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The Impact of Dark Triad Personality Traits on HealthyLifestyle Behaviors

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ABSTRACT

This study aims to determine the impact of Dark Triad personality traits on the healthy lifestyle behaviors of university students. Additionally, it will evaluate whether differences in personality and healthy lifestyle behaviors exist based on various demographic variables. The study sample consists of 407 students from Duzce University in Turkey, during the spring semester of the 2022-2023 academic year. The Dark Personality Scale and Healthy Lifestyle Scale were used as data collection tools. T-tests and ANOVA were applied to identify demographic differences, while multiple regression analysis was employed to examine the impact of Dark Triad personality traits on healthy lifestyle behaviors. Data analysis was performed using the SPSS 25 software package. Dark Triad personality traits negatively affect healthy lifestyle behaviors among university students. Additionally, both Dark Triad personality traits and healthy lifestyle behaviors vary according to different demographic variables. It was concluded that Dark Triad personality traits have a significant negative effect on students' healthy lifestyle behaviors, accounting for 2% of the variance.

Karanlık Üçlü Kişilik Özelliklerinin Sağlıklı Yaşam Tarzı Davranışları Üzerindeki Etkisi

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ÖZET

Bu çalışmada üniversite öğrencilerinin karanlık üçlü kişilik özelliklerinin sağlıklı yaşam davranışları üzerindeki etkisinin belirlenmesi amaçlanmaktadır. Ayrıca, çeşitli demografik değişkenlere göre kişilik ve sağlıklı yaşam tarzı davranışlarının arasında farklılıkların olup olmadığı da değerlendirilecektir. Çalışmanın örneklemini Türkiye'de 2022-2023 akademik yılının bahar döneminde Düzce Üniversitesi'nde eğitim gören 407 öğrenci oluşturmaktadır. Veri toplama aracı olarak karanlık kişilik ölçeği ve sağlıklı yaşam tarzı ölçeği kullanılmıştır. Verilerin analiz edilmesinde, demografik değişkenler arasındaki farklılıkları belirlemek için T-testleri ve ANOVA testleri uygulanmıştır. Karanlık üçlü kişilik özelliklerinin sağlıklı yaşam tarzı davranışları üzerindeki etkisini ortaya çıkarmak için çoklu regresyon analizi kullanılmıştır. Verilerin analiz edilmesinde SPSS 25 paket programı kullanılmıştır. Üniversite öğrencileri arasında karanlık üçlü kişilik özellikleri, sağlıklı yaşam tarzı davranışlarını olumsuz yönde etkilemektedir. Hem karanlık üçlü kişilik özellikleri hem de sağlıklı yaşam tarzı davranışları çeşitli demografik değişkenlere göre farklılık göstermektedir. Karanlık üçlü kişilik özelliklerinin öğrencilerin sağlıklı yaşam tarzı davranışları üzerinde anlamlı şekilde negatif olararak etkili olduğu ve %2 oranında açıkladığı sonucuna ulaşılmıştır.

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INTRODUCTION

The Dark Triad personality traits, consisting of Psychopathy, Narcissism, and Machiavellianism, are conceptualized with three sub-dimensions. Individuals possessing these traits often exhibit manipulative, self-centered, destructive, and unethical behaviors. University students, being in the stage of emerging adulthood, constitute a group that needs to exhibit appropriate behaviors for a healthy lifestyle (Hudek-Knezevic et al., 2023; Lawrence et al., 2017).

Psychopathy is characterized by emotional coldness, lack of empathy, and engagement in high-risk behaviors (Paulhus & Williams, 2002). Narcissism is marked by excessive self-confidence, a desire for grandiosity, and insensitivity to others (Miller et al., 2019). Machiavellianism involves callousness, anger control problems, and engagement in harmful behaviors (Miller et al., 2019). When these three sub-dimensions combine, they can negatively impact an individual's relationships with society and others (Miller et al., 2019).

In a study, individuals with Dark Triad personality traits were found to have a tendency to lie, manipulate, exert control over others, and engage in psychological violence (Paulhus & Williams, 2002). Another study revealed that while individuals with these traits may initially be more successful in leadership positions, this success is not sustainable in the long term and ultimately proves detrimental to the organization (Krasikova et al., 2013). Additionally, individuals with Dark Triad traits are known to experience lower social support and higher levels of stress (Furnham et al., 2013).

