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Research Article

The Effects of Dark Triad (Machiavellianism, Narcissism, Psychopathy) on the Love Attitudes

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Abstract

Purpose of this research is to study effects of dark triad personality traits (Machiavellianism, narcissism and psychopathy) on the love attitudes. Data is collected through questionnaire surveys, using convenience sampling method for sampling. To measure Dark Triad personality traits Dirty Dozen scale which is developed by Jonason and Webster (2010) is used, to measure love attitudes Love Attitudes Scale (LAS) which is developed by Hendrick, Dicke and Hendrick (1998) is used. Exploratory Factor Analysis is conducted to both scales which returned three and six items respectively. Correlation and multiple regression analyses are conducted using items returned, lead to finding out moderate correlations between dark triad constructs, positive correlations between ludus and all dark triad constructs, narcissism correlating with all love attitudes except agape, psychopathy and Machiavellianism correlating with ludus only. Also, regression analyses showed narcissism has a significant and positive effect on mania and pragma, Machiavellianism has a significant and positive effect on ludus, gender and narcissism are founded to have a significant effect on storge and agape in which genders (Female) effect is negative. Results also are indicated statistically significant differences between female and male attitudes of storge, ludus and agape towards love and only Machiavellianism among dark triad traits. The implications of the results are discussed and future research areas are suggested.

Makale Bilgisi

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Anahtar sözcükler: Karanlık Üçlü, Narsisizm, Makyavelizm, Psikopati, Aşk Tutumları.

Öz

Bu çalışmanın amacı, karanlık üçlü kişilik özelliklerinin (Makyavelizm, narsisizm ve psikopati) aşk tutumlarına etkisinin incelenmesidir. Bu amaçla, kolayda örnekleme yöntemi kullanılarak anket uygulaması yapılmıştır. Karanlık üçlü kişilik özelliklerini ölçmek için Jonason ve Webster tarafından 2010 yılında geliştirilen Karanlık Üçlü Ölçeği, aşk tutumlarını ölçmek içinse Hendrick, Dicke ve Hendrick tarafından 1998 yılında geliştirilen Aşk Tutumları Ölçeği kullanılmıştır. Karanlık üçlü ve aşk tutumları değişkenlerine, keşfedici faktör analizleri yapılmış, sırasıyla üç ve altı alt boyut belirlenmiştir. Elde edilen boyutlar kullanılarak korelasyon analizi yapılmış, karanlık üçlü özellikleri arasında orta düzeyde bir korelasyon bulunduğu, ludus ile tüm karanlık üçlü özellikleri arasında pozitif korelasyon bulunduğu, narsisizmin agape hariç tüm aşk tutumları ile pozitif korelasyona sahip olduğu, psikopati ve Makyavelizmin ise sadece ludus ile korelasyonu bulunduğu belirlenmiştir. Araştırmanın hipotezleri çoklu doğrusal regresyon analizleri ile test edilmiştir. Analiz sonuçları, narsisizmin mania ve pragma üzerinde anlamlı ve pozitif bir etkisinin bulunduğuna, Makyavelizmin ludus üzerinde anlamlı ve pozitif bir etkisinin bulunduğuna, cinsiyet ve narsisismin storge ve agape üzerinde anlamlı etkileri bulunduğuna, cinsiyetin etkisinin negatif yönlü olduğuna işaret etmektedir. Diğer taraftan bağımsız gruplar t-test analizleri sonucunda cinsiyet açısından storge, ludus ve agape tutumlarında ve karanlık üçlü özelliklerinden Makyavelizmde anlamlı farklılıklar bulgulanmıştır. Araştırma bulguları sonuç bölümünde tartışılmıştır.

1. INTRODUCTION

The Dark Triad (DT) is a term used to refer to three socially aversive personality traits: Machiavellianism, psychopathy and narcissism. DT individual is described as someone with a "socially malevolent character with behavioral tendencies toward self-promotion, emotional coldness, duplicity, and aggressiveness" (Paulhus and Williams, 2002). Three subclinical traits which are grouped under the umbrella term of DT are asserted to be short term, egocentric and exploitative which correlates with dishonesty and manipulative behavior (Wisse and Sleebos, 2016). DT constructs are claimed to be empirically distinct and conceptually overlapping, which share low agreeableness as characteristics in common (Paulhus and Williams, 2002). Research on the concept is in its early stages where findings of the studies are developing more questions (Smith et al., 2016).

