THE RELATIONSHIPS BETWEEN FOOD PREFERENCES, DARK TRIAD and PERSONALITY BELIEFS

YİYECEK TERCİHLERİ, KARANLIK ÜÇLÜ ve KİŞİLİK İNANÇLARI ARASINDAKİ İLİŞKİLER

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Abstract: ***The purpose of the presented study was to explore the relationships between the Dark Triad and the personality disorders classified in DSM-5 in regard with food preferences. The data collected via convenience sampling and online survey method. Dark Triad Dirty Dozen (DTDD-T) Scale, Personality Belief Questionnaire-Short Form (PBQ-S), Food Consumption Preferences Form and demographic form was used for handling data. Analysis revealed negative correlations between age and all dark triad scores besides with paranoid and borderline personality features. Positive correlations were determined among Machiavellianism, psychopathy, narcissism, and all personality disorders, except an insignificant correlation between Machiavellianism and avoidant personality disorder. Participants with omnivore food preference differed with higher means in terms of psychopathy and with lower scores regarding Machiavellianism and narcissism. Meat consumption associated positively and meat doneness negatively with psychopathy. Regression analysis revealed that %42,3 of the variance of psychopathy was explained by Machievellanism, and Schizoid personality features and, food related preferences as eggs, grains, meat, meat doneness, beside ice-cream, and sweets with milk variables. Results evaluated according to relevant literature. Since associations between dark triad personality traits, personality disorders and food preferences is a novel and emerging area of study, it is also obvious that it requires further investigation.***

Keywords*: Dark triad, personality beliefs, food preferences, food consumptions, personality disorders.*

Öz: ***Sunulan çalışmanın amacı yiyecek tercihleri ile DSM 5'te sınıflandırılmış olan kişilik bozuklukları ve Karanlık Üçlü kişilik özelliklerinin ilişkisinin araştırılmasıdır. Veri kolayda örnekleme yöntemi ve on-line survey tekniği ile toplanmıştır. Karanlık Üçlü Ölçeği [Dark Triad Dirty Dozen (DTDD-T) Scale], Kişilik İnanç Ölçeği [Personality Belief Questionnaire-Short Form (PBQ-S)]***

Yiyecek Tüketim Tercihleri Formu ve demografik bilgi formu verinin elde edilmesinde kullanılmıştır. Analizler tüm karanlık üçlü ortalamaları ile yaş

arasında negative korelasyonlar açığa çıkarmıştır. Machiavellianism, psikopati, narcissism, ile tüm kişilik bozukluğu boyutları arasında pozitif korelasyonlar saptanmıştır, sadece Machiavellianism ile kaçıngan kişilik bozukluğu arasında herhangi bir anlamlı ilişki bulunmamıştır. Yiyecek tercihi omnivore olan katılımcılar psikopati açısından yüksek, Machiavellianism ve narcissism açısından düşük puanlarla farklılaşmıştır. Psikopati ile et tüketiminin ilişkisi pozitif, et pişme derecesi tercihi negatiftir. Regresyon analizleri psikopati'ye ilişkin varyansın %42,3'ünün Machievellanism, ve Schizoid kişilik özellikleri ve, yiyecek tercihleri (yumurta, tahıl, et, et pişme derecesi, yanısıra dondurma, ve sütlü tatlılar gibi) değişkenleri ile açıklanabildiğini açığa çıkarmıştır. Bulgular bağlantılı literatüre göre değerlendirilmiştir. Karanlık üçlü kişilik özellikleri, kişilik bozuklukları ve yiyecek tercihleri arasındaki ilişkiler yeni ve gelişmekte olan bir araştırma alanı olduğundan konunun daha çok gelecek araştırma gerektirdiği açıkça görülmektedir.

