits and depressive symptoms. The hypothesis was that there would be significant predictive relationship between the Big Five traits and depressive symptoms and that there would be gender differences in personality traits and depressive symptoms.

II. LITERATURE REVIEW

The Five-Factor Model has emerged as one of the most popular models to study personality as it relates to mental health. In both clinical and nonclinical research, neuroticism has had the most stable positive relationships with depressive symptoms but extraversion and conscientiousness have an inverse relationship. There is meta-analytic evidence that high neuroticism and reduced levels of various adaptive personality traits characterize common mental disorders, such as depressive disorders, but the strength of relations varies across samples and traits (Malouff et al., 2005; Kotov et al., 2010). These results indicate that personality might assist to discover patterns of susceptibility to depressive symptoms, but does not indicate that personality is a determinant of mental-health results. Neuroticism is an inclination to emotional instability, bad affect, worry, and being more responsive to stress. It has thus been researched severally as a predisposing factor to depression. Adult depressive disorder studies have found increased neuroticism and associated certain aspects of neuroticism, such as depressiveness, vulnerability, hostility, and self-consciousness, with the severity of symptoms (Jourdy et al., 2017). Higher neuroticism has also been linked to the occurrence and intensity of depression in older adults with lower neuroticism linked to successful treatment (Hayward et al., 2013; Koorevaar et al., 2013). Simultaneously, studies of personality in depressive episodes have warned that momentary mood may affect the self-reported levels of trait and that it is essential to separate those traits that are enduring and those that are state-specific (Costa et al., 2005; Morey et al., 2010; Karsten et al., 2012).

Extraversion has been often linked to sociability, positive emotionality, activity, and interpersonal engagement. Reduced extraversion has often been identified in people who are depressed and has been linked to the severity of depressive symptoms (Malouff et al., 2005; Hayward et al., 2013). It is possible that the lack of positive affect and social engagements might reduce exposure to rewarding experiences and interpersonal support. The conscientiousness, which indicates organization, persistence, self-discipline and goal-oriented behavior has also been observed to exhibit an inverse relationship with depression. Reduced conscientiousness has been found in individuals with depressive symptoms and this may be applicable since challenges in planning, motivation, and sustained goal-focused behavior are similar to functional impairments that are prevalent during depression (Hayward et al., 2013; Jourdy and Petot, 2017). Results on agreeableness and openness are not as consistent. Agreeableness entails trust, cooperation, warmth and caring about others and certain studies have found lower agreeableness to have poor psychological functioning. Nevertheless, it tends to have a lower level of association with depression compared to the other traits of neuroticism, extraversion, and conscientiousness (Malouff et al., 2005; Kotov et al., 2010). Openness to experience is an expression of curiosity, imagination, openness to new ideas, and a preference to novelty. A number of studies have not found a significant direct correlation between openness and depressive symptoms, but some samples have shown other trends. Indicatively, Koorevaar et al. (2013) found out that increased openness was related to a lower age of onset of depression in older adults. These ambivalent results suggest that openness role might be age and context specific, measurement, and other sample attributes.

Various models of personality and depression can be used to explain the connection between personality and depression. The vulnerability viewpoint hypothesizes that the personality traits remain relatively constant and affect the probability of depressive symptoms developing. A state-effect approach indicates that depressive episodes, in the short-term, can change the way individuals perceive and describe their personality. Pathoplastic

perspective suggests that the expression, course, or outcome of personality or depression can be affected by the other. The fact that Big Five scores are relatively stable in the midst of acute depression justifies the valid assessment of personality in the symptomatic periods, and the fact that the state-related variation suggests that cross-sectional relationships are to be viewed with caution (Costa et al., 2005; Morey et al., 2010; Karsten et al., 2012). In a cross-sectional study like the one under examination, regression thus provides statistical forecast and association as opposed to time or causal impact. Gender differences are important since not only depressive symptoms but certain personality traits might be different in women and men. It has been reported in previous studies that on average, women tend to be more neurotic, and neuroticism is closely correlated with depressive vulnerability. Research into neuroticism, major depression and gender has indicated that the relationship between neuroticism and depression is significant in both the sexes despite the differences in the mean levels of these traits (Fanous et al., 2002). Gender differences in depression have also been reported in the literature on depressive symptoms, but these differences are biological, psychological and social in nature and not universal across populations (Nolen-Hoeksema et al., 1999). This means that it is better to look at gender differences within a particular cultural and educational background, rather than presume that trends will automatically be applicable to Pakistani university students.

