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Dark triad of personality and aggression in adolescents and young people

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ABSTRACT

The present study aims to analyze the relationships between dark triad of personality and aggression in adolescents. Aggression is considered the key factor in the development of criminal behavior, and by deciphering the factors that determine aggression, interventions can be made to prevent and diminish delinquent behavior. In this study, 134 persons between 15 and 28 years old participated, $M = 20.48$, $AS = 2.50$, of whom 34 were males and 79 were females. The instruments used to assess the dark personality traits and aggression were The Aggression Questionnaire, BPAQ ($\alpha = .89$) and Short Dark Triad, SD-3 ($\alpha = .79$). The results showed that boys have higher levels of physical aggression than girls, while girls have higher levels of anger and hostility than boys. In addition, psychopathy was positively associated with physical aggression, verbal aggression, and anger, Machiavellianism was positively associated with hostility, and narcissism was negatively associated with hostility. Age moderates to some extent the relationship between dark personality traits and physical aggression. Practical implications of these results are discussed.

Keywords: *dark triad of personality, aggression, gender, age, infractionality*

1. INTRODUCTION

The deviant behavior of adolescents and young people is a topic of great interest and great social responsibility. Research in this area has the role of clarifying the factors that determine and facilitate the deviant behavior, the factors that maintain this behavior and the factors that contribute to its decrease.

The global cost of infractionality reaches extremely high levels, so it seems much cheaper to prevent such crimes and to invest in policies that prevent the occurrence of

deviant behavior as much as possible. However, the efforts in this direction must be combined, to gather the opinions and actions of the specialists from different fields of the socio-human sciences, to lead to decisions regarding educational policies and the implementation of psycho-educational programs for people at risk of developing deviant behavior.

The determinants of deviant behaviors are various and long studied, and the combination of these has even more adverse effects on the development of children,

adolescents, and young people living in contexts with an increased risk of promoting criminality.

Some of the main causes of deviant behavior are poverty, limited access to education or refusal to access education systems, exposure to adverse events in childhood, inappropriate family environment, inappropriate social relations, social media models, lack of support from specialists. All these elements contribute to the building of an often ill character, prone to reprehensible deeds, difficult to heal in a system itself ill and helpless.

The present study aims to identify the internal factors that can predict any deviant behavior in adolescents and young people. We will thus analyze the predictive role of personality accentuated traits in manifesting aggressive behavior.

Aggression

The results of the longitudinal studies have shown that there are a number of risk factors that can predict the increased likelihood of delinquent behavior (Loeber & Farrington, 2000). These include: favorable attitude towards risk behaviors, low economic-social status, aggression manifested in childhood, affiliation with groups with antisocial tendencies, absenteeism and school failure (Nagin & Tremblay, 2001). The strongest behavioral predictors of crime are aggression and antisocial behavior (Simonoff et al., 2004).

Aggression takes a variety of forms, ranging from verbal and social aggression to physical aggression. Physical aggression includes behaviors that threaten or cause physical injury, such as fights, physical struggles, robbery, rape, homicide (Burke, O'Campo, Peak, & Gielen, 2006). Social aggression encompasses nonviolent forms such as indirect or relational aggression in which behaviors are oriented toward the destruction of social relationships: gossip, social exclusion or alienation of another person, attempt or disruption of a person's social position within a group (Archer & Coyne, 2005).

Valzelli (1981) defined aggression as being that component of normal behavior that is released in certain contexts to meet vital needs and to remove or overcome any threat to physical or psychological integrity. Kornadt (1984), in a cognitive-motivational approach, argues that the reason for aggression is the injury of others or their interests, eliminating the source of frustration, an action that expects positive change of affect.

Feshbach (1992) distinguishes three types of aggression, disregarding unintentional aggression: instrumental, expressive, and hostile. The expressive type refers to an involuntary release of anger that is released in time, having no specific purpose. In this regard, Berkowitz (1989) introduced the term "impulsive aggression" in the case of actions that cause emotional impulses. Hostile aggression is used to harm others, while instrumental

aggression is based on the use of aggressive ways in pursuit of non-aggressive goals. Of all types, instrumental aggression is the only one that has no biological basis. Moreover, Feshbach (1992) divides instrumental aggression into personal and social aggression or prosocial aggression vs. antisocial.

