KAHRAMANMARAŞ İSTİKLAL ÜNİVERSİTESİ PSİKOLOJİ DERGİSİ

The Big Five Personality Traits as Predictors of Depression

Depresyonun Belirleyicileri Olarak Beş Büyük Kişilik Özelliği

Rabia OLUCAK[1]

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ABSTRACT: *Depression continues to be one of the most common and debilitating mental health disorders worldwide, prompting extensive research into its underlying risk factors. Among these, personality traits have attracted considerable attention due to their potential predictive value. Individuals experiencing depression may feel sad, unmotivated, and lonely. Personality describes the patterns in how people behave, think, and feel. Depression has also been found to be associated with the Big Five (BF) personality traits. This study investigates the predictive role of the Big Five personality traits openness, conscientiousness, extraversion, agreeableness, and neuroticism on depressive symptoms in a university student population. The Beck Depression Inventory (BDI) and the Big Five Inventory (BFI) were employed. A total of 400 undergraduate students, both Turkish and international, participated in the study and completed standardized self-report measures assessing their personality traits and levels of depression. The study aimed to examine the relative contributions (in terms of regression coefficients) of the Big Five personality traits and social variables in predicting depression. To evaluate the relative importance of each Big Five trait in predicting depression, a backward multiple linear regression (MLR) model was applied. The regression analysis revealed that neuroticism was a significant positive predictor of depressive symptoms, whereas extraversion, conscientiousness, openness, and agreeableness were negative predictors of depression severity. All participants were enrolled in the Faculty of Arts and Social Sciences, Engineering and Natural Sciences, or Business and Management Faculties at either International University of Sarajevo or Kahramanmaraş Sütçü İmam University.*

Keywords: *Big Five personality traits, depression, university students, mental health*

[1] Sorumlu Yazar, Klinik Psikolog, rabiaogulmus@gmail.com, ORCID: 0000-0002-4243-2085

ÖZET: *Depresyon, dünya çapında en yaygın ve zayıflatıcı ruh sağlığı bozukluklarından biri olmaya devam etmekte ve altta yatan risk faktörleri konusunda kapsamlı araştırmalara yol açmaktadır. Bunlar arasında kişilik özellikleri, potansiyel öngörücü değerleri nedeniyle büyük ilgi görmüştür. Depresyondaki insanlar kendilerini üzgün, isteksiz ve yalnız hissedebilirler. Kişilik, insanların davranış biçimlerini, düşünme biçimlerini ya da hissetme biçimlerini tanımlar. Depresyon da Büyük Beşli (BF) kişilik özellikleri ile ilişkilidir. Bu çalışma, Beş Büyük kişilik özelliği olan açıklık, sorumluluk, dışadönüklük, uyumluluk ve nevrotikliğin depresif belirtiler üzerindeki yordayıcı rolünü bir üniversite öğrencisi popülasyonunda araştırmaktadır. Beck Depresyon Envanteri (BDI) ve Büyük Beşli Kişilik Envanteri (BFI) kullanılmıştır. Çalışmaya 400 Türk ve yabancı lisans öğrencisi katılmıştır. Öğrenciler, kişilik özelliklerini ve depresyon düzeylerini değerlendiren standartlaştırılmış öz bildirim ölçeklerini doldurmuşlardır. Bu çalışma, depresyonu yordamada Büyük Beşli (BF) kişilik özellikleri ile sosyal değişkenlerin görece katkılarını (regresyon katsayıları açısından) incelemiştir. Depresyonu yordamada her bir Büyük Beşli kişilik özelliğinin göreli önemini değerlendirmek amacıyla, geri çıkarma yöntemiyle (backward) çoklu doğrusal regresyon (MLR) modeli kullanılmıştır. Regresyon analizi, nevrotikliğin depresif belirtilerin anlamlı bir pozitif yordayıcısı olduğunu, dışadönüklük, vicdanlılık, açıklık ve uyumluluğun ise depresyon şiddetini negatif yönde yordadığını ortaya koymuştur. Tüm katılımcılar Uluslararası Saraybosna Üniversitesi ve Kahramanmaraş Sütçü İmam Üniversitesi Sanat ve Sosyal Bilimler, Mühendislik ve Doğa Bilimleri, İşletme ve Yönetim Fakültelerinde öğrenim görmektedir.*
Anahtar Sözcükler*: Beş Büyük kişilik özelliği, depresyon, üniversite öğrencileri, ruh sağlığı*

1. INTRODUCTION

1.1. Problem Statement

Depression among university students is a crucial public health concern, with high prevalence and significant impacts on academic performance and quality of life (Arslan et al., 2009; Awadalla et al., 2020). Identifying students at risk of depression is challenging as there are many potential contributing factors (academic stress, socioeconomic conditions, etc.). One relatively stable but often underutilized set of predictors is the personality profile of students. The problem this study addresses is the need to determine how well Big Five personality traits can predict depression levels in college students. In other words, can we use information about a student's personality traits to identify who might be more prone to depressive symptoms?

While prior research has established general links between personality and depression, several gaps remain. First, much evidence comes from Western samples or clinical populations (Strohmainer et al., 2024); there is a need for updated data on non-clinical student samples, including those in Turkey and similar contexts, to ensure the generalizability of findings. Second, some Big Five traits (agreeableness, openness) have shown inconsistent associations with depression, leading to ambiguity about their predictive value (Strohmainer et al., 2024). Third, earlier studies in Turkey (e.g. Bulut, 2017) confirmed expected correlations between traits and depression, but those studies did not use the internationally standardized Big Five Inventory (BFI) or the latest Beck Depression Inventory-II (BDI-II) for assessment. Thus, there is room for a more standardized and comprehensive evaluation. Finally, from an applied perspective, understanding these trait-depression linkages in the university context could inform targeted mental health interventions yet there is limited integration of such personality insights into campus mental health strategies.