Machiavellianism is named after political advisor Niccolo Machiavelli. Christie and Geis (1970) developed a scale using selected statements of Machiavelli's book "Il Principe"(1469-1527) and further research indicated that subjects whom agreed statements of the questionnaire tend to behave Machiavellianist in both laboratory experiments and real life (Christie and Geis, 1970; Jones and Paulhus, 2009; Paulhus and Williams, 2002). Machiavellians are defined as cold, cynical, manipulative and unprincipled. The characteristic which distinguishes them from narcissists and psychopaths is their social skills. Machiavellians are social chameleons who may exhibit superficial good samaritan behaviors but the motivation behind is asserted to be manipulation and self-gains (Kessler et al., 2010; O'Boyle et al., 2012; Smith et al., 2016).

Narcissism is a construct which manifests itself with such features as grandiosity, entitlement, dominance and superiority (Raskin and Hall, 1979; Corry, Merritt, Mrug and Pamp, 2008). In relation with their self-righteousness feelings narcissists tend to seek attention and admiration from those around them. Typical narcissist perceives others as inferior and inclines to impose her own priorities since they are socially dominant individuals who need control and power (Smith et al., 2016). Narcissists have extremely self-loving and confident characteristics which may lead them to exhibit over competitive, opportunistic and risk taking behaviors (Foster et al., 2009). On the other hand, narcissists are suggested to have a distorted understanding of social exchange (O'Boyle et al., 2012), preventing them to engage in helping, compassionate behaviors unless they have a secret agenda, which helps to achieve to their personal targets.

Psychopathy is viewed as the most malicious component of the DT (Rauthmann, 2012). Fundamental elements of the construct are high levels of impulsivity, thrill seeking along with low levels of empathy and anxiety (Hare, 1985; Lilienfeld and Andrews, 1996; Frunham et al., 2013; Paulhus and Williams, 2002). Research indicates that psychopaths tend to lack concern and respect for others, have an exploitative nature (Mealey, 1995) and apathetic to authoritative structures. Constellation of callous and un-emotional traits, psychopathy is likely to lead erratic lifestyle and to display anti-social behaviors which may cause poor exchanges with others (Hare, 2003). On the other hand, psychopaths are asserted to be politically competent who can display strong communication skills when they consider beneficial (Babiak and Hare, 2006).

Love is a concept which is studied widely by artists and scientists for centuries. Especially within the last decades love is been subjected to a large number of research in the field of psychology. After various definitions and distinctions proposed, Lee (1973, 1977, 1988) suggested that love is not a singular concept and there are types of love, emphasizing multidimensionality of it. Lee's typology contains three primary and three secondary love styles. Primary styles are: eros (passionate, romantic love), ludus (game-playing), storge (friendship love) and secondary styles are: mania (possessive, dependent love), pragma (practical love), agape (altruistic love). Eros is manifested in high scores on items like "Our lovemaking is very intense and satisfying" and characterized by physical attraction, intense communication, passion, security and commitment. Ludus is game playing love style which is characterized by lack of commitment, multiple partners, sexuality and lust represented with statements like "I enjoy playing the game of love with a number of different partners". Storge or enduring love style is based on friendship, common interests, mutual trust, similarities and care for each other but not passion or lust. Storge is asserted to flourish slowly and represented with statements like "It is hard to say exactly where friendship ends and love begins". Lee suggested that by aggregation of three primary love styles, three secondary forms emerge. Pragma is combination of storge and ludus which puts features like education, socio-economic status, family etc. of the potential mate in the center. Pragma is

represented with items like "One consideration in choosing a partner is how he/she will reflect on my career". Mania love style is combination of eros and ludus. Mania is represented with statements like "When my lover doesn't pay attention to me, I feel sick all over" and exhibits dependent, jealous, insecure, and obsessive behaviors. Finally, Agape is combination of eros and storge. Agapic love is characterized with forgiving, supporting behaviors, putting loved ones welfare before one's own and represented with items like "I am usually willing to sacrifice my own wishes to let my lover achieve his/hers".

Literature indicates that dark triad is associated with short term, sexuality based relationships driven by physical attractiveness (Campbell and Foster, 2002; Foster, Shrira and Campbell, 2006; Jonason et al.,2009; Li and Kenrick, 2006). Taking features of the triad into account, a number of effects on the relationship between DT and love attitudes are expected. First, ludus is expected to be effected by dark triad considering its characteristics lack of commitment, lust, fun being at the forefront. Pragma is also expected to be effected by dark triad, which focuses on usefulness, benefit and practicality. Agape, mania, storge and eros love styles are not expected to relate with dark triad. On the other hand, existence of gender differences in love attitudes and dark triad is also expected as well.