Anahtar Kelimeler: ***Karanlık üçlü, kişilik inançları, yiyecek tercihleri, yiyecek tüketimleri, kişilik bozuklukları.***

INTRODUCTION

Personality is a hypothetical construct or organization. Personality again is an abstraction that is based upon observations among individual's behaviours. Among too many definitions of personality the most common and acceptable counterparts of personality can be summed up as a most dominant and striking also unique characteristics of a human being that distinguish one from another. Personality is an inborn characteristic, which is stable, consistent and constant. Nowadays personality psychologists reach to an agreement that nature and nurture are working together and has tremendous effects on human beings' personality development (Okray, 2020; Yazgan İnanç & Yerlikaya, 2014). Although personalities differ from each other sometimes they can be pathological that need long term psychotherapies but also in normal population non-pathological personalities can be exists. The ground breaking new concept of The Dark Triad proposed by Paulhus and Williams (2002) consists of aversive but in a normal range functioning personality characteristics that are Machiavellianism, narcissism and psychopathy. Jones and Paulhus (2010) defined Machiavellianism as marked with strategic planning and manipulation, psychopathy as behaviours characterized by callousness, impulsive and thrill-seeking behaviours sometimes these behaviours can include criminality and narcissism as behaviours and thoughts that are strictly related with grandiosity, egocentrism, and a sense of personal entitlement. These dimensions are positively correlated and share the common expression of callous manipulation. The Dark Triad researches cumulated around occupational, educational, mating, interpersonal, and antisocial behaviour (Furham, Richards & Paulhus, 2013).

According to Beck and Ellis, personality disorders are not diseases but they are thoughts in other words cognitive factors. These cognitive factors shaped and learned

by the reactions of an individual to a general or specific stimulus (Beck, Davis & Freeman, 2015). According to them personality disorders are characterized by personality belief clusters. These personality beliefs effects individuals' perception

upon past, present and future and may cause difficulties in life adaptation. These personality beliefs at the same time are generalized, inflexible, coercive and resistant to change (Butler, Brown, Beck, & Grisham, 2002).

1. RELEVANT LITERATURE

Associations of personality traits with a wide range of various research variables is one of the topics which gets attention from researchers for a very long time (e.g. Okumuşoğlu, 2021; Weiting, Kua & Kang, 2019; Okumuşoğlu, 2017; Roczniewska & Bakker, 2016; Barlett, C. & Barlett, N., 2015; Sumer, Bilgic, N. Sumer & Erol, 2005). According to the relevant literature (e.g. Vossen, Coolidge, Segal & Muehlenkamp, 2017) there are limited amount of researches that tries to link the dark triad and personality disorders. In their study the search for the relationships between dark triad especially with Cluster B personality disorders have been targeted. They informed that especially male participants have higher degrees in all three features of dark triad and in personality disorders than female participants. On the other hand, they found out that female participants showed more characteristics regarding histrionic, borderline and narcissistic personality disorders, while male participants have showed more antisocial personality disorder characteristics.

In related literature personality traits and health related actions, eating habits, dietary actions and food preferences of individuals were reported as associated (e.g. Machado-Oliveira et al., 2020; Nezlek & Forestell, 2019; Lin, Ortega, Caputo, & Lusk, 2019, Stevenson, 2017; Carrillo et al., 2012).

For example, in the related literature, a negative correlation was reported between meat consumption and openness and another negative correlation was reported between meat consumption and extraversion personality trait. Conscientiousness and Openness personality traits were reported as positively correlated with food choices as preferring to eat fish and plant-based foodstuffs. On the other hand, personality traits as conscientiousness and extraversion were reported as negatively correlated with food preferences as favouring carbohydrates (Pfeiler, & Egloff, 2020).

According to the literature (Pfeiler & Egloff, 2020; Stevenson, 2017) Conscientiousness trait is one of the personality traits that is consistently linked to healthier food preferences. On the other hand, according to Booth-Kewley & Vickers, (1994) individuals who has higher scores in terms of Agreeableness are informed as favouring to take vitamins more frequently than others do and the participants who has higher scores regarding agreeableness linked to preferences regarding reducing the intake of fats and sugar.

When it is thought that dark triad personality traits are associated with high aggression beside low empathy and agreeableness (Schimmenti et al., 2019; Furnham et al., 2013) research results which implies association of these traits with meat

consumption in other words with "Omnivorous type diet" could become clear (Sariyska, Markett, Lachmann, & Montag, 2019)

By looking at the related studies which reveals that measurements related with personality are reliable in terms of prediction of dietary patterns of individuals (Stevenson, 2017; Bogg, & Roberts, 2004) it is became clear to understand the

existence of a link between personality traits and food preferences. It is also obvious that, since it is a novel area of study it requires further investigation.

The purpose of the present study was to explore relationships between the Dark Triad and the personality disorders classified in DSM-5 in regard with food preferences.

Research problems of the study:

Is there any relationship between food preferences, DTDD-T and PBQ-S results?