The study seeks to fill the aforementioned gaps. It will investigate the relative contribution of each trait (neuroticism, extraversion, conscientiousness, agreeableness, openness) in explaining variance in depression scores within a sample of 400 university students. The use of well-validated measures (the Big Five Inventory and Beck Depression Inventory-II) and inclusion of both international and Turkish academic perspectives will ensure the findings are robust and culturally relevant. Ultimately, clarifying these relationships is crucial for developing personality-informed approaches to identify and support students at risk of depression.

1.2. Depression

Depression refers to sorrow; lack of self-worth, low energy, guilt, life looks dark and difficult to challenge (Comer, 2010). Depression is one of the emotional disorders which are pervasive and dangerous. As The World Health Organization (WHO) expresses, recently depression is the fourth disorder which is pioneering reason of defectiveness all around the World (Kessler and Bromet, 2013). Whereby its inauspicious effects on someone's spiritual, psychological, as well biological well-being, depression damages routine performance and interrupt sort of life. Depression has been linked to

unfavorable health consequences containing cardiac disorders, self distraction, and declining life anticipation. Some issues that could decrease its harmful impacts on mental sanitary and health care are very crucial (Baetz et al., 2004).

Depression is a highly prevalent mental health problem worldwide, affecting an estimated 280 million people (approximately 3.6% of the global population) according to recent estimates. University students are particularly vulnerable; a systematic review reported that rates of depression in university populations range from 10% to 85%, with a weighted average of approximately 30%. Similarly, in Türkiye, approximately one in five university students present with clinically significant depressive symptoms. Such high prevalence highlights the need to understand risk factors for depression in young adult populations (Arslan et al., 2009; Awadalla et al., 2020).

The symptoms of depression may change from person to person. Some people could suffer from depression symptoms such as indecision, unmanageable sobbing, and feelings of hopelessness, worthlessness and anger. Others may have symptoms as less severe. They may control function, although their depression typically decreases them of much effectiveness or pleasure. As Comer (2010) indicates, the symptoms may go over five areas of functioning: emotional, motivational, behavioral, cognitive, and physical.

1.3. Personality

Personality has long been a central construct in both philosophy and psychology, evolving through diverse theoretical lenses. Historically, personality was viewed as a reflection of human morality and rational capacities traits believed to distinguish humans from other species (Williams, 1976). Early theories often equated personality with character, implying a shaped moral self. However, as psychological science advanced, this view gradually gave way to more empirical and individualized conceptions.

From a psychoanalytic perspective, Freud conceptualized personality as the dynamic interplay between the id, ego, and superego, emphasizing unconscious processes and early childhood experiences (Freud, 1961). Jung, on the other hand, introduced the idea of archetypes and the collective unconscious, arguing that personality develops through individuation a lifelong journey toward self-realization (Jung, 1968).

In contrast, trait theorists have approached personality as a set of stable dimensions that differentiate individuals. Gordon Allport emphasized the uniqueness of the individual through personal dispositions, while Hans Eysenck proposed a biological basis for traits such as extraversion, neuroticism, and psychoticism (Eysenck, 1990). Contemporary psychology conceptualizes personality not merely as a set of moral traits or metaphysical qualities, but as the relatively enduring patterns of thoughts, feelings, and behaviors that characterize an individual across time and situations (Roberts et al., 2009; McCrae and Costa, 2008). The emphasis has transitioned from a focus on uniquely human faculties to attributes

that account for individual differences among people such as temperament, emotional style, and interpersonal tendencies. The Five-Factor Model (also known as the Big Five), advanced by McCrae and Costa, has since become the dominant framework, identifying five core traits: openness, conscientiousness, extraversion, agreeableness, and neuroticism (McCrae and Costa, 2008).

More recently, researchers have also drawn attention to social-cognitive perspectives (e.g., Bandura), which emphasize the interaction between personal factors, behavior, and environment. These models position personality not just as a static entity, but as a dynamic system influenced by situational and cognitive factors.

Interestingly, the word “personality” itself originates from the Latin persona, referring to the theatrical mask worn by actors. In modern usage, it encompasses dimensions of individuality, personhood, and social appeal, though in psychology, it is rigorously defined as the enduring patterns of thought, emotion, and behavior that characterize an individual across time and situations (Haslam, 2007).

In sum, personality is not a singular concept but a rich and multidimensional construct. Theorists from differing traditions have shaped our understanding from the unconscious drives posited by Freud to the measurable traits emphasized by modern psychologists highlighting personality’s central role in explaining human thought and behavior.

1.3.1 Personality: Big Five dimensions, related research

In the past decades, there has been a concurrence among behavioral researchers which 5 large personality types are usually referred to as the "Big Five" personality framework study (Costa and McCrae, 1992, John and Srivastava, 1999). The spectacular multiplicative models of modern psychology are to define spectacular characteristics of the person. That heading is chosen to emphasize that the "Big Five" is not to reflect its own internal size, but rather that each item is extremely extensive. As John and Srivastava (1999, pp. 105) stated, "Each of those 5 dimensions represents character at the upstanding level of abstraction, and each dimension summarizes a large number of distinct, more specific personality traits. The five features can be found in almost every character scale (McCrae and John, 1992), containing the analysis of many idiomatic attributes, which strongly suggests that the personality trait is global (Costa and McCrae, 1997). Furthermore, research suggests which 5 major features are highly stable in time (Gosling et al., 2003) and are shaped by biological factors (Digman, 1989). Finally, McCrae and John (1992) conclude that long-term, intercultural multiplication, the empirical validity of many methods and tools, is a fundamental discovery of the five-factor model of personality psychology. The Big Five personality extents may be separated into 5 items: Extraversion, Agreeableness, Conscientiousness, Openness, and Neuroticism (Costa and McCrae, 1992; McCrae and John, 1992; John and Srivastava, 1999; McCrae and Costa, 2008).

