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COMPARATIVE ANALYSIS OF UNIVERSITY STUDENTS' BIG-FIVE PERSONALITY TRAITS BASED ON DEMOGRAPHIC VARIABLES

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Abstract

This study aims to examine whether university students' Big Five personality traits differ significantly based on demographic variables such as gender, age, academic year, and income level. In this study, a comparative survey model was adopted. Data were systematically collected through a questionnaire technique from 450 university students representing diverse demographic characteristics. Descriptive statistics", "independent samples t-test, exploratory factor analysis, and confirmatory factor analysis were used in the analysis process. According to the results, the dimensions of extraversion, conscientiousness, openness to experience, and neuroticism showed statistically significant differences based on gender, with female students scoring higher than their male counterparts in these dimensions. Significant differences were also found in extraversion and agreeableness according to age, in extraversion according to academic year, and again in extraversion based on income level. These findings suggest that personality traits may be influenced by certain demographic variables, highlighting the importance of considering individual differences within the context of higher education.

Keywords: Big-Five Personality Model, Demographic Variables, University Students

Gel Codes: I21, D91, J24

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1. Introduction

Personality has been a focal point of inquiry within the social sciences for an extended period, regarded as a foundational construct that configures an individual's interactions with their environment, emotional responses, and behavioral tendencies. Personality research has been extensively documented in the field of psychology, as well as in related disciplines such as education, sociology, and organizational behavior (McCrae & Costa, 2003; John et al., 2008). This multidisciplinary endeavor aims to elucidate the underlying mechanisms that underpin interpersonal differences. In this context, the five-factor personality model (FFPM), which enables a more systematic definition of individuals' personality structures, provides an empirical, comprehensive, and universally valid theoretical framework in contemporary personality research (McCrae & Costa, 1992; Goldberg, 1990).

The FFPM is a psychological assessment instrument that enables the evaluation of individuals' personality profiles based on five fundamental dimensions: "extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience". Research findings indicate that these personality dimensions have a significant impact on various aspects of life, including life satisfaction, academic achievement, occupational adjustment, social relationships, and mental health. These findings are extensively documented in the extant literature (Barrick & Mount, 1991; DeYoung et al., 2007). However, empirical studies have demonstrated that individuals' personality traits are not solely determined by internal tendencies. Instead, these traits can also be shaped by demographic factors, particularly variables such as gender, age, income level, and years of education. These demographic factors can have a decisive influence on these structures, as demonstrated by various empirical studies (Schmitt et al., 2008; Soto et al., 2011; Roberts et al., 2006).

The university period is a critical stage of life in which individuals undergo significant cognitive, social, and emotional development. It is imperative to understand how students' personality traits evolve during this period to inform the development of effective higher education policies and the creation of comprehensive developmental psychological support programs. In this framework, the present study endeavors to undertake a comparative analysis of university students' FFPM in terms of "demographic variables such as gender, age, class level, and income" status.

The contributions of this study to the literature can be evaluated on multiple dimensions. Firstly, the comparative analysis of personality traits in relation to various demographic variables within a sample of university students in Türkiye addresses a gap in the existing literature, which is currently represented by a limited number of studies (see Tatlılıoğlu, 2014; Doğan & Akçalı, 2021). Secondly, the dataset employed in this study is strengthened by a large sample size, up-to-date measurement tools, and advanced statistical analyses, thereby enhancing the internal validity and generalizability of the findings. Lastly, the results of the study offer concrete implications not only for theoretical modeling but also for applied domains such as psychological counseling, career planning, and student support services. In this regard, the findings are expected to provide a multidimensional perspective on the relationship between personality development and demographic variables, while also contributing to the development of more inclusive policies and practices that consider individual differences within higher education settings.

2. Five-Factor Personality Model

Personality, as the determining factor of an individual's attitudes, behaviours and interactions in social life, has been an area of research that has attracted continuous attention in the historical process (Allport, 1937; Cattell, 1946). The scientific basis of personality studies gained significant traction in the 1930s, marking a pivotal moment when personality psychology established its own distinct identity as a standalone field, separate from other social sciences (DeYoung, 2015; Goodwin & Friedman, 2006). A plethora of definitions of personality have been proposed in the extant literature. Allport (1937) "defines personality as the dynamic organization within the individual of those psychophysical

systems that determine their unique and characteristic patterns of behavior and adjustment to the environment". McCrae and Costa (1989) describe personality as a multidimensional construct that encompasses enduring patterns of behavior across various situations, including interpersonal relationships, affective responses, motivation, and experiential processes.