Is there any differences between food preferences groups (as vegan/vegetarian and omnivore) regarding DT personality traits and PBQ-S results?

Is there any correlations between Dark Triad and Food Consumption Rates and Meat Doneness?

Is there any gender based differences regarding DTDD-T results?

Is there any predictive relationship between dark triad personality features and personality beliefs, and food preferences?

2. METHODOLOGY

Model of the presented study is relational scanning and it's a cross-sectional study. The data of this research collected via online survey method.

Convenience sampling is a nonprobability method of survey sample selection (Johnson, 2014) and Convenience Sampling method was used to gather data upon general population. Questionnaire distributed to the participants via internet.

2.1. Participants

The age range of the participants is between 18 - 72 with mean value 28,67±8,49. The distribution of participants according to their, gender, food preferences are given in the table below. Vegan food preference has choosen by only two participants. Therefore vegeterian and vegan categories are combined and shown in one category. (see Table 1 and Table 2 below)

Table 1: The Distribution of Participants According to Their Gender, & Food Preferences (N=191)

Food Preferences	**n**	**Percentage**
Vegetarian/ Vegan	10	5,2
Omnivore	181	94,8
Gender	**n**	**Percentage**
Female	143	74,9
Male	48	25,1

Table 2: The Distribution of Participants According to Their Food Consumption Percentages

Food Consumption	**n**	**Percentage**
Milk		
Never	33	17,3
One per month	18	9,4
1 time per 2 weeks	21	11,0
1-2 times a week	44	23,0
3-4 times a week	33	17,3
5-6 times a week	8	4,2
Everyday	34	17,8
Meat		
Never	7	3,7
One per month	6	3,1
1 time per 2 weeks	30	15,7
1-2 times a week	77	40,3
3-4 times a week	53	27,7
5-6 times a week	11	5,8
Everyday	7	3,7
White Meat		
Never	5	2,6
One per month	11	5,8
1 time per 2 weeks	23	12,0
1-2 times a week	80	41,9
3-4 times a week	50	26,2
5-6 times a week	16	8,4
Everyday	6	3,1
Fish		
Never	21	11,0
One per month	65	34,0
1 time per 2 weeks	46	24,1
1-2 times a week	54	28,3
3-4 times a week	4	2,1
Everyday	1	,5
Eggs		
Never	12	6,3
One per month	6	3,1
1 time per 2 weeks	10	5,2
1-2 times a week	31	16,2
3-4 times a week	50	26,2
5-6 times a week	30	15,7
Everyday	52	27,2
Legumes		
Never	5	2,6
One per month	11	5,8
1 time per 2 weeks	18	9,4
1-2 times a week	84	44,0
3-4 times a week	60	31,4
5-6 times a week	11	5,8
Everyday	2	1,0
Sweets with Milk		
Never	27	14,1
One per month	67	35,1
1 time per 2 weeks	57	29,8
1-2 times a week	24	12,6
3-4 times a week	10	5,2
5-6 times a week	3	1,6

Everyday	3	1,6
Ice-Cream		
Never	47	8,4
One per month	85	1,6
1 time per 2 weeks	37	2,1
1-2 times a week	13	10,5
3-4 times a week	8	5,2
Everyday	1	5,8
Grains		
Never	10	5,2
One per month	17	8,9
1 time per 2 weeks	34	17,8
1-2 times a week	52	27,2
3-4 times a week	44	23,0
5-6 times a week	13	6,8
Everyday	21	11,0
Salads		
Never	5	2,6
One per month	7	3,7
1 time per 2 weeks	4	2,1
1-2 times a week	29	15,2
3-4 times a week	60	31,4
5-6 times a week	24	12,6
Everyday	62	32,5
Degree Of Doneness of Meat		
Rare	2	1,1
Medium rare	12	6,3
Medium	60	31,6
Well Done	117	61,1

2.2. Instruments

2.2.1. *Dark Triad Dirty Dozen (DTDD-T)*

Dark Triad Dirty Dozen (DTDD-T), scale was developed by Jonason and Webster, (2010). It includes 12 items which consists of three factors called Machiavellianism (4 items), Psychopathy (4 items) and Narcissism (4 items). In the original study item total reliability Cronbach's Alphas was found as 0,92 for Machiavellianism, 0,84 for psychopathy and 0,92 for Narcissism. Özsoy, Rauthmann, Jonason, and Ardıç (2017) translate DTDD-T into Turkish and do the reliability and validity study. In this study the Cronbach's Alpha coefficients for Machiavellianism, Psychopathy and Narcissism was found as 0,81, 0,67 and 0,80 respectively.