Extraversion refers to the tendency to experience positive emotions and to actively seek the company of others. It represents a tendency to be slick, ambitious, active, optimistic, cheerful, optimistic

and communicative. Like people, prefer community and people, enjoy the excitement and excitement, and enjoy positive effects such as energy, enthusiasm and excitement (Costa and McCrae, 1992, John and Srivastava, 1999).

Agreeableness tends to be reliable, harmonious, compassionate, thoughtful, freehanded and polite. These people possess an optimistic view of character. These people sympathize with other people and possess the wish to help another people; they are waiting for another to help. Fundamentally, acceptable people are mutually exclusive and possess common tendencies towards others (Costa and McCrae, 1992, John and Srivastava, 1999).

Conscientious individuals are purposeful and responsible. They tend to be dutiful, self-disciplined and achieve measurability or success against external expectations. Conscientiousness describes a socially predicted impulse control (John and Srivastava, 1999; McCrae and Costa, 2008) that facilitates task and purposeful behaviors such as thinking before, delaying satisfaction, following norms and rules, and planning, organizing and prioritizing tasks. For this reason, conscientiousness is a matter of respecting long-term goals and interests, resisting those who threaten to sabotage them, and exploiting their efforts to achieve these goals and interests in a competent manner. Different names for the factor draw attention to one or the other of these directions: "reliability", emphasis on self-control and predictability, "planning for common sense," "achievement," and targeting targets (Haslam, 2007; Roberts et al., 2009).

Neuroticism qualifies continuity among emotional arrangements or consistency and emotional mismatch/ neuroticism (Costa and McCrae, 1992). People with a disposition to sense fear, nervousness, sadness, stress, anger and guilt are at the end of neuroticism. People who give points at the lower finishing of neuroticism are emotionally stable, in fact anger (Costa and McCrae, 1992, John and Srivastava, 1999).

Openness to experience is the disposition of an individual to be creative, sensible, mind-specific, vulnerable to inner emotions, appreciation of art, intellectually inquisitive, as well being sensitive to beauty (Costa and McCrae, 1992, John and Srivastava, 1999; McCrae and Costa, 2008). These people are eager to amuse novel opinion and unusual valuation. Open people invest heavily in developing new experiences and tend to have a relatively high score on intelligence measures. People on the other side of this factor are conventional and agile for their own interests, and are conservative and sometimes overwhelming in their approach to the challenges and opportunities of life (Haslam, 2007).

1.4. Previous Research on Personality and Depression

Hakulinen et al. (2015) examined the correlation between personality traits and depressive symptoms using individual participant meta-analysis of unpublished open-access information. More than

115,000 participants were participated in transverse analysis and more than 55,000 participants in longitudinal analysis. Fallen extroversion, advanced neuroticism and fallen conscientiousness were connected to depressive signs in both cross-sectional and longitudinal analysis. Longitudinal associations had any proof of heterogeneity in their work-specific predictions. However, they have found some evidence that the relationship among personality and depressive signs may be bi-directional. An inverse causality analysis showed which depressive signs estimated higher neuroticism and less extroversion, compatibility and initial conscientiousness, but there was a significant heterogeneity in the research-specific estimates of these relationships.

One important line of research has examined personality factors as predictors of depression. Personality traits are relatively stable individual differences that may predispose individuals to mental health outcomes. Among the various personality models, the Big Five has gained consensus as a comprehensive classification of traits. The Big Five traits include neuroticism (a tendency to experience negative emotions, emotional instability), extraversion (a sociable, energetic temperament), conscientiousness (organized, responsible, goal-oriented), agreeableness (a cooperative, affectionate nature), and openness to experience (imaginative, curious, open-minded). Each trait represents a broad dimension that encompasses more specific traits; for example, neuroticism reflects a tendency toward anxiety and mood swings, while extraversion captures positive emotionality and social engagement (Strohmainer et al., 2024).

Kotov, Gamez, Schmidt and Watson (2010) examined "Big" Personality in the context of Trait Anxiety, Depressive and Substance Use Disorders. They found high proof for connection among neuroticism and depression; In addition, some studies have found a link between extroversion and depressed mood. Some researchers possess matched various features to discriminate classes and establish links among depression and some personality features (see, for example, Josefsson, Merjonen, Jokela, Pulkki-Raback and Keltikangas-Jarvinen, 2011). Furthermore, there are studies on question of change during, after depressive periods (see, for instcance, Steunenberg, Braam, Beekman, Deeg and Kerkhof, 2009).

A large body of research has linked the Big Five traits to depression and other psychopathologies. In general, neuroticism has consistently emerged as a positive correlate of depressive symptoms; individuals higher in neuroticism are more likely to develop depression. In contrast, extraversion and conscientiousness tend to show negative associations with depression, acting as protective factors (i.e., individuals who are more extraverted or more conscientious report fewer depressive symptoms on average). A large-scale longitudinal analysis by Hakulinen et al. (2015) confirmed that higher neuroticism and lower extraversion/conscientiousness predicted a higher risk of developing depressive symptoms over time, even after accounting for baseline symptoms. The remaining Big Five dimensions, agreeableness and openness, have shown weaker and less consistent associations with depression. Early

evidence suggested that they were largely unrelated to risk of depression. However, a recent comprehensive review reported a small but significant negative correlation between openness and depressive symptoms. Overall, high neuroticism appears to be the strongest personality risk factor for depression, whereas low extraversion and low conscientiousness confer more modest risk, and agreeableness or openness may have minimal effects.

Indeed, studies on Turkish student samples show similar trends – for example, Bulut (2017) found that students who scored higher on Emotional Instability (Emotional Instability, similar to Neuroticism) and lower on Extraversion (Extraversion) had higher levels of depression, with smaller negative correlations observed for openness, agreeableness, and conscientiousness. This is consistent with international findings and suggests that the Big Five–depression relationship may be robust across cultures.