Within the scholarly literature, a range of theoretical frameworks has been proposed to conceptualize and assess personality, with numerous researchers contributing divergent yet influential perspectives (Borgatta, 1964; Goldberg, 1981; Norman, 1963; Somer & Goldberg, 1999a; Galton, 1884; Allport & Odbert, 1936). Among these, the five-factor model of personality formulated by McCrae and Costa (1985) has emerged as one of the most empirically supported and theoretically robust paradigms in contemporary personality psychology. Recognized for its comprehensive structure and cross-cultural applicability, the FFPM constitutes a widely endorsed framework for personality assessment and has garnered substantial consensus within the field (Robbins & Judge, 2013). Accordingly, the present study is grounded in the FFPM, in which the principal dimensions are conceptualized as follows: Extraversion refers to an individual's tendencies related to social engagement, energy levels, assertiveness, warmth, and openness to positive emotions. Individuals with high levels of extraversion are typically characterized as outgoing, talkative, and comfortable in social settings, demonstrating an active orientation toward the external world. In contrast, those with low levels of extraversion are generally more introverted, reserved, and inclined to prefer solitude (Costa & McCrae, 1992; Benet-Martínez & John, 1998).

The neuroticism dimension reflects an individual's predisposition to experience negative emotions and their typical responses to stress. High levels of neuroticism are associated with characteristics such as anxiety, anger, depression, feelings of guilt, and emotional instability. Individuals with elevated neuroticism tend to exhibit heightened sensitivity to stressful situations, whereas those with low levels of neuroticism are generally more composed, emotionally stable, and self-confident (McCrae & Costa, 2008; John et al., 2008). The agreeableness dimension represents an individual's propensity for cooperation in social relationships, as well as their levels of empathy and understanding toward others. High agreeableness is characterized by traits such as helpfulness, humility, tolerance, and a conciliatory disposition. Conversely, individuals with low levels of agreeableness may exhibit more competitive, skeptical, and critical tendencies (Somer & Goldberg, 1999b; McCrae & Costa, 1996; Graziano & Eisenberg, 1997).

The openness to experience dimension reflects an individual's intellectual curiosity, aesthetic sensitivity, receptiveness to creative thinking, and interest in novel experiences. This personality trait encompasses tendencies such as abstract thinking, artistic appreciation, and a desire for innovation. In contrast, low levels of openness are associated with adherence to traditional values and resistance to unconventional ideas or experiences (Costa et al., 1991; McCrae & Costa, 1987; Costa & McCrae, 1986). The conscientiousness dimension refers to an individual's degree of organization, self-discipline, goal-directed behavior, and reliability. Individuals who score high on this trait are typically characterized by being organized, meticulous, planful, and possessing strong self-regulation. In contrast, low levels of conscientiousness are associated with disorganization, negligence, and low intrinsic motivation (Costa & McCrae, 1992).

The FFPM of personality offers a comprehensive and empirically validated theoretical framework that systematically categorizes individual differences in personality traits (McCrae & Costa, 1992; Goodwin & Friedman, 2006). Far beyond merely delineating the structural components of personality, the model's five fundamental dimensions provide a robust basis for examining the multifaceted implications of personality traits across diverse psychosocial domains—ranging from interpersonal functioning and occupational performance to academic success and psychological well-being (Goldberg, 1990; Barrick & Mount, 1991; Kurnaz & İraz, 2024). Extensively supported by a wide array of longitudinal and cross-cultural studies, the FFPM offers a universal framework that facilitates the examination of both normative personality structures and maladaptive or pathological tendencies within the domain of personality psychology (Gosling et al.,

2003). In this regard, the model remains a pivotal reference point in both empirical research and applied psychological contexts, underscoring its enduring relevance across diverse theoretical and practical domains (DeYoung et al., 2007).

3. Theoretical Framework and Development of Research Hypotheses

The FFPM of personality—comprising extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience—provides a foundational and universally applicable framework for evaluating individual personality structures (McCrae & Costa, 1999). While personality traits shape behavioral patterns, the literature frequently emphasizes that demographic variables—particularly gender—may play a significant and potentially determinative role in influencing these traits (Feingold, 1994; Weisberg et al., 2011).