Research on the Dark Triad personality traits suggests that individuals with these traits are prone to exhibiting unhealthy lifestyle behaviors. For example, psychopaths are associated with low stress tolerance and a tendency to take high risks, which correlates with unhealthy eating habits, irregular exercise, and sleep problems (Jonason et al., 2010). Individuals with narcissistic personality traits tend to engage in harmful eating disorders, steroid use, and harmful dietary supplements in an effort to self-improve and gain approval from others (Campbell et al., 2002). Those with Machiavellian traits are inclined to manipulate people in their environment to sustain unhealthy behaviors, making them more susceptible to alcohol and substance use (Chabrol et al., 2013).

Healthy lifestyle behaviors are crucial for both physical and mental health. Practices such as healthy eating, regular exercise, and adequate sleep are effective in preventing chronic diseases like obesity, heart disease, and diabetes, while also reducing mental health issues such as stress, anxiety, and depression (Brugger et al., 2023; Campbell et al., 2002; Huang et al., 2015; Pagoto et al., 2012b).

Factors such as age, gender, occupation, and social status significantly influence health-related behaviors. In this context, the university education process plays a critical role in adopting and maintaining a healthy lifestyle (Kahn et al., 2002). However, university students often exhibit unhealthy lifestyle behaviors due to the intense academic workload, social activities, and stress associated with student life, indicating a strong tendency toward such behaviors (Huang et al., 2015).

Individuals with Dark Triad personality traits face various challenges that hinder the adoption of healthy lifestyle habits (Glenn et al., 2022). For instance, those with psychopathic traits often exhibit a lack of empathy, making it difficult for them to understand others' feelings and engage in supportive interactions, which are crucial for maintaining healthy habits (Dj, 2018; Glenn et al., 2022; Ronningstam, 2011). Similarly, individuals with narcissistic traits may struggle with emotional control, which impairs their ability to cope with stress and maintain a balanced lifestyle, as healthy habits

typically involve stress management and emotional balance (Ronningstam, 2011). Moreover, those with Machiavellian traits are prone to manipulation, which can obstruct their commitment to healthy behaviors by prioritizing their own goals over the needs of others (Dj, 2018).

In addition to the findings above, another significant reason for conducting this study is the increasing prevalence of Dark Triad personality traits, particularly among university students in recent years (Jonason et al., 2009). Research on the effects of these traits on individuals' health-related behaviors is quite limited (Campbell et al., 2002; Chabrol et al., 2013; Jonason et al., 2010; Miller et al., 2019; Paulhus & Williams, 2002; Vizek-Vidović et al., 2018).