Moreover, there are lots proofs related to link among extraversion and the Major Depressive Disorder. Usually, depressive signs are related to fallen extraversion in some research (e.g. Carrasco Ortiz anddelBarrioGándara, 2002; Griens, Jonker, SpinhovenandBlom, 2002; Klein et al., 2011; Kotov et al., 2010). On the other hand, there are not lots of proof of association among openness and depression. In large measure meta analyses by Kotov, Gamez, Schmidt and Watson (2010) and Klein et al. (2011), correlation among openness and depression wasn't reported.

In summary, there is considerable evidence that personality traits, particularly neuroticism, are associated with depression in young adults. What remains to be clarified is the precise contributions of each trait within specific student populations and how this knowledge can be applied to improve mental health outcomes on campus. The current study addresses these issues by examining the Big Five traits as predictors of depression severity in a sample of university students using standardized assessments. By combining the findings of recent empirical studies and meta-analyses (both in English and Turkish literature), this research aims to provide a nuanced understanding of which personality dimensions best predict depression in the context of higher education and to discuss implications for prevention and intervention.

2. METHOD

Volunteers were recruited from undergraduate classes at two institutions: Kahramanmaraş Sütçü İmam University in Turkey and the International University of Sarajevo in Bosnia and Herzegovina. The Beck Depression Inventory (BDI) and the Big Five Inventory (BFI) were employed as primary measurement tools. Each participant completed an 88-item survey, which included the 21-item BDI, the 44-item BFI, and a brief 3-item demographic questionnaire. All responses were recorded using a Likert-type scale. To reduce response bias and mask the primary intent of the study, the depression and personality items were interspersed with filler items. The demographic items were placed at the

beginning of the survey. Pilot testing revealed that the survey required less than 30 minutes to complete on average. The aim of the current study was to evaluate the predictive power of Big Five personality traits and social variables on depressive symptoms. For this purpose, a backward elimination method within a multiple linear regression (MLR) framework was utilized to determine the relative contribution (regression weights) of each personality trait in predicting depression. Importantly, the survey did not contain any items that could be considered psychologically harmful or distressing for participants. Prior to data collection, the measurement tools were reviewed and approved by a field expert to ensure content appropriateness. Participants were fully informed about the purpose and scope of the study, as well as the intended use of the findings. All participants provided informed consent and were assured that their responses would remain confidential. It was clearly stated that data would not be shared with third parties and would be analyzed solely by the researchers. The results would be presented objectively and used exclusively for academic purposes in accordance with ethical and scientific guidelines.

2.1. Research Model

The research model illustrated in Figure 1 examines the relationship between the Big Five personality traits and depression. Specifically, the model proposes that five key dimensions of personality; extraversion, agreeableness, conscientiousness, neuroticism, and openness serve as predictors of depression. In this model, these five dimensions of personality are examined as independent variables that may influence the development or severity of depression as a dependent variable.

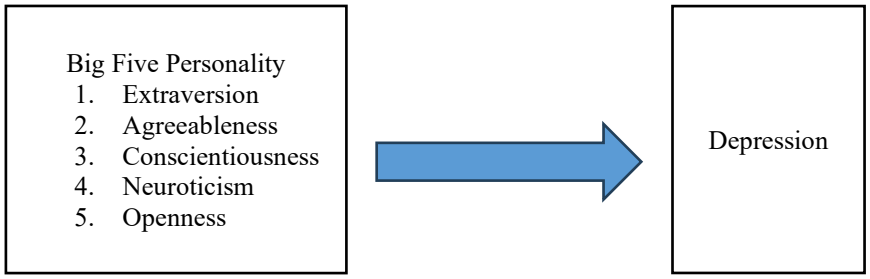

Figure 1. *Research model*

2.2. Hypothesis

H1: Higher levels of neuroticism will positively predict depressive symptoms among university students.

H2: Higher levels of extraversion, conscientiousness, openness, and agreeableness will negatively predict depressive symptoms.

2.3. Research Sample

Big Five Inventory, Big Beck Depression Inventory is applied to 400 undergraduate and graduate students attending in total. All of them attend from International University of Sarajevo, and, Kahramanmaras Sutcu Imam University, Faculty of Arts and Social Sciences, Engineering and Natural

Sciences, Business and Management. 39,8% of the participants are male and 60,3% of the participants are female.

2.4. Measures

In the study, Beck's Depression Inventory (BDI), Big Five Inventory (BFI) scales were used. The Beck Depression Inventory (BDI) is a 21-item self-report inventory that evaluates the distinctive manners and indications of depression (Beck et al., 1961). Standardized and culturally adapted versions of the scales were employed for both countries' samples involved in the study.

It took about 10 to 15 minutes to complete the inventory. In the BDI test, there is a 21-item self-report using an intermittent four-point scale ranging from 0 (no symptom) to 3 (symptom-intensive). It ranges from 0 to 63. The American Psychiatric Association (APA) revised the Beck Depression Inventory (BDI) in 1996 to reflect changes in diagnostic criteria after the Diagnostic and Statistical Manual of the Fourth Edition of Mental Disorders (DSM-IV) was published. Major Depressive Disorder, BDI-II, BDI-II, and 21 questions with scores from 0 to 3. Mean consistency between .73 and .92 for BDI intervals .86, the BDI test is commonly known. The content was tested for concurrent and construct validity and concurrent validity ratios were given between the BDI and other depression instruments between the Minnesota Multiphasic Personality Inventory and the Hamilton Depression Scale and the 0.77 correlation level. Calculated according to inventory and psychiatric grades. BDI also showed high construct validity with measured medical symptoms. In Beck's study, .92 was reported for distant patients and .93 for university student samples. BDI-II was favorably connected with the Hamilton Depression Rating Scale, r = 0.71, one-week test-retest reliability r = 0.93, and internal consistency a = .91. (Beck, Steer, Garbin, 1988).