Despite the international evidence indicating that there are significant relationships between personality and depressive symptoms, the thesis of the current article found relatively little evidence that concentrated on young adults in Pakistan. Large portions of the literature written have been on Western samples or older-adult samples and results on agreeableness and openness are contradictory. It is thus worthwhile to consider whether the Big Five taken together and separately are predictors of depressive symptom scores in young adult Karachi-studying students and whether personality factors and depressive symptoms vary by gender in this population. The current research sufficiently filled this gap by both testing the predictive relationship between the five personality domains and CES-D depressive symptoms scores and comparing women and men on the study variables.

III. METHOD

Participants

A cross-sectional predictive design was used. The sample comprised 200 university students, including 100 women and 100 men, aged 18 to 30 years ($M_{age} = 22.6$, $SD = 3.6$). Participants were enrolled in undergraduate or postgraduate programs at government universities in Karachi, Pakistan, and represented varied socioeconomic backgrounds. The thesis methodology identifies convenience sampling as the recruitment approach. Eligibility required participants to be 18-30 years old and currently enrolled in a government institute. Individuals outside the age range, not enrolled in a government institute, or reporting a history of psychological or physical health problems were excluded.

Measures

[1] Demographic form. A demographic form was used to collect age, gender, educational status, marital/relationship status, socioeconomic class, family structure, and birth order. Identifying information collected for the thesis is not required for the analyses reported in this article. **[2]** Big Five Inventory (BFI). The study used the 44-item Big Five Inventory (BFI) to assess extraversion, agreeableness, conscientiousness, neuroticism, and openness on a 5-point response scale from 1 (disagree strongly) to 5 (agree strongly), as described in the thesis protocol. In the thesis sample, the overall reported Cronbach's alpha for the multidimensional BFI was .636. Because the BFI represents five distinct trait domains, domain-level reliability estimates would be preferable for publication if available from the original dataset. **[3]** Center for Epidemiologic Studies Depression Scale (CES-D). The CES-D is a 20-item self-report measure developed by Radloff (1977) to assess the frequency of depressive symptoms experienced during the previous week. Items are rated from 0 to 3, producing a total score from 0 to 60, with higher scores indicating greater depressive symptom burden. In the thesis sample, Cronbach's alpha was .714. The present article treats the CES-D score as a continuous measure of depressive symptoms rather than as a clinical diagnosis.

Procedure

This study was approved by the Ethical Review Board of the Institute of Clinical Psychology, University of Karachi and later on by the Advanced Studies and Research Board of the University of Karachi. Relevant university departments were also given permission. Potential participants were made aware of the purpose of the study, voluntary participation, confidentiality and their right to drop out at any time. Informed consent was taken in the written form and the demographic form, BFI, and CES-D were administered, and data analyzed with the help of SPSS version 23. The Ethical Review Board of the Institute of Clinical Psychology of University of Karachi and the Advanced Studies and Research Board of the University of Karachi gave their approval to the study. All participants were informed by way of a written consent. Sample characteristics were summarized with descriptive statistics. Multiple linear regression was performed by using the CES-D depressive symptom score as the dependent variable and extraversion, agreeableness, conscientiousness, neuroticism and openness as the simultaneous predictors. Independent-samples t tests were used to compare women to men on the five trait scores and depressive symptoms. The level of statistical significance was compared at 0.05. Due to cross-sectional nature of the analyses, the word predictor is used in a statistical context to mean prediction and not to mean temporal or causal prediction.

IV.RESULTS

Participant Characteristics

The sample included equal numbers of women and men. Most participants were single (80.5%) and from middle socioeconomic backgrounds (83.5%). Family structure was approximately evenly divided between joint (51.0%) and nuclear (49.0%) households (Table 1).