From a sociobiological point of view, two forms of aggression can be distinguished: between different species, not being based on affects, but especially on reaching certain goals, and within the same species, being based more strongly on expressing the emotional load.

The study of human aggression is based on a series of theoretical perspectives that underline a number of aspects, from the biological ones to the social ones (Rodrigues, Assmar, & Jablonski, 2012). These concepts are grouped into three broad explanatory categories: i) aggression associated with human nature - ethologists and psychoanalysts consider the existence of an instinctive aggressiveness that has its roots in innate intimate impulses (Kristensen et al., 2003), ii) aggression as a natural response to frustration, and iii) learned aggressiveness - instrumental and observational aggression (Rodrigues et al., 2012).

At the confluence of these theories is the general model of aggression, model proposed by Anderson and Bushman (2002). This model argues that aggression is based on three structures of knowledge: the perceptual schemata - which is used to identify objects as either simple (everyday objects) or complex (social events); personal schemata - which includes beliefs about a particular person or group of people; the behavioral schemata - which contains information about how people behave in certain circumstances (Cardoso, 2010).

These structures develop as a result of individuals' life experiences and influence their perceptions on several levels, from basic visual patterns to complex behavioral sequences. As they are used, they tend to be automatized because they remain associated with their affective states, guiding individuals' interpretations as well as their responses to environmental stimuli (Anderson & Bushman, 2002). The model focuses on the person in a certain situation, called an episode. Thus, the essential elements of the model are: i) the input of the person - traits, beliefs, attitudes, values, gender, etc. and the input of the situation - frustration, drugs, challenges, media etc.; ii) the cognitive, affective, and activation paths of the current internal states; iii) activation results (immediate or automatic, secondary or controlled), and decision-making processes.

In general, aggressive adolescent behaviors have an upward evolution (Tolan et al., 2000), despite the fact that the trajectories of physical aggression differ from those of social aggression. A number of studies suggest that social aggression extends between 8 and 14 years (Connor, 2002), while physical aggression increases at older ages. By

contrast, other studies show that aggression develops in late adolescence as social skills and awareness of interpersonal relationships develop (Archer & Coyne, 2005).

Gender differences regarding aggressiveness are often mentioned in the literature. Thus, boys exhibit a higher level of physical aggression than girls, while girls show a higher level of social aggression (Farrell et al., 2005; Cairns et al., 1989). A meta-analysis by Crad et al. (2008) in which 148 studies were analyzed, noted that boys are more prone to physical aggression, while gender differences for verbal aggression are insignificant. Similar results were obtained by Bjorkqvist (2010) in a study that showed that there are genetic differences between girls and boys and that the prenatal hormone environment is crucial in the development of aggressive strategies.

Starting from the above ideas, we establish the first hypothesis of the present study: H1. There are gender differences in adolescents' aggression.

H1a. Boys have a higher level of physical aggression than girls.

H1b. Girls have a higher level of verbal aggression than boys.

H1c. Girls have a higher level of hostility than boys.

H1d. Girls have a higher level of anger than boys.

The dark triad of personality and aggression

Of the types of socially aversive personalities listed by Kowalski (2001), narcissism, Machiavellism, and psychopathy, which together form the dark triad, have attracted the most researchers' attention. Paulhus and Williams (2002) proposed the term dark triad to encourage researchers to study the three traits together, because only in this way can the differences between them be clarified.

There are two perspectives on the uniqueness of the dark triad: i) the perspective of unification - which argues that there is a global feature that represents the dark triad, and the components of the triad reflect only nuances of this trait; Jonason and Webster (2010) state that the dark triad is a single latent construct, as a short-term social strategy; ii) the perspective of uniqueness - which considers that each of the three features describes different dimensions (Vernon, Villani, Vickers, & Harris, 2008).

Rauthmann and Kolar (2012) conducted a study that shows that both the perspective of unification and uniqueness can be demonstrated, because psychopathy and Machiavellism are seen as similar, while narcissism is perceived separately from the other two traits, thus considered unique. The arguments for which the participants in this study perceive narcissism as more favorable, more desirable, even more "luminous" than the other two components of the dark triad are supported by a series of attributes that seem to alter the perception of humans, such as increased level of charm (Back et al., 2010), increased awareness and motivation for

learning (Furtner, Rauthmann, & Sachse, 2010) or even physical attraction (Holtzman & Strube, 2010).