The Big Five was developed by two research teams in the 1970s. According to Scientific American, these teams were led by Paul Costa and Robert R. McCrae from the National Institutes of Health, Ann Arbor from the University of Michigan and Lewis Goldberg from the University of Oregon. The Big Five Inventory (BFI) is a self-report inventory designed to measure the Big Five dimensions. It is quite brief for a multidimensional personality inventory (44 items total), and consists of short phrases with relatively accessible vocabulary. It has 5 subgroups which are Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness. Each area measures the personality characteristics that determine which characteristics of a person are dominant over which region. The study investigated the validity and reliability of the Big Five personality scale in Malaysia. The sample of the study was 343 nurses in health tourism hospitals. An on-site method used for data collection was used. Participants in the questionnaire were asked to indicate the agreement level in the questionnaires according to their personality traits. Initial pilot test results showed excellent internal reliability for each of the subscales. However, the validity test yielded four factors, the factor loadings of 0.57 to 0.80, in the Big Five Inventory. Four factors extraversion, conscientiousness, neuroticism and experiential clarity. Reliability

coefficients for all factors removed are above 0.7. Thus, the approved measures of the Large Five Inventory were considered consistent and reliable throughout the study. Reasonable reasons are given in this study to explain the outcome of the factor analysis. Although many researchers do not admit that the Five Large Inventories are necessary and that it is enough to define the structure of the person globally, this study shows that it is necessary to conduct a validity and reliability test for the Big Five Inventory when carried out in countries with distinct cultural viewpoints. It is recommended that health managers determine the personality traits of nurses using approved measures. To know the personality features of nurses, they could guess working behavior (Hee, 2014).

2.5. Data Analysis

After data collection, responses entered into a statistical software to the SPSS. First, descriptive statistics summarized the sample's trait scores and depression scores (e.g., mean BDI-II score, distribution of trait levels). Then researcher examined bivariate correlations between each Big Five trait and depression to see initial associations. The core analysis involved a multiple regression model predicting BDI-II depression scores from the five personality trait scores. This determined the unique contribution of each trait while controlling for the others. The regression yielded standardized beta coefficients for neuroticism, extraversion, conscientiousness, agreeableness, and openness. The researcher checked assumptions (linearity, normality of residuals, multicollinearity); multicollinearity is not expected to be severe given that Big Five traits are designed to be orthogonal factors, though some inter-correlations may exist (for instance, agreeableness and conscientiousness tend to correlate modestly).

3. RESULTS

3.1. Participants

A convenient sample of 400 undergraduate and graduate students were administered a set of inventories. A verbal assent to freely participate in the survey obtained from all students. Table 1 represents the distribution of gender among participants. 39,8 % of the participants (159) are male and 60,3 % of the participants (241) are female.

Table 1. *Distribution of gender among the participants of the research*

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Female	241	60,3	60,3	60,3
Male	159	39,8	39,8	100,0
Total	400	100,0	100,0	

Table 2 represents the distribution of class standing among participants. 16,8% of the participants are freshman students, 15,8% of the participants are sophomore students, 24,5% of the participants are junior students, 33,3% of the participants are senior students, 6,5% of the participants are master students and, 3,3% of the participants are last year of medicine students.

Table 2. *Distribution of class standing among the participants of the research*

Year of studying	Frequency	Percent	Valid Percent	Cumulative Percent
1	67	16,8	16,8	16,8
2	63	15,8	15,8	32,5
3	98	24,5	24,5	57,0
4	133	33,3	33,3	90,3
Master	26	6,5	6,5	96,8
Medicine Students	13	3,3	3,3	100,0
Total	400	100,0	100,0	

Table 3 represents the distribution of residency status among participants. 31% of the participants are students who live with their family, 36,5% of the participants are students who live in their country but without family, 32,5% of the participants are students who live in abroad during education period.

Table 3. *Distribution of residency status among the participants of the research*

Year of studying	Frequency	Percent	Valid Percent	Cumulative Percent
Living With Family	124	31,0	31,0	31,0
Living Without Family But in Domestic Country	146	36,5	36,5	67,5
Living in Abroad	130	32,5	32,5	100,0
Total	400	100,0	100,0	

According to Cronbach's alpha reliability the result was .89 which the same as the original result of the questionary reliability rate. The Cronbach's alpha for the BDI-II total score was 0.89. According to Cronbach's alpha reliability the result was .85 which is close near to the original result of the questionary reliability rate. The measure has high internal consistency (coefficient alpha = .96). According to Cronbach's alpha reliability for Neuroticism, Extraversion, and Openness to Experience, Agreeableness, and Conscientiousness subscales respectively (Cronbach's alpha = .69, .68, .66, .64, .65). There were all near to 0.7 range of reliability which assumes as acceptable or high reliability rate. The researcher found that reliability coefficients for all the extracted factors were above 0.7.

Table 4. *Testing item analyzes of reliability analyzes*

Variables	Cronbach's Alpha	N of Items
Depression Scale	.890	21
BF Traits	.685	8
Extr.	.685	8
Agre.	.643	9

Cons.	.657	9
Neur.	.696	8
Open.	.662	10

Abbreviations. Extr.: Extraversion, Agre.: Agreeableness, Cons.: Conscientiousness, Neur.: Neuroticism, Open.: Openness

The assumption of normality was tested by an examination of skewness and kurtosis of the sample distributions. Since the sample size is above 50, Kurtosis value is checked for normality (Büyüköztürk, 2020). Kurtosis statistic residual was 1.16 for Beck depression, 0.66 for Extraversion, 0.62 for agreeableness, -0.33 for Conscientiousness, -0.86 for Neuroticism, -0.32 for Openness. According to skewness and kurtosis statistics, normality was reasonable assumption. Also, for the cases of homoscedasticity and linearity, the results showed that homoscedasticity and linearity were not violated.