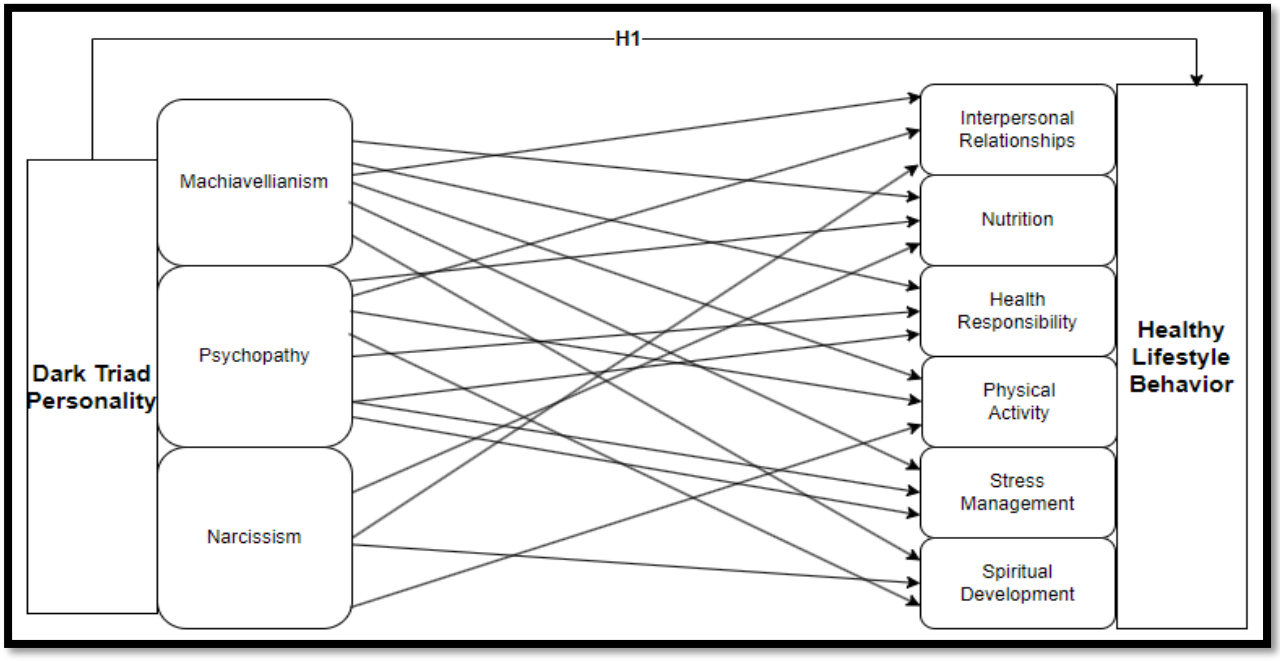
However, no such study has been conducted specifically within the Turkish sample. Therefore, it is necessary to establish a scientific framework to identify potential factors that could assist university students in adopting healthy lifestyle behaviors. Given the negative impacts of Dark Triad personality traits on these behaviors, it is crucial to determine how support can be effectively provided and which students would benefit the most. This study aims to contribute to the fields of health and psychology by examining how Dark Triad personality traits may influence university students' healthy lifestyle behaviors. Additionally, it seeks to provide evidence-based information to raise awareness and develop interventions for promoting healthy lifestyle habits.

METHOD

Research Design

This study adopts an exploratory approach in its research model, initially using a descriptive methodology and later incorporating correlational and causal elements. An extensive literature review was conducted before formulating the research hypotheses (Campbell et al., 2002; Chabrol et al., 2013; Furnham et al., 2013; Huang et al., 2015; Miller et al., 2019; Pagoto et al., 2012a; Pagoto et al., 2012b; Paulhus & Williams, 2002), which informed the development of the research model. Figure 1 illustrates the research model.

Figure 1
Research Model



In Figure 1, hypotheses have been developed within the scope of the research model. The main hypothesis of the study is as follows:

H1: The dark personality traits of students influence healthy lifestyle behaviors.

Within the context of this main hypothesis, the study will also examine the impact of the sub-dimensions of dark personality traits on the sub-dimensions of healthy lifestyle behaviors.

Participants

The sample for this study includes 407 students enrolled at Duzce University, a public university in Turkey, during the 2022-2023 academic year. A convenience sampling technique was used for data collection, selected for its ease, low cost, and quick data-gathering process (Cohen et al., 2000).

Of the students who participated in the study, 73.2% (n=298) were women and 26.8% (n=109) were men. In terms of academic programs, 81.8% (n=333) were enrolled in the day program, while 18.2% (n=74) were enrolled in the evening program. Regarding academic levels, 27.3% (n=111) were pursuing associate degrees, 61.4% (n=250) were pursuing undergraduate degrees, and 11.3% (n=46) were pursuing graduate degrees. Concerning income levels, 11.3% (n=46) had a low income, 56.0% (n=228) had a moderate income, and 32.7% (n=133) had a high income. Finally, 9.1% (n=37) of the students resided in villages, 19.4% (n=79) in townships, 46.7% (n=190) in urban centers, and 24.8% (n=101) in metropolitan cities.

Measures

Data were collected through an online survey, which consisted of three sections: the first section included a demographic information form, the second section featured the Dark Triad Personality Scale, and the third section included the Healthy Lifestyle Behavior Scale-II.

Demographic Information Form

This form comprised 5 questions designed to determine the characteristics of the participating students. The questions addressed students' gender, type of education program, residence type, educational level, and family income status. The form was created by the study authors.