2.2.2. *Personality Belief Questionnaire-Short Form (PBQ-S)*

Personality Belief Questionnaire (PBQ; Beck & Beck, 1991) was developed as a clinical and research instrument to assess dysfunctional beliefs associated with individual personality disorders on Axis II of the Diagnostic and Statistical Manual for the Mental Disorders (American Psychiatric Association, 1994). The PBQ contains 126 items (9 scales, 14 items per scale). Butler, Beck and Cohen (2006) developed the short form of PBQ-SF. Taymur et al (2011) translated PBQ-SF into Turkish and do the reliability and validity study upon university students. Bilge and Bilge (2018) studied reliability and validity for PBQ-S in Turkish community sample. In this study Bilge and Bilge's (2018) form was used.

2.2.3. *Food Consumption Preferences Form*

The method of frequency of food consumption is often used to detect the relationships between nutrition and disease risks. Food consumption frequency form, depending on the source can be prepared in different ways depending on focuses or choices of investigators (Pekcan, 2008). Food Consumption Rating Form was developed by researchers to determine which nutrients preferred to be consumed by the participants.

3. RESULTS

The distribution of participants according to their certain food consumptions are given in the table below.

Correlation analysis between variables were conducted and positive correlations were determined between certain variables as age, Dark Triad and personality beliefs as given in the table below.

According to statistically significant results age has significant and negative correlations with DTM (r= -244, p= .001), DTP (r= -162, p= .025), DTN (r= -254, p= .000), paranoid (r= -.176, p= .015) and borderline (r= -.201, p= .005) personality traits.

Also statistically significant relations were determined between DTM and many other variables as DTP (r=.458, p=.000), DTN (r=.513, p=.000), Dependent (r=.335, p=.000), Passive agressive (r=.202, p=.005), Obsessive compulsive (r=.156, p=.031), Antisocial (r=.331, p=.000), Narcisistic (r=.344, p=.000), Hystriyonic (r=.399, p=.000), Schizoid (r=176, p=.015), Paranoid (r=.277, p=.000), Borderline (p=.297, p=.000).

Statistically significant correlations were found between DTP and DTN (r=.307, p=.000), Avoidant (r=.145, p=.046), Dependent (r=.274, p=.000), Passive agressive (r=.261, p=.000), Obsessive compulsive (r=.215, p=.003), Antisocial (r=.321, p=.000), Narcissistic (r=.377, p=.000), Hystriyonic (r=.331, p=.000), Schzoid (r= .351, p=.000), Paranoid (r=.254, p=.000), and Borderline (r=.282, p=.000).

Statistically significant correlations were also determined between DTN and Avoidant (r=.304, p=.000), Dependent (r=.311, p=.000), Passive-Aggressive (r=.210, p=.004), Obsessive Compulsive (r=.336, p=.000), Antisocial (r=.379, p=.000), Narsisistic (r=.421, p=.000), Hystriyonic (r=397, p=.000), Schizoid (r=.196, p=.007), Paranoid (r=.279), Borderline (r=.275, p=.000).

Positive correlations were also found between Avoidant and Dependent (r=.576, p=.000), Passive agressive (r=.526, p=.000), Obsessive compulsive(r=.585, p=.000), Antisocial(r=.630, p=.000), Narcissistic (527, p=.000), Hystrionic (r=.560, p=.000), Schizoid (r=.406, p=.000), Paranoid (r=.488, p=.000), Borderline (r= .645, p=.000).

Positive correlations were also determined between Dependent and Passive agressive (r=.404, p=.000), Obsessive compulsive (r=.465, P=.000), Antisocial

(r=.600, p=.000), Narcissistic (r=.624, p=.000), Hystrionic (r=.728, p=.000), Schizoid (r=.273, p=.000), Paranoid (r=.511, p=.000), Borderline (r=.783, p=.000).

Positive correlations were also found between Passive agressive and Obsessive compulsive (r=.533, p=.000), Antisocial (r=.723, p=.000), Narcissistic (r=.622, p=.000), Hystrionic (r=.440, p=.000), Schizoid (r=.603, p=.000), Paranoid (r=.650, p.000), Borderline (r=.594, p.000).