Table 5. *Normality assumption of BF traits*

	N	**Min.**	**Max.**	**Mean**	**SD**	**Skewness**	**SE**	**Kurtosis**	**SE**
Extr.	400	12.00	40.00	26.4700	5.12198	.109	.122	.066	.243
Agre.	400	9.00	45.00	32.8575	5.37862	-.362	.122	.624	.243
Cons.	400	17.00	45.00	30.6800	5.36979	.098	.122	-.329	.243
Neur.	400	9.00	39.00	23.9775	5.59153	.121	.122	-.086	.243
Open.	400	19.00	50.00	35.3025	5.45209	-.040	.122	-.320	.243
Depression	400	.00	55.00	13.9575	9.98950	1.10	.122	1.16	.243

There was a negative weak correlation between personality traits of openness and depression. (r = -.24). It means that if there is an increase on personality traits of openness, decrease is expected to on the level of depression and vice versa. Openness accounted for a 6% of the variability in depression (r^2 = .06). There was a positive weak correlation between neuroticism and depression. (r = .36). It means that if there is an increase on personality traits of neuroticism, increase is expected to on the level of depression and vice versa. Neuroticism accounted for a 13% of the variability in Beck depression (r^2 = .13). There was a negative weak correlation between personality traits of conscientiousness and depression (r = -.38). It means that if there is an increase on personality traits of conscientiousness, decrease is expected to on the level of depression and vice versa. Conscientiousness accounted for a 14% of the variability in Beck depression (r^2 = .14). There was negative weak correlation between personality traits of agreeableness and depression. (r = -.33). It means that if there is an increase on personality traits of agreeableness, decrease is expected to on the level of depression and vice versa. Agreeableness accounted for a 11% of the variability in Beck depression (r^2 = .11). There was negative weak correlation between personality traits of extraversion and depression. (r = -.34). It means that if there is an increase on personality traits of extraversion, decrease is expected to on the level of depression and vice versa. Extraversion accounted for a 12% of the variability in Beck depression (r^2 = .12).

Table 6. *Correlation matrix*

		Beck	Extr.	Agre.	Cons.	Neur.	Open.
Becktotal	Pearson Correlation	1	-,339**	-,327**	-,379**	,361**	-,243**
	Sig. (2-tailed)		,000	,000	,000	,000	,000
	N	400	400	400	400	400	400
Extr.	Pearson Correlation	-,339**	1	,222**	,444**	-,376**	,409**
	Sig. (2-tailed)	,000		,000	,000	,000	,000
	N	400	400	400	400	400	400
Agre.	Pearson Correlation	-,327**	,222**	1	,397**	-,319**	,298**
	Sig. (2-tailed)	,000	,000		,000	,000	,000
	N	400	400	400	400	400	400
Cons.	Pearson Correlation	-,379**	,444**	,397**	1	-,377**	,413**
	Sig. (2-tailed)	,000	,000	,000		,000	,000
	N	400	400	400	400	400	400
Neur.	Pearson Correlation	,361**	-,376**	-,319**	-,377**	1	-,177**
	Sig. (2-tailed)	,000	,000	,000	,000		,000
	N	400	400	400	400	400	400
Open.	Pearson Correlation	-,243**	,409**	,298**	,413**	-,177**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	
	N	400	400	400	400	400	400

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

Unstandardised (B) and Standardised (β) Regression Coefficients, and Squared Semi-Partial Correlations (sr2) For Each Predictor in a Regression Model Predicting depression.

Table 7. *Multiple regression (BF traits)*

Variables	B[95% CI]	β	sr2
Extr.	-0.28 [-0.48, -0.08]	-0.14	.01
Agre.	-0.30 [-0.45, -0.14]	-0.15	.01
Cons.	-0.31 [-0.51, -0.11]	-0.16	.01
Neur.	0.33 [0.15, 0.50]	0.18	.02
Open.	-0.06 [-0.24, 0.12]	-0.03	.00

Note.N =62. CI= confidence interval, *p<.05. **p<.01.

A multiple regression analysis (MLR) was performed to examine how depression was influenced by (accounted for) big 5 personality traits. An initial inspection of box plots indicated that seven variables

were almost symmetrically distributed. However the Q-Q plot and the box plot for the all variables (neuroticism total) showed one or more outliers. Finally, relatively high tolerances for all five predictors in the final regression model indicated that multicollinearity would not interfere with our ability to interpret with our ability to interpret the outcome of MRA.

In combination BF traits (extraversion, agreeableness, conscientiousness, neuroticism, openness) accounted for 24% of the variability in the Beck measure of depression, R^2 adjusted = .24 adjusted, $F(5,394) = 24.8$, $p < .001$. The regression line accounted for more variation than error which means that linear combination of the predictors is useful for understanding depression.

Table 8. *Multiple regression in combination of BF traits on depression*

Model	R	R^2	Adjusted R^2	SE	R^2 Change	F	df1	df2	p	Durbin-Watson
1	.490[a]	.240	.230	8.76524	.240	24.849	5	394	.000	1.713

a. Predictors: (Constant), Openness, Neuroticism, Agreeableness, Extraversion, Conscientiousness
Dependent Variable: Beck

4. DISCUSSION and CONCLUSION

The purpose of this research is to examine whether the BF personality traits to predict depression. There were two hypotheses to check the relationship between BF personality and depression on International University of Sarajevo and Kahramanmaras Sutcu Imam University students. One research question is which combination of personality traits predicts depression. It is predicted that the traits of Neuroticism, Agreeableness, Conscientiousness, and Extraversion will clarify for a broader rate of variability in depression than the personality traits of Openness.