Dark Triad Personality Scale

Developed by Jonason and Webster (2010), this scale consists of three dimensions: Machiavellianism, Psychopathy, and Narcissism. It includes a total of 12 items, with 4 items representing each dimension. The scale is designed to be used as a whole or with each dimension separately, and it employs a 5-point Likert format. The Turkish validity and reliability of the scale were established by Eraslan-Çapan et al. (2015), who reported linguistic equivalence coefficients of .98, .97, and .97 for the Machiavellianism, Psychopathy, and Narcissism subscales, respectively. In this study, the Cronbach's alpha coefficient of the scale was found to be .802, indicating a high level of reliability.

Healthy Lifestyle Behaviors Scale-II

Developed by Walker et al. (1987), this scale originally consisted of 48 items and 6 dimensions, but the second version, which includes 52 items and 6 subscales, was used in this study due to its more recent nature. The Turkish validity and reliability of the scale were established by Bahar et al. (2008). The subscales of the scale are: spiritual development (9 items), interpersonal relationships (9 items), nutrition (9 items), physical activity (8 items), health responsibility (9 items), and stress management (8 items). The overall scale has an internal consistency coefficient

of .94, with subscale reliability ranging from 0.79 to 0.87. Each item is rated on a 4-point Likert scale: never (1 point), sometimes (2 points), often (3 points), and regularly (4 points). The minimum score is 52, and the maximum score is 208, with higher scores indicating better adherence to healthy lifestyle behaviors. The scale has been recognized as effective in identifying and promoting health behaviors (Walker et al., 1987). In this study, the Cronbach's alpha coefficient was found to be .929, indicating a high level of reliability.

Data Analysis

Before conducting the data analysis, an examination was performed to identify any missing or erroneous data. As a result, 11 surveys were excluded from the analysis due to the presence of outliers. During the online data collection, no missing data were observed due to the mandatory response requirement for all questions. To determine the appropriate method for data analysis, the normal distribution of the data was assessed by examining the skewness and kurtosis coefficients of the scales and sub-dimensions. This assessment checked whether the average scores followed a normal distribution. The decision was based on the skewness and kurtosis values of the obtained data, with normal limits set at +0.958 and -0.827 (Tabachnick & Fidell, 2007). It was observed that both scales and sub-dimensions exhibited distributions within these normal limits, indicating that the data followed a normal distribution.

Parametric analyses were employed as the data exhibited a normal distribution. The t-test was used to compare two independent groups, while ANOVA, specifically Oneway ANOVA, was utilized to compare means among three or more groups. To identify the reasons for differences between groups, an LSD (Least Significant Difference) test was conducted. The LSD test is a post hoc method effective in pinpointing specific intergroup differences in ANOVA results, particularly useful for small sample sizes, unequal group numbers, and homogeneous variance conditions. It offers advantages such as direct group comparisons, flexibility, and control over trial and error, enabling more detailed results (Tabachnick & Fidell, 2007).

Multivariate regression analysis was conducted to explore the relationship, direction, and presence of multicollinearity among variables, as well as to determine if students' dark personality traits influenced their health awareness levels. The Enter method was used in the multiple regression analysis, which includes all independent variables in the model simultaneously based on a theoretical foundation. This method is appropriate for evaluating the impact of dark triad personality traits on healthy lifestyle behaviors, given its comprehensive approach. In contrast, the Stepwise method, which adds and removes variables based on statistical criteria, may be less suitable when focusing on all variables within a specific theoretical framework (Cohen et al., 2000). The analyses were conducted using IBM SPSS 25 software.

RESULTS

Table 1 illustrates that university students exhibit a high degree of healthy lifestyle behaviors, with the highest mean score recorded in the dimension of spiritual development (2.93) and the lowest mean score in physical activity (2.15). In contrast, students show below-average levels of dark triad personality traits, with Narcissism being more pronounced (2.72) compared to Machiavellianism, which is less evident (1.61).

Table 1

Descriptive Statistics for Variables

Variables	*Min.*	*Max.*	*Standard deviation*	*Mean*
Machiavellianism	1,0	4,25	,669	1,61
Psychopathy	1,0	5,00	,637	1,74
Narcissism	1,0	5,00	1,034	2,72
Interpersonal Relationships	1,0	4,00	,459	2,86
Nutrition	1,0	3,78	,497	2,26
Health Responsibility	1,0	3,78	,536	2,29
Physical Activity	1,0	4,00	,625	2,15
Stress Management	1,0	4,00	,545	2,45
Spiritual Development	1,0	4,00	,500	2,93

Table 2 reveals that there is no significant difference in the dark triad personality traits of students based on gender and educational level ($p > 0.05$), indicating that these traits do not vary according to these factors. However, there are significant differences in healthy lifestyle behaviors with respect to gender and educational level ($p < 0.05$). Male students (2.63) exhibit higher levels of healthy lifestyle behaviors compared to female students (2.46), with an effect size of $\eta^2 = 0.035$. Additionally, students enrolled in night classes (2.65) demonstrate a higher level of healthy lifestyle behaviors compared to those in day classes (2.47), with an effect size of $\eta^2 = 0.027$.