Empirical studies have demonstrated that women tend to score significantly higher than men in the domains of neuroticism and agreeableness, whereas men often exhibit higher levels of extraversion and openness to experience (Schmitt et al., 2008). Tatlılıoğlu (2014) investigated gender differences in the FFPM personality traits among university students and found a statistically significant difference only in the neuroticism dimension, with female students scoring significantly higher than males. Supporting this, Del Giudice et al. (2012) argue that developmental and cultural dynamics may further amplify gender-based divergences in personality traits, particularly during emerging adulthood, as seen in university settings (Del Giudice et al., 2012). In this context, examining whether students' FFPM personality traits differ significantly across gender constitutes a research inquiry of relevance to both theoretical and applied domains of psychology. Accordingly, the following hypothesis is proposed for empirical testing in the present study:

H1: "Students' five-factor personality traits show a statistically significant difference according to gender".

The relationship between income level and personality traits has garnered increasing attention in recent years within the fields of psychology and the social sciences. Roberts et al. (2007) emphasized that individuals' economic conditions particularly influence conscientiousness and neuroticism, noting that lower-income individuals tend to exhibit higher levels of neurotic tendencies due to elevated stress levels. Similarly, a study by Soto et al. (2011) found that individuals with higher socio-economic status scored higher on extraversion and openness to experience, whereas those from lower-income backgrounds tended to be more introverted, likely due to reduced opportunities for social interaction. Several studies conducted in the Turkish context also support these findings. For example, Doğan and Akçalı (2021) examined the socio-economic challenges of university students and found that financial difficulties were more prevalent among women, low-income students, and first-year undergraduates. In another study, Tatlılıoğlu (2014) reported that while mean scores for neuroticism, extraversion, openness to experience, and agreeableness did not significantly differ across income groups, a statistically significant difference was observed in the conscientiousness dimension. Accordingly, the following hypothesis is proposed:

H2:" Students' five-factor personality traits differ significantly according to their income levels".

The literature frequently emphasizes that individuals' personality traits are subject to change throughout the life span. According to McCrae and Costa's (2003) model of personality development across the life course, significant age-related changes occur particularly in traits such as conscientiousness, agreeableness, and emotional stability. Similarly, a meta-analysis conducted by Roberts et al. (2006) revealed that individuals tend to become more conscientious, more agreeable, and less neurotic as they age. These changes can be attributed to accumulated life experiences, evolving social roles, and increasing levels of psychological maturity. While traits such as extraversion and openness to experience are typically more pronounced during young adulthood, older age groups tend to exhibit higher levels of conscientiousness and agreeableness. In line with this perspective, the present study assumes that students' personality traits, as conceptualized within the five-factor model, may significantly differ across age groups. The following hypothesis is therefore put forward:

H3: "Students' five-factor personality traits differ significantly according to their age groups".

According to the FFPM of personality, personality traits are subject to change over time, and it is frequently emphasized in the literature that experiences during the university years may significantly influence personality development. While McCrae and Costa (2003) acknowledge that personality is generally stable, they also note that certain personality dimensions may undergo changes in response to life experiences and developmental processes. Periods such as university education, which intensively support social, academic, and emotional development, are particularly associated with increases in traits such as extraversion, conscientiousness, and openness to experience (Roberts et al., 2006). Indeed, local studies conducted on university students have found that as students progress through academic years, significant increases occur in personality dimensions such as conscientiousness and openness (Tatlılıoğlu, 2014; Bacanlı et al., 2009). These findings suggest that the social interactions, academic responsibilities, and developmental tasks encountered during the university period are reflected in students' personality traits. Therefore, it can be posited that students' five-factor personality traits may significantly differ according to their year of study. Accordingly, the following hypothesis is proposed:

H4: "Students' five-factor personality traits differ significantly according to their academic year level".

4. METHODOLOGY

Given that the primary objective of the study is to systematically examine differences across demographic groups, adopting a comparative survey model would be methodologically more appropriate. The comparative survey model enables the structured and analytical identification of whether the big five personality traits exhibit statistically significant differences among distinct demographic subgroups, thereby offering greater methodological consistency in addressing the research questions (Karasar, 2018; Büyüköztürk, 2020; Alpar, 2021; Doru et al., 2025).

The questionnaire administered in this study consisted of two sections. The first section included items related to the participants' demographic characteristics, such as gender, age, academic level, and field of study. The second section aimed to assess university students' personality traits using the 44-item "Big Five Inventory" developed by Benet-Martinez and John (1998). The scale comprises five subdimensions: "extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience". The Turkish adaptation of the scale was conducted by Sümer and Sümer (2005).