The results of this study are expected to shed light on how the Big Five personality dimensions predict depression levels in university students. In line with our hypotheses, we anticipate finding that neuroticism is a significant positive predictor of depressive symptoms, whereas extraversion and conscientiousness, agreeableness, openness are *significant negative predictors*. These findings would mirror a broad consensus in the literature that emotionally unstable individuals are more prone to depression, while outgoing and self-disciplined individuals are more protected (Strohmainer et al., 2024; Hakulinen et al., 2015).

The roles of agreeableness and openness could be more nuanced. If our analysis finds that agreeableness and openness are not significant predictors when the five traits are considered together, it would suggest that their effects on depression are minimal or are overwhelmed by the other traits. This result would be consistent with several previous findings that these two traits have little direct relationship with depression. Indeed, Kotov et al. (2010) reported that agreeableness and openness are essentially unrelated to diagnoses of depressive disorders. Our data may reflect the same: for example, a

beta close to zero or very small for agreeableness would imply that being more cooperative/kindly does not provide a significant buffer against depression when neuroticism (and others) is taken into account. Similarly, openness to experience may be weakly negatively correlated with depression at the bivariate level, but may drop to nonsignificance in the regression. This may be because openness has a more complex or indirect relationship with mood (some studies find mild protective effects, others find no effects). However, if we find a small but significant effect for openness (e.g., higher openness is linked to slightly lower depression), this would support more recent evidence that openness may confer resilience; possibly by promoting adaptive coping or cognitive flexibility.

Importantly, the expected pattern of results with neuroticism as the dominant predictor overlaps with theoretical models that emphasize personality as a vulnerability factor for depression. The vulnerability model (also called the dispositional or trait-effect model) posits that certain personality traits increase the likelihood of developing depression. Our findings support this model: high neuroticism (reflecting a tendency to experience distress) predisposes students to depressive symptoms, while traits such as high conscientiousness or extraversion serve as protective factors. This interpretation is consistent with the dynamic vulnerability model proposed by Ormel et al. (2011) , which posits that personality influences depression risk through dynamic interactions with life stressors and mediators. For example, neuroticism may amplify the impact of stressful events or lead to maladaptive coping, thereby increasing the risk of depression. In the context of our study, a highly neurotic student may interpret academic setbacks more negatively or ruminate more, resulting in higher BDI-II scores.

Mediating Factors and Mechanisms: A critical discussion point is *how* these personality traits influence depression. Our study was not designed to test mediators, but existing theories provide some clues that can contextualize our findings. For neuroticism, one well-supported mechanism is through cognitive and emotional reactivity. Highly neurotic individuals tend to perceive events more negatively and have difficulty regulating stress and emotion. This can lead to a chain of events: more stress, more rumination, and ultimately depressive episodes. For example, neuroticism is strongly associated with a pessimistic explanatory style and low optimism. Recent research by Strohmaier et al. (2024), observed that optimism (a general positive expectation for the future) partially mediated the neuroticism–depression relationship accounting for a sizable portion of why neuroticism leads to depression In our context, a student high in neuroticism might consistently expect poor outcomes (like failing exams or rejection by peers), which fosters hopelessness and depression. Similarly, emotion-focused coping deficits may mediate this link: neurotic students might resort to avoidance or rumination instead of active coping, exacerbating depressive feelings (Bulut 2017).

Klien et al. (2011) “Personality and Depression: Explanatory Models and Review of the Evidence” title research claim that; the relationship between personality and depression is extensive and complex. In particular, basic personality traits such as neuroticism, extraversion, and conscientiousness are

significantly associated with depression. While neuroticism is found at high levels, extraversion and conscientiousness are seen at low levels. In addition, it has been determined that these traits affect the formation and course of depression in various ways. Although neuroticism is an important factor that both increases the risk of depression and supports the continuation of depression, other personality traits are also associated with depression and may have different effects depending on the situation. These findings may contribute to the development of personalized interventions by showing that personality traits play an important role in the development of depression and its response to treatment. In addition, the early detection of personality traits has significant potential in terms of predicting the risk of depression and planning preventive studies.

A comprehensive study has been conducted to search for the connection between depressive symptomatology and the traits of the Big Five Personality in Adults. Malouff et al. (2005) found that mood disorders are connected with classic personality characteristics in meta-analyzes. These are usually incorporated with up standings of Neuroticism and were associated with low standings of Extraversion, Conscientiousness and Agreeableness, which had a large impact on Neuroticism, Extraversion, and Responsibility, which had little effect on Negativity, whereas there was no significant relationship with Openness. The Other meta-analysis (Kotov et al., 2010) on the other hand demonstrated a relationship beyween depression and up standings of neuroticism and low standings of Conscientiousness, with broad effect dimensions.

Another mediator may be social support (or lack thereof). Extraversion is linked to having larger and more supportive social networks. An extroverted student may be more likely to seek help or share their problems with friends, thus preventing feelings of loneliness and hopelessness. In contrast, an introverted student may lack this social buffer, making them more vulnerable when faced with adversity. This idea is consistent with the finding that social connectedness often protects against student depression, and that extraversion naturally facilitates such connectedness. Agreeableness may also play a role in social support; agreeable individuals may have warmer relationships, but if our data showed little direct effect of agreeableness, it may be because its effect is indirect (via relationships), which we did not explicitly measure. Conscientiousness may act through behavioral pathways, for example, conscientious students may maintain healthier daily routines (sleep, exercise, study habits), reducing stress and depressive symptoms. There is evidence that low conscientiousness in clinical populations is associated with poorer medication adherence and more chaotic lifestyles, which may worsen depression. In nonclinical students, low conscientiousness may translate into procrastination and academic difficulties, which may lead to guilt or anxiety that feeds depression. Conversely, a conscientious student likely experiences a sense of efficacy and control that alleviates depression. These are plausible mechanisms consistent with our findings of a negative trait-outcome relationship (Awadalla et al., 2020).