Table 2

T-test Findings

Gender							
Sub-Dimensions	*Variables*	*n*	*Mean*	*sd*	*t*	*P*	*Eta Squared*
Personality	Woman	298	2.02	.527	-263	.793	-
	Man	109	2.03	.659			
Healthy Lifestyle	Woman	298	2.46	.379	-3.501	.000	,035
	Man	109	2.63	.461			
Type of education							
Personality	Day classes	333	2.01	.575	-.711	.477	-
	Night classes	74	2.06	.687			
Healthy Lifestyle	Day classes	333	2.47	.397	-3.369	.001	,027
	Night classes	74	2.65	.437			

Table 3 shows that there is no significant difference in students' healthy lifestyle behaviors based on their income status ($p > 0.05$). However, a significant difference is observed in dark triad personality traits according to income status ($p < 0.05$). The LSD post hoc test reveals that students who perceive their income status as poor (2.83) exhibit higher levels of dark triad personality traits compared to those who perceive their income status as moderate (2.08) and good (2.08), with an effect size of $\eta^2 = 0.041$. Additionally, no significant difference is found in dark triad personality traits based on educational level ($p > 0.05$), but a significant difference is noted in healthy lifestyle behaviors ($p < 0.05$). The LSD test indicates that graduate (2.62) and associate degree students (2.57) display higher levels of healthy lifestyle behaviors compared to undergraduate students (2.46), with an effect size of $\eta^2 = 0.024$. Furthermore, while there is no significant difference in dark triad personality traits based on the type of settlement ($p > 0.05$), there is a significant difference in healthy lifestyle behaviors ($p < 0.05$). The LSD post hoc test reveals that students residing in urban areas (2.59) exhibit higher levels of healthy lifestyle behaviors compared to those in suburban/town (2.44) and village areas (2.31), with an effect size of $\eta^2 = 0.037$.

Table 3

ANOVA Test Results

Subvariables	Variance source	Sum of Squares	Degrees of Freedom	Mean Squares	F	P	Source of difference	Eta Squared
Amount of Income								
Personality	Between Groups	5.943	4	1.486	4.313	.002	Bad (2.83) Medium (2.08) Good (2.08)	,041
	In Groups	138.487	402	.344				
	Total	144.430	406					
Healthy Lifestyle	Between Groups	5.191	4	1.298	8.301	.075	No difference found	
	In Groups	62.854	402	.156				
	Total	68.045	406					
Education level								
Personality	Between Groups	.965	2	.483	1.359	.258	No difference found	
	In Groups	143.465	404	.355				
	Total	144.430	406					
Healthy Lifestyle	Between Groups	1.634	2	.817	4.970	.007	Associate Degree (2.57) Bachelor (2.46) Postgraduate (2.62)	,024
	In Groups	66.411	404	.164				
	Total	68.045	406					
What type of settlement do you spend most of your life in?								
Personality	Between Groups	1.913	3	.638	1.803	.146	No difference found	
	In Groups	142.517	403	.354				
	Total	144.430	406					
Healthy Lifestyle	Between Groups	2.512	3	.837	5.150	.002	Metropolitan (2.59) County/Town (2.44) Village (2.31)	,037
	In Groups	65.533	403	.163				
	Total	68.045	406					

The findings of the correlation analysis on the research variables are presented in the table. When examining Table 4, it can be observed that the relationships between the independent variable, dark triad personality traits, and the sub-dimensions of healthy lifestyle behaviors vary. Some relationships are negative, some are positive, and some relationships are not significant. Overall, the effect level ranges between "-0.213" and "0.711". Evaluating the correlation coefficients, it can be concluded that there is no issue of multicollinearity as the calculated tolerance values for all variables are below 0.10 and VIF values are below 10 (Pallant, 2005).