In this study, a 5-point Likert-type rating scale was employed to allow participants to indicate their level of agreement with the scale items, ranging from "1=Strongly Disagree" to "5=Strongly Agree." Likert-type scales are widely used instruments that enable the systematic measurement of individuals' levels of agreement with specific statements (Büyüköztürk, 2020). The five-point format is frequently preferred in social sciences as it provides adequate sensitivity while remaining cognitively accessible for respondents (Tavşancıl, 2014). This approach allows for the quantitative analysis of participants' perceptions, attitudes, and personality traits. The statistical analyses in this study were conducted using "SPSS 25.0 and AMOS 24.0 software packages. Descriptive statistics, independent samples t-tests, exploratory factor analysis, and confirmatory factor analysis were utilized to analyze the data". The data collection process was carried out between January 1, 2025, and April 15, 2025.

The target group for the study comprises students who are currently enrolled at Mardin Artuklu University. Due to limitations in time and access, the total population size was not precisely known; therefore, a sample size determination formula suitable for unknown populations was applied. To form a representative sample group, a non-probability sampling method—convenience sampling—was employed. In determining the appropriate sample size, Sekaran's (1992) reference table was utilized. According to Sekaran's scale, the minimum required sample size for populations ranging between one million and ten million is estimated to be 384 participants. In this study, data were obtained from 450

respondents, exceeding the recommended minimum and thus considered sufficient for statistical analysis. The study was conducted in accordance with established scientific research and ethical standards (Hair et al., 2016).

5. FINDINGS

5.1. Participants

The demographic characteristics of the participants were identified through Frequency analysis. The results revealed that the majority of the students were male 54.4%. According to the marital status variable, a large proportion of the students were single 70.2%. When the average age of the students was examined, it was observed that most of them were in the 18–24 age group (44.3%). In terms of academic year, 30.5% of the students were in their first year, 25.2% in their second year, 20% in their third year, and 25.3% in their fourth year. Regarding monthly expenditure, it was found that the majority (55%) of the students reported monthly expenses exceeding 10,000 Turkish Lira. In terms of academic departments, most students were enrolled in business administration 25.8%, economics 20.7%, and international relations 19.6% programs.

5.2. Exploratory Factor Analysis of the Big-Five Personality Model Scale

An exploratory factor analysis was conducted for the purpose of examining the underlying factor structure of the FFPM scale that was utilised in the present study. Prior to the analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's test of sphericity were calculated to assess the suitability of the data for factor analysis. The KMO value was found to be 0.936, indicating a high level of sampling adequacy, while Bartlett's test was statistically significant (χ^2=535,472, df=946, p<.001), confirming the factorability of the correlation matrix. Principal component analysis with varimax rotation was applied.

The analysis revealed a five-factor structure that was consistent with the theoretical model, accounting for 82.4% of the total variance. It was established that each factor had an eigenvalue greater than 1. In addition, the factor loadings of the items were found to be above the recommended threshold of 0.40, and no significant cross-loadings were observed. The factors that were identified were labeled as extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience, in accordance with the original scale. The findings of this study demonstrate that the Turkish version of the scale exhibits construct validity and is an appropriate instrument for measuring personality traits among university students in this context. The results of the analyses and the Cronbach's alpha (α) internal consistency coefficient value are presented in Table 1 below.

Items	Extraversion	Agreeableness	Conscientiousness	Neuroticism	Openness
EXT1	0,825				
EXT2	0,825				
EXT3	0,814				
EXT4	0,802				
EXT5	0,728				
EXT6	0,860				
EXT7	0,826				
EXT8	0,828				
AGR1		0,798			
AGR2		0,782			
AGR3		0,773			
AGR4		0,757			

AGR5		0,842			
AGR6		0,765			
AGR7		0,845			
AGR8		0,874			,
CON1			0,832		
CON2			0,732		
CON3			0,754		
CON4			0,721		
CON5			0,712		
CON6			0,811		
CON7			0,823		
CON8			0,845		
CON9			0,842		
NEU1				0,826	
NEU2				0,825	
NEU3				0,814	
NEU4				0,802	
NEU5				0,728	
NEU6				0,860	
NEU7				0,826	
NEU8				0,821	
OPE1					0,746
OPE2					0,754
OPE3					0,721
OPE4					0,765
OPE5					0,812
OPE6					0,785
OPE7					0,792
OPE8					0,752
OPE9					0,741
OPE10					0,732
Toplam %Varyans			82, 452		
Cronbach's Alfa (α)			0.845		
KMO Örneklem Yeterliliği Testi			0,936		
Bartlett's Test of Sphericity			$\mathbf{X^2}$ = 535,472 **df** = 930; p< ,01		