From a broader campus policy perspective, universities could implement targeted wellness programs. For example, knowing that introverted students are at risk, dorms and student organizations could create inclusive programs that gently encourage (but do not force) social interaction—for example, interest-based clubs or peer support groups for those who do not seek out social contact on their own. Similarly, workshops on coping with failure or stress could be marketed specifically to students known to be high in neuroticism (perhaps identified through voluntary self-assessment) to equip them with healthier coping strategies. Our findings indirectly underscore the importance of coping and resilience training: Since we have seen that personality influences depression, and personality is relatively stable, one key is to teach students how to work with their personality traits. For example, a neurotic person may always be somewhat sensitive to stress, but if we teach them mindfulness or problem-solving skills, they can better manage this sensitivity and possibly prevent depression. In fact, some universities have begun offering resilience training programs that are tailored to different personality styles (for example, a program for anxious students that focuses on relaxation and cognitive reframing). Higher Education Mental Health Interventions could also benefit from peer mentoring. Students high in conscientiousness could be chosen as peer mentors or study buddies to help provide structure for those struggling academically (who are often low in conscientiousness). Meanwhile, students high in extroversion could be encouraged to interact with those who are more isolated. Essentially, by taking advantage of natural personality differences, the campus community can support itself: extroverted, conscientious students can be wonderful assets in mental health initiatives (as peer mentors, club leaders, etc.), while those high in neuroticism may benefit more as participants in these programs. It's also important to note that personality is not destiny. While traits are relatively stable, they are not set in stone, especially in young adulthood, when people are still maturing. Some longitudinal studies suggest that successful therapy for depression can actually lead to decreases in neuroticism and increases in extroversion over time, and can effectively "treat" some personality traits as well (Hakulinen et al., 2015; Ibrahim et al., 2013). This means that the intervention has a dual benefit: it can alleviate current depression and possibly make the person less vulnerable in the future by changing their trait-level emotional patterns (or at least how they express them). For institutions of higher education, investing in robust mental health services is key; our study provides empirical support that certain students (e.g., those high in neuroticism) should be prioritized in these efforts because of their higher risk.

Limitations: Some limitations must be acknowledged when considering our findings. The cross-sectional design precludes causal conclusions as discussed, we assume we cannot find them, but we may see that the non-conforming self-reports of personality are also consistent (e.g., a student who is currently resilient may score lower on defensiveness than a student who is currently withdrawn). The solution would be to study the longitudinal study. Another limitation is the reliance on self-report inventories for both personality and resilience, which may raise concerns about common method administration. Those with a negative responding disorder may score high on both neuroticism and the BDI because of only a

general negative responding disorder. We attempted to mitigate this by using anonymization and well-validated scales, but procedures may require back-up reports or aggregation of clinical records to provide a more objective assessment. In addition, although our sample size was quite large, it was drawn from a single university (or several universities) and may not be representative across all universities, particularly considering important factors such as age (mostly late teens/early 20s) and level of education. The observed data may differ for larger calibrations or evidence across graduate programs, and the strength of traits may vary by major (e.g., high-stress fields such as medicine may show different presentations).

Future Directions: Building on this research, future studies could use a longitudinal design to follow students throughout their college years, tracking how basic personality traits predict the onset of depressive episodes or changes in symptom levels. This would directly test the vulnerability and scarring hypotheses in a student context. Furthermore, including additional variables such as life stress, social support, or coping styles could provide a more complete picture. Perhaps, for example, a mediation study could be conducted examining whether coping style mediates the effect of conscientiousness on depression (e.g., do conscientious individuals use more problem-focused coping, which in turn reduces depression?). Another avenue is to explore interventions: for example, an experimental study could offer a specific preventive intervention to high-neurotic students and see if this reduces the frequency of depression over time compared to a control. This would directly apply our findings and test their usefulness. Also, with the growing interest in positive psychology, it may be fruitful to look at the other side of depression in relation to personalityfor example, subjective well-being or resilience since many traits that predict low depression also predict high well-being (extraversion, conscientiousness, low neuroticism). Our work essentially pinpoints who is at risk; future work could focus on how we can translate this knowledge into effective support systems on campus.

Conclusion: In conclusion, the current study provides an in-depth examination of how the Big Five personality traits predict depression in a sample of university students. The findings support the idea that personality assessment is not merely an academic exercise but has practical importance in identifying students needing mental health support. Neuroticism stands out as a red flag trait that emotionally labile and stress-prone students are much more likely to experience depressive symptoms. On the other hand, traits such as extraversion and conscientiousness can be viewed as protective resources that should be encouraged to develop. By integrating insights from recent meta-analyses and cross-cultural studies, we show that these patterns apply equally to Turkish and international students, suggesting a fundamental link between personality and psychological well-being. The discussion emphasizes that personality, while a stable disposition, operates through dynamic processes (cognitive, social, behavioral) that offer intervention points. Therefore, higher education institutions would do well to incorporate personality-informed strategies into their mental health programs. For example, routine screening for high neuroticism may be as important as screening for academic difficulties, and workshops on stress

management may be tailored to those who need it most. Ultimately, the goal is to create an environment that fosters mental toughness and academic success by leveraging the knowledge that who students are (their personality tendencies) can affect how they feel. By recognizing and addressing these individual differences, universities can take proactive steps to reduce rates of depression and improve the overall well-being of their student communities.

Conflict of Interest and Ethics Committee Declaration: This study is derived from a master's thesis titled “The Personality And Social Variables As Predictors of Depression” completed at the International University of Sarajevo, Faculty of Arts and Social Sciences, Department of Psychology in 2018. Since the study was conducted before 2018, ethics committee approval was not required. However, scientific research and publication ethics rules were followed during the study. There is no conflict of interest by the author.

The literature section of the study has been updated and the sources have been reorganised to reflect the existing academic knowledge. However, the field data and findings of the study are based on data collected in 2018. Therefore, the results of the study reflect the conditions of the period in which the data were collected.

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