This research intends to examine effects of dark triad personality traits (Machiavellianism, narcissism, and psychopathy) on the love attitudes. The study is organized as follows, after the introduction, second section presents research methodology and findings, and third section concludes and discusses findings.

In the light of literature presented above, the conceptual model is prepared.

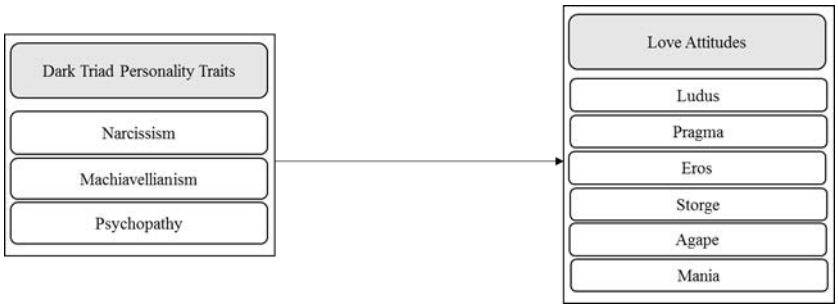


Figure 1: Conceptual Model

H_1: Dark triad personality traits has an effect on ludus love style

H_2: Dark triad personality traits has an effect on pragma love style

H_3: There is difference between male and female love attitudes

H_4: There is difference between male and female dark triad traits

2. METHODOLOGY

Data for this research is collected through questionnaire surveys. Love Attitudes Scale (LAS: Short Form) developed by Hendrick, Dicke and Hendrick (1998) is used to measure love attitudes. LAS measures six love attitudes (eros, mania, pragma, agape, ludus, storge) consisting of twenty four items. In the study, respondents are asked to answer questions such as "I would endure all things for the sake of my lover", "When my lover doesn't pay attention to me, I feel sick all over". The response to each question ranged from "1=Strongly Disagree" to "5=Strongly Agree". Dirty Dozen Dark Triad inventory, developed by Jonason and Webster (2010) is used to measure dark triad personality traits. Participants are asked how much they agreed to such statements as "I tend to want others to admire me", "I have used deceit or lied to get my way". The response to each question ranged from "1=Strongly Disagree" to "5=Strongly Agree".

2.1 Sample

Data is collected from participants from Turkey through an internet survey using convenience method for sampling. Sample is collected via free of charge online survey platform for eight week period

starting from August, 2019. After sorting and removing duplicate submissions, a net sample of 111 usable questionnaires remained.

2.2 Participants

Out of 111 participants examined, 28.83% are answered as male (n=32) and 71.17% are answered as female (n=79) with a mean age of 33.88 and standard deviation of 8.82 years. The education levels of the participants varied from high school to doctorate degree where majority of them (44.14%) reported to have bachelor degree. Demographic profile of sample is presented in Table 1.

Table 1: Demographic Profile of Sample

		Frequency	Percentage
Gender	Female	79	71.17%
	Male	32	28.83%
Marital Status	Married	41	36.94%
	Single	59	53.15%
	Other	11	9.91%
Age	**Mean**	33.88	
	Standard Deviation	8.82	
Education	High School and less	3	2.7%
	College	6	5.41%
	Bachelor	49	44.14%
	Master's	48	43.24%
	PhD	5	4.5%
Income	2,100 TL and less	12	10,81%
	2,101-3,500 TL	18	16,22%
	3,501-5,000 TL	27	24,32%
	5,001-6,500 TL	12	10,81%
	More than 6,500 TL	42	37,84%

2.3. Analysis

2.3.1. Exploratory Factor Analysis

In order to explore the hidden structure of the data set, Exploratory Factor Analysis is performed. EFA results of dark triad personality traits is presented in Table 2. KMO measure of sampling adequacy (0.683) and Bartlett Test of Sphericity (χ^2=221.272, df=28, p=0.000) suggest that the data is appropriate for factor analysis. Principal component analysis with varimax rotation method is used. Factor loadings of each item to the belonging factor should be more than 0.50 (Sharma, 1995). Dark triad personality traits are extracted into three factors with 67.17% explained total variance, each exceeding the threshold of 5% variance explanation level. Machiavellianism, narcissism and psychopathy factors' internal consistency are also checked, which returned Cronbach alpha values of 0.770, 0.610, 0.600 respectively. As measures of each factor are near of or greater than 0.60, all considered as reliable (Hair et al., 2010).