Table 1. Explanatory Factor Analysis

5.3. Confirmatory Factor Analysis of the Big-Five Personality Model Scale

Confirmatory factor analysis was conducted to assess the construct validity of the Big Five Personality Traits Scale. In this context, the five-dimensional factorial structure of the scale was analysed using the AMOS statistical software package. The confirmatory factor analysis results demonstrated that all items attained statistical significance at the 5% level and exhibited standardized factor loadings above. The result of the statistical analysis was 40 ($p < .05$), which indicates that the subjects are suitable for the model. The goodness-of-fit indices obtained from the analysis also supported the adequacy of the model. Specifically, the fit indices were as follows: "χ^2/df=2.44, RMSEA=.067, CFI=.91, AGFI= 94, TLI=.93, and GFI =.91". These values indicate an acceptable to good model fit according to the commonly accepted thresholds in the literature (Hair et al., 2016; Kline, 2015). Overall, the confirmatory factor analysis results

confirm that the scale has an appropriate factorial structure for measuring personality traits among university students. Based on the relevant data, it is evident that the original five-factor structure of the big five personality traits Scale has been confirmed (Figure 1).

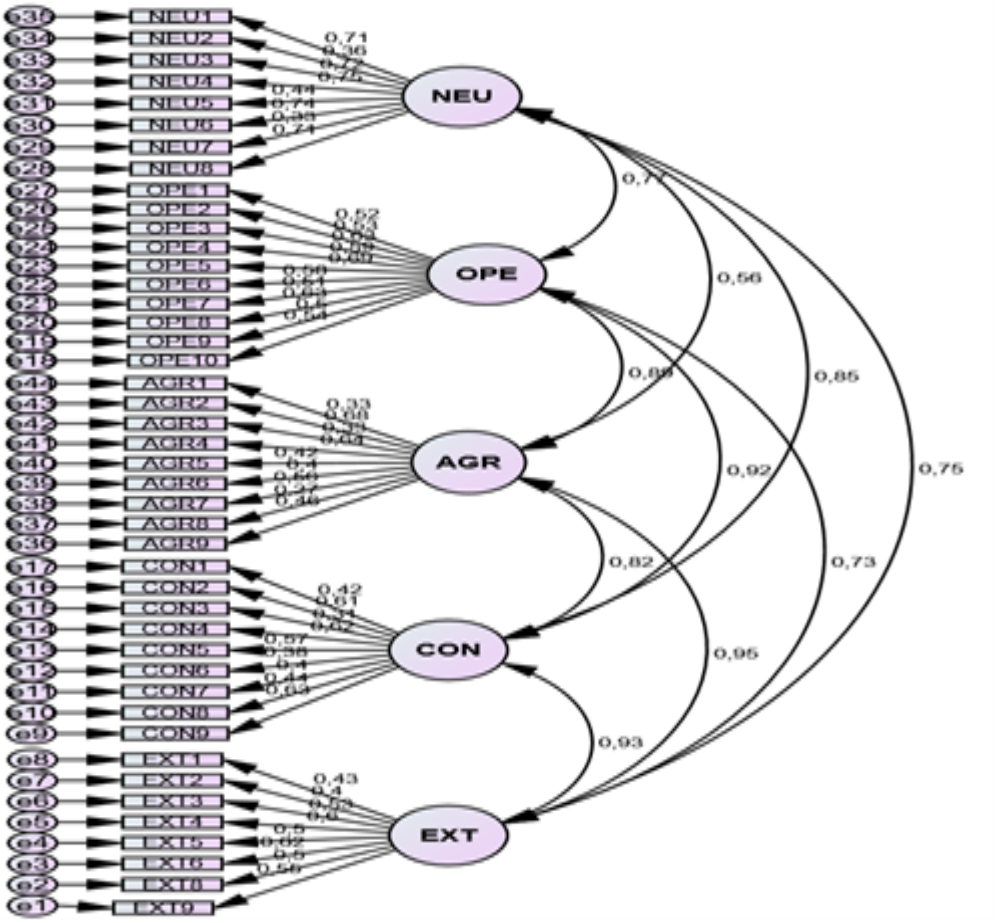


Figure 1. Confirmatory Factor Analysis

In addition to assessing the structural validity of the scale, analyses of convergent validity and composite reliability were also conducted to determine the reliability levels of the obtained data. In this context, "Cronbach's alpha coefficients, Composite Reliability (CR), and Average Variance Extracted (AVE) values were calculated". The relevant findings are presented in Table 2

Variables	Items	Cronbach's Alpha	CR	AVE
Big Five Personality Traits	44	0,934	0,942	0,663
- Extraversion	8	0,914	0,924	0,612
- Conscientiousness	9	0,895	0,894	0,591
- Agreeableness	9	0,883	0,892	0,632
- Openness to Experience	10	0,914	0,915	0,584
- Neuroticism	8	0,884	0,893	0,554

Table 2. Reliability, CR, and AVE Values of the Variables. (**Source:** Table created by the author.)