Positive correlations were determined between Obsessive compulsive and Antisocial (r=.589, p=.000), Narcissistic (r=.583, p=.000), Hystrionic (r=.439, p=.000), Schzoid (r=.447, p=.000), Paranoid (r=.508, p=.000), Borderline (r=.504, p=.000).

Positive correlations were determined between Antisocial and Narcissistic (r=.734, p=.000), Hystrionic (r=.625, p=.000), Schzoid (r=.647, p=.000), Paranoid (r=.619, p=.000), Borderline (r=.641, p=.000).

Positive correlations were found between Narcissistic and Hystrionic (r=.609, p=.000), Schizoid (r=.535, p=.000), Paranoid (r=.596, p=.000), Borderline (r=.641, p=.000).

Again positive correlations were determined between Hystrionic and Schizoid (r=.327, p=.000), Paranoid (r=.560, p=.000), Borderline (r=.642, p=.000). Also positive correlations were found between Schizoid ans Paranoid (r=.497, p=.000), Borderline (r=.457, p=.000) and between paranoid and Borderline (r=.714, p=.000).

Results regarding correlation analysis can be seen at Table 3 which is given below.

Table 3: Correlations Between Age, Dark Triad and Personality Beliefs

	Age	DTM	DTP	DTN	Avoidant	Dependent	Passive-Aggresive	Obsessive-Compulsive	Antisocial	Narsisitic	Hystirionic	Schizoid	Paranoid	Borderline
Age														
r	1													
p														
DTM														
r	-,244**	1												
p	,001													
DTP														
r	-,162*	,458**	1											
p	,025	,000												
DTN														
r	-,254**	,513**	,307**	1										
p	,000	0,000	,000											
Avoidant														
r	-,077	,125	,145*	,304**	1									
p	,290	,086	,046	,000										
Dependent														
R_r	-,113	,335**	,274**	,311**	,576**	1								
p	,104	,000	,000	,000	,000									
Passive-Aggressive	-,123	,202**	,261**	,210**	,526**	,404**								
r	,091	,005	,000	,004	,000	,000	1							
p														
Obsessive-Compulsive	-,094	,156*	,215**	,336**	,585**	,456**	,533**	1						
r	,198	,031	,003	,000	,000	,000	,000							
p														
Antisocial														
r	-,122	,331**	,321**	,379**	,630**	,600**	,723**	,589**	1					
p	,093	,000	,000	,000	,000	,000	,000	,000						
Narsisistic														
r	-,099	,344**	,377**	,421**	,527**	,624**	,622**	,583**	,734**	1				
p	,171	,000	,000	,000	,000	,000	,000	,000	,000					

Hystriyonic														
r	-,205*	,399**	,331**	,397**	,560**	,728**	,440**	,439**	,625**	,609**	1			
p	,004	,000	,000	,000	,000	,000	,000	,000	,000	,000				
Schizoid														
r	-,113	,176*	,351**	,196**	,406**	,273**	,603**	,447**	,647**	,535**	,327**	1		
p	,119	,015	,000	,007	,000	,000	,000	,000	,000	,000	,000			
Paranoid														
r	-,176*	,277**	,254**	,279**	,488**	,511**	,650**	,508**	,619**	,596**	,560**	,497**	1	
p	,015	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000	,000		
Borderline														
r	-,201**	,297**	,282*	,275**	,645**	,783**	,594**	,504**	,641**	,641**	,642**	,457**	,714**	1
p	,005	,000	,000	,000	,000	,000	,000	,000	,000	,000	0,000	,000	,000	

**Correlation Significant at 0,01 level, * Correlation Significant at 0,05 level. *DTM= Dark Triad Machiavellianism, DTP: Dark Triad Psychopathy; DTN= Dark Triad Narcissism.*

T-test analysis was conducted to examine differences between food preferences groups (which re-categorized as vegan/vegetarian and omnivore since there are only two vegan participants) regarding DT personality traits.

Results revealed no statistically significant differences between mentioned food preferences groups in terms of Machiavellianism, Psychopathy and Narcissism. Test results and related descriptive statistics are given in the table below.