Table 2: EFA Results of Dark Triad Personality Traits

Factor / Item	Factor Loading	Variance (%)	Reliability
Machiavellianism		25.423	0.770
M2	0.812		
M4	0.812		
M1	0.757		
Narcissism		22.587	0.610
N1	0.796		
N2	0.763		
N4	0.667		
Psychopathy		19.161	0.600
P3	0.829		
P2	0.761		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.683
Bartlett's Test of Sphericity		**Approx. Chi-Square**	221.272
		df	28
		Sig.	0.000

Love attitudes, as the dependent variable in the research model is separately examined applying EFA and results are presented in Table 3. KMO measure of sampling adequacy (0.650) and Bartlett Test of Sphericity (χ^2=671.748, df=171, p=0.000) suggest the appropriateness of the data for EFA. Love Attitudes are extracted into six factors with 65.67% explained total variance, each exceeding the threshold of 5% variance explanation level. Internal consistency of each factor are computed as: storge (0.815), pragma (0.725), ludus (0.722), mania (0.681), agape (0.736), eros (0.614), exceeding the minimum requirement and considered as reliable.

Table 3: EFA Results of Power Sources

Factor / Item	Factor Loading	Variance (%)	Reliability
Storge		11.994	0.815
STORGE1	0.891		
STORGE3	0.795		
STORGE2	0.699		
Pragma		11.815	0.725
PRAGMA3	0.777		
PRAGMA2	0.733		
PRAGMA4	0.712		
PRAGMA1	0.675		
Ludus		11.573	0.722
LUDUS1	0.803		
LUDUS3	0.770		
LUDUS4	0.740		
Mania		10.415	0.681
MANIA1	0.781		
MANIA4	0.762		
MANIA2	0.633		
Agape		10.347	0.736
AGAPE1	0.836		
AGAPE3	0.768		
AGAPE2	0.679		
Eros		9.530	0.614
EROS3	0.779		
EROS2	0.720		
EROS4	0.653		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy			0.650
Bartlett's Test of Sphericity		**Approx. Chi-Square**	671.748
		df	171
		Sig.	0.000

2.3.2. Correlation Analysis

Pearson correlations among the factors extracted as the result of EFA is presented in Table 4.

Table 4: Correlations

	1	2	3	4	5	6	7	8
DT_Psychopathy	1							
DT_Narcissism	0.199*	1						
DT_Machiavellianism	0.427**	0.223*	1					
Storge	0.066	0.197*	0.111	1				
Pragma	0.001	0.328**	-0,002	0.265**	1			
Ludus	0.386**	0.213*	0.632**	0.210*	0.088	1		
Mania	0.184	0.326**	0.179	0.170	0.157	0.248**	1	
Agape	0.113	0.170	0.117	0.215*	0.104	0.244**	0.486**	1
Eros	-0,003	0.209*	0.056	0.371**	0.112	0.018	0.150	0.203*

*Note: *Correlations are significant at 0.05 level, ** Correlations are significant at 0.01 level.*

In line with the literature, results showed moderate correlations between Dark Triad constructs. Ludus is found to be the only love attitude which is correlated with all Dark Triad constructs while

narcissism is correlated with all love attitudes except agape. On the other hand, psychopathy and Machiavellianism are found to be correlated with ludus only.

2.3.3. Multiple Regression Analyses

Hypotheses are tested with multiple regression analyses. According to the research model, two separate multiple regression analyses are performed. Table 5 demonstrates the results of analyses.

Table 5: Multiple Regression Analysis Results (Pragma & Ludus)

Dependent Variable	Independent Variables	β	t-value	p-value	VIF
Pragma	Psychopathy	-0.045	-0.445	0.657	1.245
	Narcissism	0.353	3.739	0.000	1.073
	Machiavellianism	-0.077	-0.722	0.472	1.376
	Gender_Dummy	-0.048	-0.493	0.623	1.137
R=0.342	***R^2=0.117***	***Adjusted R^2=0.084***		***F: 3.508***	***p: 0.010***
Ludus	Psychopathy	0.129	1.567	0.120	1.245
	Narcissism	0.067	0.885	0.378	1.073
	Machiavellianism	0.530	6.151	0.000	1.376
	Gender_Dummy	-0.094	-1.197	0.234	1.137
R=0.654	***R^2=0.427***	***Adjusted R^2=0.406***		***F: 19.760***	***p: 0.000***

Multicollinearity assumption of the independent variables is checked by variance inflation factor (VIF). All the VIF values were less than 10 (Durmuş, et al., 2016) suggesting that the correlation among narcissism, psychopathy, Machiavellianism and gender can be tolerated.