Furthermore, as suggested by Fornell and Larcker (1981), a CR value above 0.70 and an AVE value above 0.50 indicate the presence of convergent validity (Hair et al., 2016). Based on the findings, the CR and AVE values for all variables used in the study fall within statistically acceptable ranges. These results demonstrate not only the reliability of the research variables but also confirm their construct and convergent validity (Ulukapı Yılmaz & Yılmaz, 2024; Kurnaz, 2025).

5.4. Descriptive Statistics

Descriptive statistics for the dimensions comprising the big five personality model—namely "extraversion, agreeableness, conscientiousness, openness to experience, and neuroticism"—are presented below (Table 3). For each construct, the mean (M), standard deviation (SD), skewness, kurtosis, as well as minimum and maximum scores were computed. The skewness values ranged from -1.118 to -0.663, and the kurtosis values ranged from 0.434 to 2.110. These results indicate that the distribution of all five personality dimensions falls within the conventional ±2 thresholds, thereby fulfilling the assumption of univariate normality (George & Mallery, 2010; Hair et al., 2016). An inspection of the descriptive statistics reveals that the highest mean score was obtained for the openness to experience dimension (M=3.64), suggesting that participants demonstrate a relatively greater propensity for intellectual curiosity and receptiveness to novel experiences compared to other personality traits. In light of these descriptive results and the confirmation of normality, the data were considered suitable for the application of parametric statistical procedures; accordingly, inferential analyses were conducted to examine between-group differences.

Variables	M	SD	Skewness	Kurtosis	Minimum	Maximum
-Extraversion	3,54	0,574	-1,118	2,110	1,000	4,642
-Conscientiousness	3,53	0,600	-0,754	0,958	1,112	4,465
-Agreeableness	3,52	0,601	-0,663	0,434	1,111	4,467
-Openness to Experience	3,64	0,595	-0,948	1,822	1,100	5,000
- Neuroticism	3,63	0,810	-0,912	0,915	1,120	5,000

Table 3. Descriptive Statistics for the Five Factor Personality Dimensions (**Source:** Table created by the author.)

5.5. Tests of difference

In this section, parametric tests of difference were conducted to determine whether the mean scores on the big-five personality dimensions varied significantly across participants' demographic variables. To examine differences between binary groups, independent samples t-tests were employed, whereas one-way analysis of variance (ANOVA) was used for demographic variables with more than two categories. In cases where ANOVA results indicated statistically significant differences, post hoc multiple comparison procedures were applied to identify the specific group pairs contributing to the overall effect. Prior to post hoc testing, Levene's test was used to assess the homogeneity of variances. When the assumption of homogeneity was met, Scheffé and Bonferroni procedures were used; in cases where the assumption was violated, Tamhane's T2 test—which is recommended for its robustness under unequal variances—was applied (Field, 2013; Tabachnick & Fidell, 2013). These statistical techniques are widely recognized and recommended in the literature as reliable methods for evaluating group differences in personality research. Table 5 presents the independent samples t-test results for the gender variable.

Variables	Gender	n	Mean	SD	t	p
-Extraversion	Female	200	3,68	0,60	-2,300	.022
	Male	250	3,55	0,53		
-Conscientiousness	Female	200	3,60	0,55	-2,499	.013
	Male	250	3,44	0,64		
-Agreeableness	Female	200	3,48	0,67	-2,325	.336
	Male	250	3,54	0,54		
-Openness to Experience	Female	200	3,68	0,64	-1,951	.041
	Male	250	3,57	0,55		
- Neuroticism	Female	200	3,41	0,80	-2,633	.009
	Male	250	3,22	0,69		

Table 5. Comparison of Five Factor Personality Traits by Gender (t-Test) (**Source:** Table created by the author.)

In Table 5, independent samples t-tests were conducted to examine whether students' Big Five personality traits significantly differed based on gender. The results indicated a statistically significant gender difference in levels of extraversion, t(448)=-2.300, p=.022. Similarly, significant differences were observed in conscientiousness, t(383.40)=-2.499, p=.013, and neuroticism, t(388.17)=-2.633, p=.009. Additionally, a statistically significant difference was found in openness to experience, t(448)=-1.951, p=.041. However, no significant gender difference was found in agreeableness, t(368.25)=-0.964, p=.336. These findings provide empirical support for Hypothesis 1, which posited that personality traits differ significantly by gender. The ANOVA results regarding income levels are presented in Table 6.