Jonason et al. (2010) showed in a study that men who presented at the same time the manipulation and exploitative trait of Machiavellianism, increased levels of impulsivity, cruelty and courage, lack of neuroticism and anxiety - specific features of psychopathy that reduce fear of rejection - and a very good opinion about themselves, characteristic of narcissism, give the impression of charming and confident individuals. As a result of this combination, they are successful in certain social circles, manifest an inclination towards short-term or occasional relationships and may have more sexual partners. The forms of Machiavellianism, narcissism and psychopathy that are on the borderline between normality and pathology are not in a total relationship of interdependence, but only to a certain extent, having in common characteristics such as coldness, egocentrism and manipulation.

Machiavellianism is characterized by cynicism, pragmatism, coldness, immoral thinking and the inclination towards exploitation and deception. Machiavellian people do everything they can to maintain a good reputation. The defining elements of Machiavellianism are the lack of empathy, emotion, and affectivity, as well as strategic planning.

Narcissism has been defined as an ongoing battle between greatness and latent insecurity. According to Morf and Rhodewalt (2001), grandiosity determines narcissists to become permanently involved in actions to reinforce the ego, which leads to self-destructive behaviors. The cognitive processes of the narcissists are characterized by an increased level of self-deception, they are convinced of the things they lie with, while the reality is quite different. There are people who manifest an overestimation of self-image, often accompanied by exaggerated vanity and arrogance. They consider that they are entitled and sometimes even get the position of leaders (Deluga, 1997) or the popularity and success in short-term relationships (Back, Schmuckle, & Egloff, 2010).

Psychopathy has as characteristic elements the lack of affections, manifested by low empathy and hardness of character, the absence of self-control, the search for sensations, but also the lack of anxiety. The individuals are often unscrupulous, irresponsible, manifest lack of fear, calm in difficult situations, self-confidence, concentration, charisma, superficial charm. They are not governed by emotions, they focus on the things they are good at and those that matter, they do things at the right time, without delays, they are very motivated by rewards, and the immense confidence in their own forces makes them not interested in the opinion of others. When they want something, they pursue their purpose and are not afraid of failure, not feeling anxiety like other people. They manifest short-term insensitivity (Visser, Bay, Cook, & Myburgh,

2010), anti-social behaviors and are often involved in physically risky activities. Unlike Machiavellian individuals, psychopaths abandon their family and friends. As little attention is paid to reputation, individuals with this type of personality exhibit destructive behaviors for both themselves and others, such as violence and alcohol use (Neumann & Hare, 2008). The exclusive focus on "here and now" implies a cognitive discipline commonly encountered in psychopaths.

Dark triad in teenagers and young people

The adolescent looks for inspirational models, tries to define his own identity, which does not happen easily, and, for this reason, most often manifests a state of revolt or dissatisfaction. In trying to discover himself, to build his own value system, the teenager envisions life in a critical way, by refusing the principles and values of society, perceiving them as something outdated.

Most of the time, adolescents feel misunderstood by those around them and have a hostile attitude towards adults and parents in particular, are rebel against the prohibitions imposed by them or adopt a model of contestant behavior which leads to emotional imbalances, conduct disorders, deviations of character, impulsive acts, and even aggression.

The refusal of communication, social contact, revolt, can also be considered as aggression. The first signs of such behavior in a teenager are obscene language, inappropriate clothing, running away from school or even from home. Violence and vandalism, the most commonly encountered aggressive behavior among students, are nowadays perceived as normal and functional reactions that express, as the case may be, the need for attention or a protest against measures imposed by parents or teachers (Baron, Branscombe, & Byrne, 2006).

However, not every aggressive act constitutes an antisocial behavior, as no antisocial act implies aggression either. The vast majority of violent actions are determined by biological, psychological, and social factors and involve behavioral patterns acquired through learning.

It is assumed that adolescent psychopathy should manifest the same way as in adults (Forth & Mailloux, 2000). There are numerous research that support the increase of the level of sensation seeking until the end of adolescence, after which, during adulthood, a decline occurs (Giambra, Camp, & Grodsky, 1992). Also, during the transition from adolescence to adulthood, individuals are more able to become aware of the long-term consequences and become more aware of their future.