Table 4

Correlation Analyses

Variables	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
1.Machiavellianism	1								
2. Psychopathy	.444**	1							
3. Narcissism	.372**	293**	1						
4.Interpersonal Relationships	.005	-.092	.147**	1					
5. Nutrition	-.143**	-.198**	-.101*	.423**	1				
6. Health Responsibility	-.138**	-213**	-.106*	.431**	.611**	1			
7. Physical Activity	-.078	-.024	-.099*	.314**	.542**	.541**	1		
8. Stress Management	-.175**	-.099*	-.121*	.510**	.608**	.607**	.536**	1	
9. Spiritual Development	-.142**	-.157**	.003	.635**	.532**	.526**	.465**	.711**	1

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

*Correlation is significant at the 0.05 level (2-tailed).

Table 5 presents the findings of the multiple regression analysis conducted to examine the impact of dark triad personality sub-dimensions on healthy lifestyle behaviors. The analysis reveals several key points: The model assessing the impact of the dark triad on interpersonal relationships is significant ($p = 0.001$), indicating that Machiavellianism, Narcissism, and Psychopathy explain 3% of the variance in students' interpersonal relationship behaviors ($R^2 = 0.035$). However, when all independent variables are included, Machiavellianism is not significant ($p = 0.997$). Thus, interpersonal relationships are

negatively influenced by Psychopathy (β =-0.106, p = 0.008) and positively influenced by Narcissism (β = 0.085, p = 0.000). The model examining the impact on nutrition is significant (p = 0.000), with Machiavellianism, Narcissism, and Psychopathy explaining 4% of the variance in nutrition behaviors (R^2 = 0.042). Yet, only Psychopathy significantly influences nutrition (β =-0.127, p = 0.003), while Machiavellianism and Narcissism do not (p = 0.296; p = 0.556). For health responsibility, the model is significant (p = 0.000), with the dark triad explaining 4% of the variance (R^2 = 0.037), but only Psychopathy significantly influences health responsibility (β =-0.154, p = 0.001), while Machiavellianism and Narcissism do not (p = 0.448; p = 0.488). The model for physical activity is not significant (p = 0.170), suggesting no significant effect of dark triad traits. The stress management model is significant (p = 0.003), with the dark triad explaining 3% of the variance (R^2 = 0.027). However, only Machiavellianism significantly influences stress management (β =-0.117, p = 0.012), while Psychopathy and Narcissism do not (p = 0.758; p = 0.240). For spiritual development, the model is significant (p = 0.002), with Machiavellianism, Narcissism, and Psychopathy explaining 3% of the variance (R^2 = 0.030). Machiavellianism (β =-0.087, p = 0.042) and Psychopathy (β =-0.102, p = 0.019) negatively influence spiritual development, while Narcissism is not significant (p = 0.113). Overall, the combined model is significant (β =-0.102, p = 0.003), showing that dark triad personality traits negatively affect healthy lifestyle behaviors, explaining 2% of the variance (R^2 = 0.020). Thus, hypothesis H1 is accepted.

Table 5

Multiple Regression Analysis Findings

Dependent variable	*Independent variable*	*β*	*t*	*P*	*F*	*Model (p)*
Interpersonal Relationships	Machiavellianism	.000	-.004	.997		
	Psychopathy	-.106	-2.683	.008	5.850	0.001
	Narcissism	.085	3.590	.000		
	R^2:0.42; Stand.R^2:0.035					
Nutrition	Machiavellianism	-.044	-1.046	.296	6.179	0.000
	Psychopathy	-.127	-2.962	.003		
	Narcissism	-.015	-.589	.556		
	R^2:.044; Stand.R^2:0.037					
Health Responsibility	Machiavellianism	-.034	-.760	.448	6.906	0.000
	Psychopathy	-.154	-3.341	.001		
	Narcissism	-.019	-.694	.488		
	R^2 ; .049 Stand.R^2:.042					
Physical Activity	Machiavellianism	-.054	-1.004	.316	1.682	0.170
	Psychopathy	.026	.476	.634		
	Narcissism	-.052	-1.587	.113		
	R^2 ; .012 Stand.R^2:.005					
Stress Management	Machiavellianism	-117	-2.528	.012	4.796	0.003
	Psychopathy	-.015	-.308	.758		
	Narcissism	-.033	-1.176	.240		
	R^2 ; .034 Stand.R^2:.027					
Spiritual Development	Machiavellianism	-.087	-2.045	.042	5.190	0.002
	Psychopathy	-.102	-2.354	.019		
	Narcissism	.041	1.587	.113		
	R^2 ; .037 Stand.R^2:.030					
Dark Triple Personality	Healthy Lifestyle	-.102	-3.029	.003	9.172	0.003
	R^2 ; .022 Stand.R^2:.020					