Table I: Demographic Characteristics of the Participants

Characteristics	Categories	n	%
Gender	Women	100	50.0
	Men	100	50.0
Relationship status	Single	161	80.5
	Married	36	18.0
	Divorced	2	1.0
	Separated	1	0.5
Family structure	Joint	102	51.0
	Nuclear	98	49.0
Socioeconomic class	Upper	27	13.5
	Middle	167	83.5
	Lower	6	3.0

Big Five Traits as Predictors of Depressive Symptoms

The five-trait regression model explained 22.2% of the variance in depressive symptom scores ($R^2 = .222$; $F(5, 194) = 11.05$, $p < .05$). Extraversion, agreeableness, and conscientiousness were significant negative predictors of depressive symptoms. Openness was a significant positive predictor. Neuroticism showed a positive coefficient but narrowly missed the conventional significance threshold ($p = .051$) and therefore should not be described as a statistically significant individual predictor in this model (Table 2).

Table II: Multiple Regression Analysis Predicting Depressive Symptoms from Big Five Personality Traits

Predictors	B	β	t	p
Extraversion	-0.343	-.188	-2.685	.008
Agreeableness	-0.272	-.165	-2.313	.022
Conscientiousness	-0.228	-.145	-2.053	.041
Neuroticism	0.212	.142	1.960	.051
Openness	0.495	.323	4.675	< .001

Note. Dependent variable = CES-D depressive symptom score. $R^2 = .222$. p values are reported as provided in the thesis; $p = .000$ has been expressed as $p < .001$.

Gender Differences

Independent-samples t tests indicated significant gender differences in conscientiousness and neuroticism only. Women scored lower on conscientiousness than men, $t(198) = -2.568$, $p = .011$, and higher on neuroticism, $t(198) = 2.903$, $p = .004$. Gender differences were not statistically significant for extraversion, agreeableness, openness, or depressive symptoms. Thus, the hypothesis of broad gender differences was only partially supported (Table 3).

Table III: Independent-Samples t Tests Comparing Women and Men

Variables	Women M (SD)	Men M (SD)	$t(198)$	p
Extraversion	24.96 (4.55)	24.71 (4.86)	0.375	.708
Agreeableness	30.63 (4.86)	30.34 (5.49)	0.396	.693
Conscientiousness	27.13 (5.55)	29.11 (5.36)	-2.568	.011
Neuroticism	24.99 (6.36)	22.52 (5.66)	2.903	.004
Openness	32.07 (6.35)	31.47 (5.38)	0.721	.472
Depressive symptoms	26.88 (8.76)	25.08 (7.58)	1.554	.122

Note. Women $n = 100$; men $n = 100$. Significant differences were observed for conscientiousness and neuroticism only.

V. DISCUSSION

This study examined whether the Big Five personality traits statistically predicted depressive symptoms among young adults attending government universities in Karachi and whether personality traits and depressive symptoms differed by gender. The overall regression model was significant and accounted for 22.2% of the variance in CES-D scores, supporting the general proposition that personality is meaningfully associated with depressive symptom burden. However, the pattern of individual coefficients was more nuanced than the original article drafts suggested: extraversion, agreeableness, conscientiousness, and openness were significant predictors, whereas neuroticism was not statistically significant at the .05 level after the other four traits were included in the model. Higher extraversion was associated with lower depressive symptom scores. This direction is consistent with prior work linking extraversion and particularly its positive effect and social engagement components to lower depression risk and symptom severity (Malouff et al., 2005; Kotov et al., 2010; Hayward et al., 2013). Young adults who are more socially engaged may have greater access to interpersonal reinforcement and social support, although the present cross-sectional data cannot establish the mechanisms underlying the association.

Agreeableness also negatively predicted depressive symptoms. Agreeable individuals tend to be cooperative, trusting, and interpersonally oriented, characteristics that may facilitate supportive relationships and reduce interpersonal conflict. The magnitude of associations between agreeableness and depression is typically smaller and less consistent than those for neuroticism or extraversion (Malouff et al., 2005), but the present finding suggests that interpersonal orientation may be relevant in this sample. Because social context and family structure are salient in young adulthood, future work in Pakistan could test whether perceived social support or interpersonal stress mediates this association. Conscientiousness was a significant negative predictor of depressive symptoms. This result is consistent with evidence that lower conscientiousness is associated with depression and poorer mental-health outcomes (Kotov et al., 2010; Koorevaar et al., 2013). Traits such as organization, persistence, and self-discipline may support routine maintenance, academic functioning, and problem solving during stressful periods. At the same time, reverse or bidirectional processes are possible: depressive symptoms may impair concentration, motivation, and goal-directed behavior, which can influence self-reported conscientiousness.