Youth is the period of maximum vitality in which the self has already established its values and found its identity, which gives the individual self-confidence and force, allows him to manifest freely, without constraints. Now it is full of energy and enthusiasm, eager to create and to be

independent. The young man's need to interact and to communicate especially with those of the same age group compensates for his desire to be original, to get out of the common patterns, which in some cases can lead to deviant behaviors. This period is marked by profound changes, the acquisition of financial autonomy, finding a job, marriage, and possibly the parenthood. With the transition from adolescence to youth, certain variables develop considerably, including impulse control, behavioral control, and decision-making (Arnett & Taber, 1994).

Washburn, McMahon, King, Reinecke, and Silver (2004) support the hypothesis that narcissistic traits are positively associated with self-reported proactive aggression in young people and adolescents. Specifically, exploitation or willingness to manipulate others were positively associated with proactive aggressive behavior. The unprovoked, intentional proactive aggression, focused on exploiting others in order to obtain benefits in favor of oneself and manipulating the social hierarchy can be associated with narcissism and emotional coldness, but also with Machiavellianism.

Aggressive adolescents who have a hostile behavior meant to humiliate others tend to exhibit increased levels of proactive and reactive aggression, so that depending on the situation, those with narcissistic traits may be proactive, but also reactive (Salmivalli & Nieminen, 2002).

The relational aggression involves the use of appropriate social skills for careful planning of the action that aims to harm others, but also their manipulation, which strongly links this type of aggression to Machiavellianism (McIlwain, 2003). Although all four forms of aggression are associated with impulsivity and the tendency to be self-centered, proactive and physical aggression are also associated with emotional cold or lack of emotions. The latter, together with narcissism, independent of Machiavellianism, have the strongest connection with physical aggression (Kerig & Stellwagen, 2009).

According to Jones and Paulhus (2010), psychopathy-specific aggression is dominated by impulsive revenge that occurs in response to a physical challenge, and narcissistic aggression is dominated by an instrumental need to outclass an adversary following an ego threat. A number of studies have shown that narcissistic grandiosity promotes a sense of justification, even aggression if threatened (Jones & Paulhus, 2010).

Frick and Loney (1999) showed that the presence of traits that are supposed to describe concisely the components of the dark triad was a very clear indicator of increased levels of aggression in the first year college students, being another factor related to the deviant behavior.

Of the three dark traits, psychopathy is most often involved in delinquent behavior and indirect aggression associated with intentional, carefully planned revenge

(Baughman et al., 2012), with numerous evidence regarding the link between psychopathy and violence, aggression, crime and recidivism. More and more research is emerging that shows that besides psychopathy, there are other aversive personality traits that are involved in the development of pathological aggression and antisocial behavior among children and adolescents (Frick, 1998).

Muris, Meesters, and Timmermans (2013) demonstrated the existence of a stronger link between Machiavellianism and psychopathy and the signs of aggression and delinquency in adolescents, psychopathy being an extremely relevant indicator for harmful and disruptive behavior in young people.

In contrast to the research conducted by Jones and Paulhus (2010), according to which both psychopathy and narcissism are involved in the occurrence of aggressive behaviors, the study of Pailing, Boon, and Egan (2013)

showed that in the case of predicting violent behavior, psychopathy is the most "dark" trait, followed by Machiavellianism, while narcissism does not exert any influence when other features specific to the triad are present.

The results of Crysel, Crosier, and Webster's (2013) study attest the existence of a statistically significant positive relationship between the dark triad and impulsivity, the search for strong sensations, but also the gambling. Of the three dark traits, narcissism has been shown to have the strongest relationship with the risk behaviors.

Taking into account the above, we establish the second and third hypotheses of the present study:

H2. The dark triad personality traits are positively associated with aggressive behavior.

H3. Age is a moderating factor in the relationships between dark personality traits and aggressive behavior.

2. METHODOLOGY

The present study aims to analyze first and foremost the gender differences between the different types of aggression in adolescents and young people. Secondly, the relationships between personality traits and aggressive behavior were investigated, as well as the role that age plays in this equation.

Participants and procedure

In this study, 134 persons between 15 and 28 years participated, $M = 20.48$, $AS = 2.50$, of which 34 were males and 79 were females. According to their educational level, 17 participants completed secondary school studies, 68 completed high school studies, and 49 completed higher education studies. In terms of socio-economic status, 14 participants stated that they had insufficient incomes for a decent living, 113 stated that they had sufficient incomes for a decent living, while 7 stated that they had high incomes.