DISCUSSION

The study has yielded significant findings with implications for both literature and practical application. This section will discuss and interpret these results in comparison with existing literature. University students demonstrated the highest average in the dimension of spiritual development and the lowest average in physical activity, overall exhibiting healthy lifestyle behaviors. This aligns with Arria et al.'s (2013) meta-analysis, which found that while university students generally engage in regular exercise, they often struggle with sufficient sleep and healthy eating habits. Despite these variations, the educational process is expected to foster some positive behaviors. However, challenges in areas such as sleep patterns, nutritional status, and social support may persist. Additionally, the study's sample size may influence the findings, potentially highlighting specific differences in the healthy lifestyle behaviors of university students.

It was found that students relatively exhibit more Narcissism and less Machiavellianism. This finding aligns with the literature, where Narcissistic traits are notably prevalent among university students (Hendin et al., 2018). Similarly, Filiz et al. (2023) found that students have the highest levels of Narcissism, the lowest levels of Psychopathy, and moderate levels of Machiavellianism. Filiz (2022) also reported that, while average levels of the dark triad traits were moderate, Machiavellianism had the highest average and Psychopathy the lowest. Jonason et al. (2014) found that university students typically exhibit moderate levels of dark triad traits. These variations might be due to differences in measurement tools used across studies. The prominence of Narcissism among university students could be attributed to their age group, while Machiavellianism might be more evident in environments where power, position, and economic gains are emphasized. Psychopathy, being more destructive and harmful, is expected to be less prevalent.

The study found that students' perceptions of healthy lifestyle behaviors did not vary according to income status. However, significant differences were observed based on gender, class schedule, educational level, and place of residence. Specifically, men exhibited more healthy lifestyle behaviors compared to women; students attending night classes engaged in healthier behaviors than those in day classes; master's and associate degree students demonstrated higher levels of healthy lifestyle behaviors than undergraduate students; and those living in city centers exhibited more healthy lifestyle behaviors compared to those residing in villages and town/district centers. These findings are consistent with some studies in the literature, which indicate that the relationship between income level and healthy lifestyle behaviors can be ambiguous (Chen et al., 2012). However, previous research shows conflicting results regarding gender-based differences in healthy lifestyle behaviors (Fiala & Brázdová, 2000).

In adolescence, social and economic vulnerability can lead to various adverse outcomes. Research indicates that poverty, lack of education, and socioeconomic disadvantage are associated with higher rates of emotional and behavioral problems in young individuals (Bradley & Corwyn, 2002; Duncan & Brooks-Gunn, 1997). These factors can increase the likelihood of psychological issues such as depression, anxiety, low self-esteem, and substance use (Conger & Donnellan, 2007). Adolescents who are economically vulnerable often have limited access to education and the labor market. Youth from lower-income families may benefit less from educational opportunities and face a higher risk of unemployment (Duncan & Brooks-Gunn, 1997). Consequently, unemployment and low income can elevate psychosocial stress in adolescents and negatively impact their personal development (Repetti et al., 2002). This study addresses specific demographic factors, such as educational level and place of residence, potentially filling gaps in the literature and guiding future research.

In the study, it was determined that students' dark triad personality traits did not significantly differ based on gender, educational level, or place of residence. These findings align with some existing research; for example, Jonason and Davis (2018) found no association between gender and dark

personality traits, suggesting that gender may not have a significant impact on these traits. Conversely, students with lower income levels were found to exhibit more dark personality traits compared to those with higher income levels. This observation is consistent with some literature indicating that economic difficulties can influence psychological profiles, and dark personality traits may be linked to such challenges (Jonason et al., 2016). Thus, a more detailed examination of the mechanisms underlying the relationship between income level and dark personality traits could be crucial for understanding this dynamic.