Results are indicating that Machiavellianism has a significant and positive effect on ludus (R=0.654; R^2=0.427; F value=19.760; p value=0.000), narcissism has a significant and positive effect on pragma (R=0.342; R^2=0.117; F value=3.508; p value= 0.010). Therefore H_1 and H_2 cannot be rejected.

Although not hypothesized, dark triad's effects on other love attitudes are also tested. Results are indicating that narcissism has a significant and positive effect on mania (R=0.366; R^2=0.134; F value=4.112; p value=0.004), gender and narcissism are founded to have a significant effect on storge (R=0.294; R^2=0.087; F value=2.512; p value=0.046) and agape (R=0.467; R^2=0.218; F value=7.377; p value=0.000) attitudes in which genders (Female) effect is negative. Dark triads effect on Eros is (p=0.248) found insignificant ($p<0.05$).

Table 6: Multiple Regression Analysis Results

Dependent Variable	Independent Variables	β	t-value	p-value	VIF
Storge	Psychopathy	-0.013	-0.122	0.903	1.245
	Narcissism	0.197	2.048	0.043	1.073
	Machiavellianism	-0.003	-0.024	0.981	1.376
	Gender_Dummy	-0.221	-2.234	0.028	1.137
R=0.294	***R^2=0.087***	***Adjusted R^2=0.052***		***F: 2.512***	***p: 0.046***
Mania	Psychopathy	0.089	0.882	0.380	1.245
	Narcissism	0.297	3.175	0.002	1.073
	Machiavellianism	0.040	0.382	0.703	1.376
	Gender_Dummy	-0.102	-1.058	0.292	1.137
R=0.366	***R^2=0.134***	***Adjusted R^2=0.102***		***F: 4.112***	***p: 0.004***
Agape	Psychopathy	0.032	0.335	0.738	1.245
	Narcissism	0.177	1.986	0.049	1.073
	Machiavellianism	-0.089	-0.884	0.379	1.376
	Gender_Dummy	-0.452	-4.932	0.000	1.137
R=0.467	***R^2=0.218***	***Adjusted R^2=0.188***		***F: 7.377***	***p: 0.000***
Eros	Psychopathy	-0.063	-0.593	0.554	1.245
	Narcissism	0.217	2.217	0.029	1.073
	Machiavellianism	0.016	0.144	0.886	1.376
	Gender_Dummy	-0.053	-0.525	0.601	1.137
R=0.222	***R^2=0.049***	***Adjusted R^2=0.013***		***F: 1.373***	***p: 0.248***

2.3.4. Independent Samples T-Tests

In order to test differences between male and female love attitudes and dark triad traits independent samples t-test are conducted.

Table 7: Independent samples t-test (Love Attitudes)

		N	Mean	Std. Deviation	t value	p value
Storge	Female	79	2.966	1.061	-2.366	0.020
	Male	32	3.489	1.040		
Pragma	Female	79	2.563	0.924	-0.198	0.843
	Male	32	2.601	0.913		
Ludus	Female	79	2.194	0.940	-2.916	0.005
	Male	32	2.895	1.222		
Mania	Female	79	2.645	1.014	-1.441	0.153
	Male	32	2.937	0.835		
Agape	Female	79	2.430	0.852	-4.978	0.000
	Male	32	3.302	0.791		
Eros	Female	79	3.392	0.817	-0.524	0.601
	Male	32	3.479	0.713		

Results are indicated statistically significant differences between female and male attitudes of storge, ludus and agape towards love (t(109)= -2.366; p=0.020), (t(46.592)= -2.916; p=0.005), (t(109)= -4.978; p=0.000). For storge μ Female=2.966, sd=1.061; μ Male=3.489, sd=1.040; Ludus μ Female=2.194, sd=0.940; μ Male=2.895, sd=1.222; agape μ Female=2.430, sd=0.852; μ Male=3.302, sd=0.791. On the other hand, no significant differences between female and male attitudes of pragma, mania and eros are found (t(109)= -0.198; p=0.843), (t(109)= -1.441; p=0.153), (t(109)= -0.524; p=0.601). Therefore H_3 cannot be rejected.