Variables	Income Levels.	n	Mean	SD	F	p
-Extraversion	0-5000	100	3,39	1,122	1,255	,287
	5001-10000	110	3,43	2,235		
	10001-20000	90	3,36	1,251		
	20000+	150	3,25	1,113		
-Agreeableness	0-5000	100	3,38	3,254	1,865	,116
	5001-10000	110	3,41	2,251		
	10001-20000	90	3,50	1,235		
	20000+	150	3,45	3,254		
-Conscientiousness	0-5000	100	3,34	1,236	2,430	,047
	5001-10000	110	3,40	2,210		
	10001-20000	90	3,41	2,320		
	20000+	150	3,32	1,125		
-Openness to Experience	0-5000	100	3,34	1,138	1,011	,334
	5001-10000	110	3,40	3,112		
	10001-20000	90	3,52	1,241		
	20000+	150	3,35	2,541		
- Neuroticism	0-5000	100	3,25	2,784	1,148	,940
	5001-10000	110	3,41	1,410		
	10001-20000	90	3,52	1,211		
	20000+	150	3,38	2,223		

Table 6. Analysis of Personality Traits Variables According to Source of Income with ANOVA test

(**Source:** Table created by the author.)

A one-way ANOVA was conducted to examine whether students' Big Five personality traits significantly differed according to their monthly income levels. The analysis revealed no statistically significant differences between income groups in the dimensions of extraversion (F=1.255, p=.287), agreeableness (F=1.865, p=.116), openness to experience (F=1.011, p =.334), and neuroticism (F=1.148, p=.940). These findings suggest that individuals' monthly income levels do not exert a significant influence on these four personality traits. However, a statistically significant difference was found in the conscientiousness dimension (F=2.430, p=.047), indicating that conscientiousness levels vary according to income level. Taken together, the results imply that income level has a restricted effect on personality traits and does not produce meaningful variation in traits other than conscientiousness. Accordingly, Hypothesis 2 was not supported. ANOVA results related to are presented in Table 7.

Variables	Age groups	n	Mean	SD	F	p
-Extraversion	18-30	200	3,852	1,252	4,565	0,007
	31-40	150	3,421	2,251		
	41-50	70	3,115	2,122		
	50+	30	3,223	1,234		
-Agreeableness	18-30	200	3,621	2,323	6,785	0,004
	31-40	150	3,852	1,452		
	41-50	70	3,421	2,551		
	50+	30	3,115	2,522		
-Conscientiousness	18-30	200	3,223	1,434	6,962	0,001
	31-40	150	3,421	2,123		
	41-50	70	3,752	3,112		
	50+	30	3,424	1,528		
-Openness to Experience	18-30	200	3,155	2,413	4,173	0,002
	31-40	150	3,823	3,445		
	41-50	70	3,421	3,265		
	50+	30	3,852	4,112		
- Neuroticism	18-30	200	3,470	3,452	9,885	0,003
	31-40	150	3,452	2,632		
	41-50	70	3,455	4,552		
	50+	30	3,642	3,147		

Table 7. Analysis of Personality Traits of University Students According to Age Variable with ANOVA Test

(**Source:** Table created by the author.)

According to the ANOVA results presented in Table 7, university students' Big Five personality traits differed significantly across age groups. A statistically significant difference was found in extraversion (F=4.565, p=.007). Examination of the mean scores indicates that students in the 18–30 age group reported higher levels of extraversion, with a gradual decline observed in older age groups. This finding may reflect a greater inclination toward social engagement among younger individuals. Similarly, a significant age-related difference was identified for agreeableness (F=6.785, p=.004). The highest mean score was observed in the 31–40 age group, suggesting that interpersonal harmony may increase with age. A significant difference was also observed in conscientiousness across age groups (F=6.962, p=.001), with the 41–50 age group scoring notably higher than the others. This supports the notion that individuals tend to become more organized, disciplined, and responsibility-oriented as they age.

Openness to experience also varied significantly by age (F=4.173, p=.002), with the 31–40 and 50+ age groups reporting higher levels of openness. This may indicate a relationship between life experience and receptiveness to new ideas and learning. Lastly, neuroticism levels were found to differ significantly across age groups (F=9.885, p=.003). The highest scores were observed in the 50+ age group, suggesting that older individuals may be more prone to emotional fluctuations. Collectively, these findings underscore that personality traits are not static but evolve across the lifespan. Age appears to exert a significant influence on various dimensions of personality. In light of these results, Hypothesis 3 was supported. Table 8 shows the ANOVA results for the class variable.