The design of the study is nonexperimental, transversal, differential, and correlational. Data collection was carried out online through social media means, the questionnaires being distributed on different social networks. There were no inclusion or exclusion criteria, using the snowball method and a convenience sampling technique.

The data were organized and analyzed using the IBM.SPSS 24 (IBM Corp, 2016) and JAMOVI 9.1 (The jamovi project, 2019).

Instruments

Aggression was measured with *The Aggression Questionnaire, BPAQ* (Buss & Perry, 1992). The instrument was developed by Buss and Perry (1992), being a revised version of the Buss-Durkee Hostility Inventory, BDHI (Buss & Durkee, 1957 and contains 29 items, divided into four subscales: physical aggression, verbal aggression, anger and hostility. The answers are given on a five-step Likert scale, where 1 - not at all like me and 5 - exact like me. The higher the score, the higher the level of aggression. The score is achieved by summing the responses to the items for each scale. Example of item: "I am suspicious towards strangers with exaggerated friendly behavior". In this study, a Cronbach Alpha coefficient $\alpha = .89$ was obtained.

Dark personality traits were measured using *Short Dark Triad, SD-3* (Paulhus & Williams, 2002). The instrument evaluates narcissism, Machiavellism, and psychopathy, contains 27 items, nine for each of the three subscales. The answers are given on a five-step Likert scale, where 1 - strongly disagree, 3 - neither agree nor disagree, 5 - strongly agree. Example of item: "One of the worst things one can do is to hurt a helpless animal". In this study, a Cronbach Alpha coefficient $\alpha = .79$ was obtained.

3. RESULTS

In Table 1 are presented the mean scores, the standard deviations, and the correlation coefficients for the analyzed variables.

Table 1. Means, standard deviations, and correlation coefficients for Dark Triad and Aggression (N = 134)

	M	SD	Ma	Na	Ps	PA	VA	An	Ho
Machiavellianism	27.18	5.80	1						
Narcissism	26.07	5.66	.40**	1					
Psychopathy	18.66	5.52	.58**	.32**	1				
Physical Aggression	16.72	7.16	.45**	.19*	.63**	1			
Verbal Aggression	13.72	3.61	.37**	.22*	.55**	.41**	1		
Anger	17.29	6.44	.31**	.04	.49**	.43**	.63**	1	
Hostility	22.53	6.56	.41**	.01	.27**	.23**	.41**	.51**	1

** . $p < .01$, * . $p < .05$

H1. There are gender differences in adolescents' aggression.

H1a. Boys have a higher level of physical aggression than girls.

H1b. Girls have a higher level of verbal aggression than boys.

H1c. Girls have a higher level of hostility than boys.

H1d. Girls have a higher level of anger than boys.

For testing hypothesis H1 we ran an independent samples t-test analyze.

Table 2. Mean scores and standard deviation for aggression types according to gender

	Gender	N	M	SD	SEM
Physical Aggression	M	44	18.84	6.70	1.01
	F	90	15.68	7.18	.76
Verbal Aggression	M	44	13.45	3.59	.54
	F	90	13.86	3.63	.38
Anger	M	44	15.18	5.86	.88
	F	90	18.32	6.49	.69
Hostility	M	44	20.57	6.11	.92
	F	90	23.49	6.59	.69

Table 3. T-test for aggression types differences according to gender

		F	Sig.	t	df	p	MD	SED	95% CI of the Difference	
									Lower	Upper
Physical Aggression	Equal variances assumed	.08	.78	2.45	132	.02	3.16	1.29	.61	5.72
Anger	Equal variances assumed	1.89	.17	-2.71	132	.01	-3.14	1.16	-5.43	-.85
Hostility	Equal variances assumed	.13	.72	-2.47	132	.02	-2.92	1.18	-5.26	-.58

It is noted that there are statistically significant gender differences in three of the four forms of aggression. Thus, physical aggression is more pronounced in boys than in girls, $M = 18.84$, $SD = 6.70$ compared to $M = 15.68$, $SD = 7.18$, $t(132) = 2.45$, $p = .02$, $d = .46$. Verbal aggression does not register significant gender differences. Anger is more

pronounced in girls than in boys, $M = 18.32$, $SD = 6.48$ compared to $M = 15.18$, $SD = 5.86$, $t(132) = 2.71$, $p = .01$, $d = .51$. Hostility is more pronounced in girls than in boys, $M = 23.49$, $SD = 6.59$ compared to $M = 20.57$, $SD = 6.11$, $t(132) = 2.47$, $p = .02$, $d = .46$.