Table 4: T-Test Results of The DT According to Food Preferences & Descriptive Statistics for the DT Variables, Split in Vegan/Vegetarian vs. Omnivore

Food Preferences		N	Mean	SD	df	t	p
DTM	**Vegan/Vegeterian**	10	9,30	4,0	189	,262	,794
	Omnivore	181	8,96	3,90			
DTP	**Vegan/Vegeterian**	10	7,10	2,46	189	-1,073	,285
	Ominivore		181	8,18	3,14		
DTN	**Vegan/Vegeterian**	10	13,00	2,26	189	,440	,660
	Omnivore	181	12,41	4,12			

DT= Dark Triad; DTM= Dark Triad Machiavellianism, DTP: Dark Triad Psychopathy; DTN= Dark Triad Narcissism.

T-Test analysis which were carried out to explore differences regarding personality beliefs according to food preferences revealed no statistically significant differences.

Table 5: Correlations Between Dark Triad and Food Consumption Rates and Meat Doneness

	Meat	Fish	Eggs	Legumes	Sweets with Milk	Ice Cream	Salads	Grains	Meat Doneness
DTM									
r	,029	-,092	,044	,121	-,062	-,108	-,080	,060	-,111
p	,693	,204	,549	,095	,391	,139	,270	,406	,128
DTP									
r		,203*	-,020	-,184*	,090	,118	-,160*	-,036	-,154*	-,166*
p		,005	,789	,011	,217	,105	,027	,622	,034	,022
DTN									
r		,005	-,182*	,006	,179*	,101	-,100	-,155*	,070	,045
p		,951	,012	,939	,013	,165	,169	,032	,339	,541

**Correlation Significant at 0,01 level, * Correlation Significant at 0,05 level. *DTM= Dark Triad Machiavellianism, DTP: Dark Triad Psychopathy; DTN= Dark Triad Narcissism.*

According to the results which is given in the above table, significant correlations were found between DTP and meat consumption (r=.203, p=.005), egg consumption (r= -184, p=.011), icecream (r= -.160, p=.027), grains (r= -.154, p=.034), meat doneness (r= -.166, p=.022).

Significant correlations were also found between DTN and Fish consumption (r= -.182, p=.012), legumes (r=.179, p=.013), salads (r= -155, p=.032).

On the other hand, analysis revealed no significant correlations between DTM and food consumption rates and meat doneness preference.

As can be seen in the table given below analysis did not revealed any statistically significant result of the DT according to gender. But some slight mean differences between males and females regarding DT can also be seen in the table.

Table 6: T-Test Results of the DT According to Gender

Gender		N	Mean	SD	df	t	p
DTM	**Female**	143	9,10	3,91	189	,736	,463
	Male	48	8,62	3,89			
DTP	**Female**	143	8,27	3,03	189	1,138	,257
	Male	48	7,68	3,37			
DTN	**Female**	143	12,46	3,99	189	,107	,915
	Male	48	12,39	4,25			

DTM= Dark Triad Machiavellianism, DTP: Dark Triad Psychopathy; DTN= Dark Triad Narcissism.

Table 7: Stepwise Multiple Regression Analysis for Predicting DM

Variable	B	SD_B	β	T	Sig.	R	R^2	F	p
Constant	2,861	,999		2,863	,005				
DTN	,375	,061	,389	6,164	,000	,513	,263	67,125	,000
DTP	,372	,077	,297	4,847	,000	,603	,356	53,345	,000
Sweets with milk	-,407	,178	-,130	-2,284	,024	,619	,374	38,604	,000
Histrionic	,186	,057	,239	3,257	,001	,634	,389	31,028	,000
Avoidant	-,134	,056	-,164	-2,384	,018	,648	,404	26,588	,000

DTM= Dark Triad Machiavellianism, DTP: Dark Triad Psychopathy; DTN= Dark Triad Narcissism.

As given in the table above stepwise regression analysis revealed that %40,4 of the variance of DTM was explained by DTN, DTP, Sweets with milk food preference, Hystrionic and Avoidant personality beliefs. At first DTN variable entered to the equation by explaining %26.3 of the variance of DTM other four variables entered to the equation consequently by adding to the explained variance as can be seen in the above table.