The greatest standardized coefficient in the model was the positive relationship between openness and depressive symptoms and should be interpreted with caution. Numerous studies carried out previously indicate weak, null or context-specific relationships between openness and depression (Malouff et al., 2005; Jourdy and Petot, 2017),

but openness has been associated with certain clinical characteristics such as the earlier age of onset in selected samples (Koorevaar et al., 2013). The current result can be due to the sample-specific, cultural, measurement, or multivariate effect and it cannot be generalized as an indication that openness is a risk factor that leads to depression by nature. Further research should include replication using larger samples and analysis of BFI subscale reliability, intercorrelations, and regression diagnostics to shed light on this finding. The positive coefficient of neuroticism was as theoretically expected but its p value was .051. This is a value near the conventional value, but it is not statistically significant based on the predetermined $\alpha = .05$ value. It is then not appropriate to say that neuroticism was a significant independent predictor in this regression. The result is not inconsistent with that of the larger body of literature that indicates a strong correlation between neuroticism and depression, but implies that in this specific concurrent model the specific impact of neuroticism, once the other traits had been considered, failed to reach the selected threshold. Potential reasons are that there is shared variance between predictors, measurement errors, sampling error, and the lack of statistical power to detect small unique effects.

The second hypothesis was partially supported by gender analyses. The women scored much higher in neuroticism and much lower in conscientiousness than the men and there were no significant gender differences in extraversion, agreeableness, openness and depressive symptoms. The increased neuroticism score in women is generally in line with the earlier studies regarding gender-associated personality differences as well as studies that have investigated neuroticism in connection to depression (Fanous et al., 2002). Nonetheless, the fact that there is no notable difference in the scores of CES-D is significant: the existing sample cannot be defined as more depressed in women. The same proportion of women and men and the nonclinical university sample could be one of the reasons why this sample differs partially with the population studies, which show that there is a difference in the prevalence of depressive disorders between men and women.

Implications

The results confirm the importance of using personality traits in the research of depressive symptoms in young adults. The assessment based on personality can assist mental-health professionals in comprehending variations in social interaction, organization, emotional responsiveness, and desire to obtain assistance. This kind of information must be used to supplement and not substitute known clinical examination. These findings do not support risk factor allocation or treatment based on personality profile and the implicating relationship with openness to a certain level in particular needs to be replicated before it can be concluded that it is practical.

Limitations and Future Directions

There are a number of constraints to interpretation. First, the research was a cross-section; therefore, the regression coefficients show statistical association as opposed to prediction or causation over time. Second, the sample was obtained using convenience sampling of the government universities in Karachi, which restricted the extrapolation of the sample to other young adults, students in other private-university institutions, nonstudents, and the population beyond Karachi. Third, all key variables were self-reported, which could have the effect of a shared-method variance and response bias. Fourth, the reliability in the overall BFI achieved in the thesis was low (.636); due to the multidimensionality of the BFI, future reports need to obtain reliability scores on each domain of personality separately. Fifth, the sample did not include people with reported psychological or physical health issues, which could limit the generalizability to clinical populations and the severity of depressive symptoms. Lastly, multiple regression assumptions and diagnostics (e.g., multicollinearity, residual normality, homoscedasticity and influential cases) were not reported in the thesis, and need to be analyzed using the original data, assuming it is available, prior to submission. The studies of the future ought to employ bigger, more varied, and hopefully probability-based samples, report domain-specific psychometric properties and follow longitudinal designs to examine time-based associations among personality and depressive symptoms. Potential mediators, including coping style, perceived social support, academic stress, and interpersonal difficulties, which were key to the overall thesis framework, would also be useful to test. The coping results of the thesis may be formed as a stand-alone paper or included in a bigger multivariate paper in case a target journal allows the extra coverage.

VI. CONCLUSION

The Big Five characteristics among 200 young adults enrolled at government universities in Karachi accounted a significant percentage of depressive symptoms variance. Extraversion, agreeableness, and conscientiousness were higher and related to fewer depressive symptoms, whereas openness was higher and related to higher symptoms scores. The unique association with neuroticism was at $p = .051$ positive, but not significant. There were no significant differences in depressive symptom scores between men and women, with women being more neurotic and less conscientious than men. These results contribute locally based evidence to the personality and depressive symptoms literature in addition to highlighting the necessity of replication, more psychometric reporting, and longitudinal studies before causal or clinical inferences can be made.

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