Given these results, we can say that hypothesis H1 is supported by the data analyzed in the sense that boys have a higher level of physical aggression than girls, whereas girls have higher levels of anger and hostility than boys.

H2. The dark triad personality traits are positively associated with aggressive behavior.

To test this hypothesis, we ran a series of multiple linear regression analyzes.

Table 4. *Regression equation for dark triad of personality predicting physical aggression*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.17	2.72		-.06	.95
	Machiavellianism	.17	.11	.14	1.64	.10
	Narcissism	-.06	.09	-.05	-.63	.53
	Psychopathy	.73	.11	.57	6.83	.00

a. Dependent Variable: Physical aggression

b. $R^2 = .41$

The three dark personality traits account for 41% of the variance of physical aggression, the regression equation being statistically significant, $F(3,130) = 30.42$, $p < .01$. Of

these, only psychopathy is positively associated with physical aggression, $\beta = .57$, $p < .01$.

Table 5. *Regression equation for dark triad of personality predicting verbal aggression*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.92	1.49		3.98	.00
	Machiavellianism	.04	.06	.06	.60	.55
	Narcissism	.02	.05	.04	.48	.63
	Psychopathy	.33	.06	.51	5.69	.00

a. Dependent Variable: Verbal aggression

b. $R^2 = .31$

The three dark personality traits account for 31% of the variance of verbal aggression, the regression equation being statistically significant, $F(3,130) = 19.62$, $p < .01$. Of these,

only psychopathy is positively associated with verbal aggression, $\beta = .51$, $p < .01$.

Table 6. *Regression equation for dark triad of personality predicting anger*

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8.28	2.76		3.01	.00
	Machiavellianism	.11	.11	.09	1.01	.32
	Narcissism	-.17	.09	-.15	-1.76	.08
	Psychopathy	.56	.11	.48	5.14	.00

a. Dependent Variable: Anger

b. $R^2 = .26$

The three dark personality traits account for 26% of the variance of anger, the regression equation being statistically significant, $F(3,130) = 15.02$, $p < .01$. Of these, only

psychopathy is positively associated with anger, $\beta = .48$, $p < .01$.

Table 7. Regression equation for dark triad of personality predicting hostility

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	13.14	2.90		4.53	.00
	Machiavellianism	.52	.11	.46	4.58	.00
	Narcissism	-.24	.10	-.20	-2.38	.02
	Psychopathy	.08	.11	.07	.72	.47

a. Dependent Variable: Hostility

b. $R^2 = .21$

The three dark personality traits account for 21% of the variance of hostility, the regression equation being statistically significant, $F(3,130) = 11.34$, $p < .01$. Of these, only Machiavellianism is positively associated with hostility, $\beta = .46$, $p < .01$ and narcissism is negatively associated with hostility, $\beta = -.20$, $p < .05$.

Considering the results obtained, we can say that hypothesis H2 is supported by the analyzed data, in the sense that psychopathy is positively associated with

physical aggression, verbal aggression, and anger, and Machiavellianism is positively associated with hostility and narcissism is negatively associated with hostility.

H3. Age is a moderating factor in the relationships between dark personality traits and aggressive behavior.

To test this hypothesis, a series of moderation analyzes were performed. Their results are presented in Table 8.

Table 8. Moderation estimates for age in relationship between dark triad of personality and aggression

Predictor * Moderator	Dependent variable	Estimate	SE	95% CI		Z	p
				Lower	Upper		
Psychopathy * Age	Physical Aggression	.03	.05	-.06	.11	.62	.53
Psychopathy * Age	Verbal Aggression	-.01	.02	-.05	.04	-.23	.82
Psychopathy * Age	Anger	.01	.04	-.08	.09	.09	.93
Psychopathy * Age	Hostility	-.07	.05	-.17	.03	-1.41	.16
Narcissism * Age	Physical Aggression	.12	.05	.02	.22	2.38	.02
Narcissism * Age	Verbal Aggression	.03	.03	-.02	.08	1.25	.21
Narcissism * Age	Anger	.02	.05	-.07	.11	.43	.67
Narcissism * Age	Hostility	.01	.05	-.08	.10	.23	.82
Machiavellianism * Age	Physical Aggression	-.12	.05	-.20	-.03	-2.52	.01
Machiavellianism * Age	Verbal Aggression	-.03	.02	-.08	.02	-1.33	.18
Machiavellianism * Age	Anger	-.06	.04	-.14	.03	-1.30	.19
Machiavellianism * Age	Hostility	-.08	.04	-.16	.01	-1.87	.06