The study found that students' dark triad personality traits negatively affect healthy lifestyle behaviors, accounting for 2% of the variability in these behaviors. This finding aligns with research by Jonason, Teicher, and Schmitt (2014), which also reported that dark triad personality traits negatively impact healthy lifestyle behaviors. Conversely, Hagger et al. (2017) did not find a significant relationship between dark triad traits and healthy lifestyle behaviors. Some studies suggest that individuals with positive personality traits tend to manage health-damaging factors such as stress more effectively and experience more positive emotions (Lahey, 2009). In contrast, research indicates that personality types associated with negative emotions often score lower in health awareness and healthy living (Bogg & Roberts, 2004; Malouff et al., 2005). These discrepancies may arise from variations in sample size and measurement tools. Given the generally negative implications of dark triad traits, their adverse impact on healthy lifestyle behaviors is not unexpected.

The individual significance of this study lies in its contribution to understanding university students' healthy lifestyle behaviors and dark personality traits. The findings can be used to assess students' health habits and personality traits, helping individuals gain insights into their own health and make positive changes. From an organizational perspective, the study is valuable for universities and similar institutions, as promoting healthy lifestyle behaviors and recognizing dark personality traits can influence students' academic performance and overall well-being. Consequently, the results can inform the improvement of institutional practices, including university health services and student support programs.

CONCLUSION AND SUGGESTIONS

This study examined the relationship between healthy lifestyle behaviors and dark triad personality traits among university students. The findings reveal that students generally exhibit a high degree of healthy lifestyle behaviors, with the highest average in spiritual development and the lowest in physical activity. Additionally, students' dark triad personality traits are below average, characterized by higher levels of narcissism and lower levels of Machiavellianism. There were no significant differences in dark triad personality traits based on gender or educational level. However, students perceiving their income status as poor exhibited more pronounced dark triad personality behaviors. Moreover, dark triad personality traits negatively affect students' healthy lifestyle behaviors, accounting for 2% of the variance.

In future studies, it would be advantageous to explore the relationship between students' healthy lifestyle behaviors and dark triad personality traits in greater depth. Additionally, research should consider other relevant factors such as stressors experienced by students, their psychological well-being, and overall quality of life. Investigating how these variables differ across various educational levels could also provide valuable insights.

Based on the findings of this study, the following recommendations are proposed:

Address Individual Factors: Develop targeted interventions for students with low physical activity levels, taking into account their personality traits, and implement solution-oriented approaches to improve their activity levels.

***Support Financially Disadvantaged Students**:* Since students with lower income levels exhibit higher levels of dark triad traits, universities should enhance support for students facing financial difficulties through scholarships and other financial aid programs.

Personal Development Programs: Universities should establish programs aimed at fostering personal development. These programs should educate students about personal growth and provide opportunities to develop related skills.

LIMITATIONS

Like any study, this research has several limitations. Firstly, the focus on a single university may limit the generalizability of the findings. The exclusion of students from different geographical regions and universities might restrict the applicability of the results to the broader student population. Secondly, the reliance on self-reported data could affect the accuracy of the responses. Assessments based on subjective experiences of students' healthy lifestyle behaviors and personality traits may be less reliable compared to objective data. Thirdly, the sample exhibits a noticeable gender imbalance, which could complicate the generalization of gender-related outcomes. Future research could address these limitations by including more diverse samples and incorporating additional data sources.

Ethic Approval

To ensure compliance with scientific research and publication ethics, necessary documents were prepared and submitted to the Artvin Coruh University Scientific Research and Publication Ethics Board. An ethics committee certificate, confirming the ethical appropriateness of the study, was obtained with the decision dated 24.01.2023 and numbered E.78988. Verbal consent was subsequently secured from authorized individuals at Düzce University, where the data collection was to occur. Data collection took place between 24.01.2023 and 29.11.2023. The study group was provided with necessary information about the data collection tool, and informed consent from participants was obtained prior to administering the questionnaire.

Conflict of interest

The authors declare no conflict of interest.

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Authorship contributions

Design: M.F., Y.K., Data Collection or Processing: M.F., Y.K**.,** Analysis or Interpretation: Y.K., Literature Search: M.F., Writing: M.F., Y.K.

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