Table 8: Independent samples t-test (Dark Triad)

		N	Mean	Std. Deviation	t value	p value
Psychopathy	Female	79	1.898	0.892	-1.963	0.052
	Male	32	2.265	0.888		
Narcissism	Female	79	3.232	0.839	-0.163	0.871
	Male	32	3.260	0.806		
Machiavellianism	Female	79	2.021	0.864	-3.744	0.000
	Male	32	2.750	1.074		

Results are indicated statistically significant difference between female and male on Machiavellianism trait (t(109)= -3.744; p=0.000), μ Female=2.021, sd=0.864; μ Male=2.750, sd=1.074. No significant differences between female and male on psychopathy or narcissism traits (t(109)= -1.963; p=0.052), (t(109)= -0.163; p=0.871) are found. Therefore H_4 cannot be rejected.

3. CONCLUSION

The relationship between aversive, socially undesirable traits composing dark triad and love is drawing attention in psychology literature within the last decades. Previous research suggest that dark triad is positively correlated with a preference for short-term mating and negatively correlated with tendencies towards serious, long-term romantic relationships. On the other hand it is also indicated that dark triad personality is attractive to women as well (Carter, Campbell and Muncer, 2014). Although numerous studies examined relations between age, gender, level of attractiveness, mate selection preferences, short/long term relationship tendencies and dark triad, research specifically focusing on the effects of triad to love attitudes is scarce. Thus, purpose of this research is to examine effects of dark triad personality traits on the love attitudes.

First finding of the study is that analyses showed dark triad constructs narcissism, psychopathy and Machiavellianism are correlated. In line with the literature, correlation found is moderate. Also, results indicated that ludus is correlated positively with all dark triad constructs and narcissism is correlated positively with all love attitudes except agape. Psychopathy and Machiavellianism are found to be correlated with ludus only.

Regarding to the effects of that dark triad constructs on love attitudes, results showed that:

• Narcissism has a significant and positive effect on pragma,

• Machiavellianism has a significant and positive effect on ludus.

Taking correlation and regression analyses results into account, it can be said that dark triad constructs has an effect on pragma and ludus love attitudes. Especially, Machiavellianism's strong effect on ludus (game playing) love attitude worth mentioning due to the high explanatoriness found. Previous research indicates that Machiavellianism is related to promiscuous, sexually coercive behavior (McHoskey, 2001) which can be associated with characteristics of ludus, especially tendencies of having multiple partners, lack of commitment and pursuit for casual sex. Since Machiavellianists are manipulative, unprincipled individuals whom have considerable social skills, they can meet the requirements of game playing love satiably. On the other hand, narcissism is suggested to relate to such characteristics as high infidelity, easy to start new relationships (Campbell, Foster, Finkel, 2002; Bradlee ve Emmons, 1992) as well as attention and admiration seeking, grandiosity, entitlement, superiority which may help to explain the positive effect on pragma love attitude. Since narcissists have a distorted understanding of social exchange, in order to satisfy their needs or to profit, they are asserted to adopt pragmatic love attitude easily.

Another finding of the study is that results indicated statistically significant differences between female and male attitudes of storge, ludus and agape towards love. In line with the previous research, male reported higher on all three attitudes. Gender and narcissism are also found to have a significant effect on storge and agape in which genders (Female) effect is negative. Gender difference is asserted to be common in ludus. On the other hand, since numerous, cross cultural studies suggest that women are more altruistic then men are, findings of agape urges caution for interpretation although it is in line with previous studies (Bugay and Tezer, 2008; Jonason and Kavanagh, 2010; Büyükşahin and Hovardaoğlu, 2004; Bernardes, Mendes, Sarmento, Silva and Moreira, 1999). Based on the findings it can be suggested that men tend to broaden their spectrum of approaches in order to attract women considering and adapting to preferences of them, culture, social structure, norms, values etc.

Literature indicates that male score higher in all dark triad traits as compared to women (Furnham and Trickey, 2011; Jonason et al., 2010; Paulhus & Williams, 2002). In this research, Machiavellianism is the only dark triad trait found which has a statistically significant difference between genders.

Findings aren't showed statistically significant effect of dark triad on eros as expected. Although significant effects of dark triad constructs on ludus and pragma are found in line with the theory, effects of triad on storge, agape and mania love attitudes are unexpected. Constructs relations with friendship, possessive and altruistic love attitudes can be subjected to further studies.

Future studies are suggested to investigate the nature of narcissism, Machiavellianism, psychopathy and eros, ludus, storge, mania, pragma, agape love attitudes with longitudinal, cross cultural research containing larger data to examine subject further.

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