Table 8: Stepwise Multiple Regression Analysis for Predicting DP

Variable	B	SD_B	β	T	Sig.	R	R^2	F	p
Constant	8,460	1,701		4,973	,000				
DTM	,333	,046	,417	7,190	,000	,459	,210	50,061	,000
Schizoid	,117	,034	,206	3,466	,001	,534	,285	37,329	,000
Eggs	-,387	,105	-,209	-3,679	,000	,575	,331	30,621	,000
Grains	-,423	,114	-,213	-3,698	,000	,601	,361	26,167	,000
Meat	,315	,154	,119	2,048	,042	,615	,379	22,437	,000
Meat Doneness	-,672	,274	-,143	-2,455	,015	,627	,393	19,754	,000
Ice Cream	-,435	,172	-,150	-2,533	,012	,639	,408	17,903	,000
Sweets with Milk	,321	,146	,128	2,198	,029	,651	,423	16,599	,000

DTM= Dark Triad Machiavellianism.

As given in the table above stepwise multiple regression analysis revealed that %42,3 of the variance of DTP was explained by DTM, Schizoid, Eggs, Grains, Meat, Meat Doneness, Ice-cream, and Sweets with milk variables. DTM was found as the first variable that entered to the regression equation by explaining the %21 of the variance of the DTP and other mentioned variables entered to the equation consequently by adding up to the explained variance of DTP as given in the above table.

Table 9: Stepwise Multiple Regression Analysis for Predicting DN

Variable	B	SD_B	β	T	Sig.	R	R^2	F	p
Constant	6,268	1,099		5,705	,000				
DTM	,438	,064	,422	6,814	,000	,513	,263	67,125	,000
Narcissistic	,137	,061	,167	2,231	,027	,575	,331	46,210	,000
Fish	-,558	,217	-,149	-2,570	,011	,591	,350	33,351	,000
Obsessive-Compulsive	,128	,052	,175	2,451	,015	,608	,369	27,088	,000
Sweets with milk	,425	,188	,131	2,258	,025	,622	,386	23,170	,000

DTM= Dark Triad Machiavellianism.

As can be seen in the above table according to stepwise regression analysis %38.6 of the variance of DTN was explained by DTM, Narcisistic, Obsessive Compulsive and Sweets with milk variables. DTM was found as the first variable which entered to regression equation by explaining %26.3 of the variance of DTN and other variables entered to the equation consequently by adding up to the explained variance of DTN as given in the above table.

4. DISCUSSION

The main purpose of the present study was to explore relationships between the Dark Triad and also the personality disorders classified in DSM-5 in regard with food preferences.

Correlation analysis revealed negative correlations between age and all dark triad scores and also with paranoid and borderline personality features. It can be said that as age increases paranoid and borderline and DT traits decreases. In related literature other studies as Wilson & Sibley (2011), Harpur & Hare (1994) and Mudrack (1989) revealed similar negative correlations between age and narcissism, age and psychopathy and also with age and Machiavellianism consequently.

According to Bartlet & Bartlet (2015) older age means lower scores in terms of dark triad traits and they claimed that this negative correlation could be related with the older participants' maturation and successful transition from certain periods of life which includes features as negativity that seems associated with certain dark triad personality traits.

According to the results of the presented study (except an insignificant correlation between Machiavellianism and avoidant personality disorder) Machiavellianism, psychopathy, narcissism, and all personality disorders were found positively associated with each other and with all other mentioned variables by significant correlation coefficient values changing between .145 (between psychopathy and avoidant personality disorder) and .783 (between Dependent and Borderline personality disorders). These associations are parallel with results of Vossen et all. (2017) which reports similar correlations among dark triad traits and features of personality disorders.

Examination of differences between food preferences groups (which re-categorized as vegan/vegetarian and omnivore since there are only two vegan participants) regarding dark triad personality traits was conducted via t-test analysis. Results of the mentioned analysis revealed no statistically significant differences between food preference groups in terms of Machiavellianism, Psychopathy and Narcissism. Though no significant differences were found, obvious mean differences between food preference groups regarding Machiavellianism, psychopathy and narcissism mean scores were existing. Omnivore food preference group differed with higher means in terms of psychopathy and with lower scores regarding Machiavellianism and narcissism. Especially higher psychopathy mean scores in omnivorous group can be accepted as parallel with other studies which implies higher dark triad features in association with omnivore food preferences. Research which

implies associations of these dark triad traits with meat consumption in other words with "Omnivorous type diet" (Sariyska, Markett, Lachmann, & Montag, 2019) seem parallel with presented study's findings and also seems parallel with other studies of literature which emphasize dark triad personality traits are associated with higher aggression beside lower empathy and agreeableness (Schimmenti et al., 2019; Furnham et al., 2013).