A one-way analysis of variance (ANOVA) was conducted to examine whether university students' Big Five personality traits differed significantly by academic year level. The results revealed statistically significant differences in several dimensions. Specifically, extraversion varied significantly across class levels, $F(3,446)=4.322$, $p=.040$, indicating that students' levels of social orientation differ depending on their year in university. This finding may suggest that upper-year students exhibit higher levels of extraversion. Similarly, a significant difference was observed in the conscientiousness dimension, $F=4.251$, $p=.031$, implying that as students progress through their academic journey, traits such as responsibility, orderliness, and self-discipline may become more pronounced. Furthermore, openness to experience also showed a statistically significant difference across year levels, $F=3.562$, $p=.023$. This result suggests that upper-year students tend to be more receptive to new ideas, learning opportunities, and experiences.

On the other hand, no statistically significant differences were found in agreeableness ($F=5.451$, $p=.623$) or neuroticism ($F=4.241$, $p=.562$) based on academic year level. These findings indicate that students' interpersonal harmony and emotional stability remain relatively stable throughout their undergraduate education. Taken together, the results suggest that certain personality traits—particularly those related to social engagement, self-regulation, and intellectual openness—may develop over time during university education, whereas others remain comparatively stable. In light of these findings, Hypothesis 4 was supported

6. CONCLUSION

The objective of this study was to ascertain whether there were significant differences in the Big-five personality traits of university students– "extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience"– based on key demographic variables, namely gender, age, academic year level, and monthly income. The findings of the study demonstrated that specific personality dimensions exhibited statistically significant disparities across various demographic categories. Regarding gender, significant differences were observed in "extraversion, conscientiousness, neuroticism, and openness to experience", with female students reporting higher mean scores than their male counterparts across these dimensions. In terms of age, statistically significant differences were found in extraversion and agreeableness, indicating that younger individuals tend to be more extraverted and agreeable. When assessed by academic year, a significant difference was observed only in extraversion, suggesting that students in higher academic years exhibit greater levels of social engagement, whereas other personality traits did not vary significantly across class levels. Finally, with respect to monthly income, a statistically significant difference emerged only in extraversion; no meaningful differences were found in the other four personality dimensions across income levels.

The findings of this study indicate that certain personality traits vary across specific demographic variables, offering results that are largely consistent with the existing literature. In the context of gender differences, the observation that female students exhibited higher levels of conscientiousness, extraversion, and neuroticism aligns with the findings of Schmitt et al. (2008). This pattern may suggest that women tend to demonstrate greater emotional sensitivity and a stronger orientation toward social harmony. With respect to age-related differences, the emergence of significant variation in extraversion and agreeableness supports the notion that individuals may become more introverted and individualistic as they grow older. This observation is consistent with the developmental perspective on personality put forth in the meta-analytic work of Roberts, Walton, and Viechtbauer (2006), which emphasizes the dynamic nature of personality traits across the lifespan. The finding that only extraversion differed significantly by academic year level may reflect the intensity of social interactions during the early years of university, with a decline in such engagement in the later years. Finally, the fact that extraversion was the only trait to vary significantly by income level suggests that socio-economic status may influence one's inclination toward sociability. This relationship might be explained through greater access to social participation opportunities and higher levels of self-confidence among students from higher income

brackets (Yılmaz & Güngör, 2020). Overall, the results support the view that personality traits are not entirely fixed constructs but are influenced by environmental and demographic contexts, in line with the contemporary personality development literature.

This study's findings indicate that university students' personality traits may exhibit notable variations across various demographic categories. This highlights the need for student support services in higher education institutions to be structured in a more inclusive and individualized manner. In particular, the identification of gender-based differences in traits such as extraversion, conscientiousness, and neuroticism suggests that psychological counseling, career planning, and personal development programs should be diversified in alignment with distinct student profiles. University administrations are encouraged to foster environments that enhance students' social engagement—such as student clubs, volunteer initiatives, and interdisciplinary interaction platforms—which may in turn support the development of socially oriented personality traits like extraversion and agreeableness. Furthermore, considering the potential fluidity of personality structures in response to contextual factors, future research should employ longitudinal designs to more comprehensively capture the developmental trajectories of personality traits over time. In addition, personality characteristics should not be examined solely through the lens of demographic variables; future studies are advised to incorporate psychosocial constructs such as academic achievement, psychological resilience, and life satisfaction. Employing multivariate analytical techniques could yield more comprehensive and explanatory models. Lastly, as the current research was conducted within the sample of a single university, the generalizability of findings would benefit from replication studies conducted across different institutions and regions.

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