Analysis were conducted to see associations between dark triad and food consumption rates and meat doneness. According to results of the mentioned correlation analysis of the current study psychopathy and meat consumption are associated positively and consumption of egg, ice-cream, and grains besides meat doneness associated negatively with psychopathy. Regarding narsisistic features of dark triad, narcissism was negatively correlated with fish consumption and salad consumption while its positively associated with consumption of legumes. On the other hand, analysis revealed no significant correlations between Machievellanism and food consumption rates and meat doneness preferences. Between group analysis which were carried out to explore differences regarding personality beliefs according to food preferences revealed no statistically significant differences. But as can be seen in results section mean differences between omnivors and vegan/vegetarians were existing. The group of participants with omnivorous food preferences differred with higher means regarding schizoid and paranoid personality traits while having lower mean scores in terms of all other mentioned features.

For omnivor food preference group higher means regarding schizoid and paranoid personality features can be accepted in accordance with other studies (e.g. Veser, Taylor, & Singer, 2015; Dhont, & Hodson, 2014) which suggests association of social dominance orientation tendencies with higher meat consumption preferences.

On the other hand related literature (Pfeiler, & Egloff, 2018; McInnis & Hodson, 2017) points out that vegetarian diet preference group can be accepted as a minority group with some challenges that exists globally for all minority groups and therefore minority group conceptualization implies difficulties and challenges in terms of well being. These possible associations should be kept in mind for future research to examine percepted effects of "minority" position of veganism/vegetarianism among the members of these food preference groups.

Analysis of the presented study did not reveal any statistically significant result in terms of differences regarding the dark triad features according to gender. Despite of the non-existence of any significant result, mean differences as higher mean scores for females were detected. In related literature (Vossen et al., 2017) it was informed that male participants' means are found higher in terms of dark triad features and this is not parallel with the presented study's results. On the other hand, again in Vosen et al.'s study (2017) they found out that female participants showed more characteristics about histrionic, borderline and narcissistic personality disorders while male participants have showed more antisocial personality disorder characteristics. The differences between mean age of the Vosen et al.'s study (2017) and the presented study -which is higher- should be taken into account. As the current study' analysis revealed age is associated negatively with certain changes regarding dark triad features. In related literature, according to Bartlet & Bartlet (2015) older age means

lower scores in terms of dark triad traits and they claimed that it could be related with the older participants' maturation and successful transition from certain periods of life which includes facets seems associated with certain dark triad personality traits. Besides, in the presented study there were 143 females and 48 males and it is possible to evaluate this as one of the limitations of the study and therefore future studies with quota sampling to handle more balanced groups regarding gender is necessary. Same limitation and suggestion in terms of future studies with more balanced groups is also valid for the vegan, vegetarian and omnivore food preferences groups.

Regression analysis of the current study revealed that %40,4 of the variance of Machievellanism was explained by the following variables; personality features as narcissizm, and psychopathy, and food preferences as sweets with milk, and also with Hystrionic and Avoidant personality beliefs. On the other hand regression analysis revealed that %42,3 of the variance of psychopathy was explained by Machievellanism, and Schizoid personality features and, food related preferences as Eggs, Grains, Meat, Meat Doneness, beside Ice cream, and Sweets with milk variables. Regression analysis were also revealed that the %38,6 of the variance of narsisistic dark triad feature was explained by Machievellanism, Narcisistic Personality disorder, Obsessive Compulsive personality disorder and food preference as sweets with milk variables.

Like every other crosssectional study, this study has its own limitations regarding generalisability of the handled results. Longitudinal studies could be suggested for future research regarding this aspect.

CONCLUSION

The findings of this study seems as paralel with the literature (Machado-Oliveira et al., 2020; Nezlek & Forestell, 2019; Lin, Ortega, Caputo, & Lusk, 2019, Stevenson, 2017; Carrillo et al., 2012) which links personality traits and food preferences, dietary actions, health related actions and eating habits of individuals. Results can also be accepted as parallel with the related studies which reveals that measurements related with personality could be predictors for dietary patterns of individuals (Stevenson, 2017; Bogg, & Roberts, 2004). Apparently, associations between dark triad personality traits, personality disorders and food preferences is a novel area of study. Therefore, it is obvious that the topic requires further investigations to be able to evaluate the mentioned associations and links comprehensively.

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