It is observed that age moderates the relationship between narcissism and physical aggression, $b = .12$, $p = .02$, as well

as the relationship between Machiavellianism and physical aggression, $b = -.12$, $p = .01$.

Table 9. Moderation estimates for different values of age in relationship between narcissism and physical aggression

	Estimate	SE	95% CI		Z	p
			Lower	Upper		
Average	0.3112	0.111	0.0934	0.529	2.801	0.005
Low (-1SD)	0.0152	0.147	-0.2726	0.303	0.104	0.917
High (+1SD)	0.6071	0.187	0.2413	0.973	3.253	0.001

Table 10. *Moderation estimates for different values of age in relationship between Machiavellianism and physical aggression*

	Estimate	SE	95% CI		Z	p
			Lower	Upper		
Average	0.582	0.0960	0.3939	0.770	6.06	< .001
Low (-1SD)	0.868	0.1551	0.5638	1.172	5.59	< .001
High (+1SD)	0.296	0.1441	0.0139	0.579	2.06	0.040

Age partially moderates the relationship between narcissism and physical aggression, so that at a lower age (under 18 years) there is no effect on this relationship, but at a higher age (over 23 years) narcissism has an increasing effect on physical aggression. Age moderates the relationship between Machiavellianism and physical aggression, so that at a lower age (under 18 years) the effect

of Machiavellianism on physical aggression is stronger, while at a higher age (over 23 years) the effect of Machiavellianism on physical aggression is weaker.

So we can say that age moderates to a certain extent the relationship between dark triad of personality and physical aggression.

4. DISCUSSION

The first hypothesis of the present study showed that boys have a higher level of physical aggression, which is in agreement with most studies conducted on this topic. Verbal aggression was found to be relatively equal in both boys and girls, while anger and hostility were found to be higher among girls.

Björkqvist (2018) has once again shown that there are indeed gender differences in the different forms of aggression. Thus, as a whole, boys are more aggressive than girls, but the level of direct aggression is higher in boys, and the level of indirect aggression is higher in girls.

Knight et al. (2002), in a meta-analysis, put gender differences on aggression into account of the differences in regulation of activation generated by emotional contexts. The authors started from the hypothesis that men are more easily activated by emotional stimuli with aggressive potential and have greater difficulties in emotional regulation than women. The results of the study showed that in emotional contexts with high degree of activation of aggression, gender differences are relatively low, whereas in emotional contexts with low or medium level of activation of aggression, gender differences are high, in favor of men.

The second hypothesis of the study showed that the dark personality traits are predictors of aggression. Our results underlined the role of psychopathy in manifesting physical aggression, verbal aggression and anger. In terms of hostility, Machiavellianism has an increasing role, while narcissism has a diminishing role.

These results show that adolescents who express the pleasure of doing harm and who lack empathy, are more prone to physical and verbal aggression and have a lower level of self-control when they have to regulate their behaviors and emotions, manifesting higher levels of anger. The desire for manipulation and control, specific to

Machiavellianism, leads to a high level of hostility and ignorance of the consequences of one's own actions.

Adolescents with a high level of psychopathy feel the need to be appreciated, praised, and when all these do not happen, compulsive, uncontrollable behavior manifests due to the need to control others and therefore they could manifest physically and verbally aggression.

Increased impulsivity is specific to adolescents with high psychopathy scores, their inability to control their impulses predisposes to verbal aggression, emotionally affecting others. Most of the time, a word, a lie, the gossip causes more pain to a person than the physical manifestation of aggression would.

Verbal aggression can be considered as dangerous as the other forms of aggression, since through words the aggressor often intends to degrade the image of the victim, affecting his or her dignity, self-confidence, even changing his or her social and moral relationships according to the aggressor's desire. Verbal aggression is thus more treacherous than physical aggression, being able to produce emotional wounds, which can affect the individual to a greater extent and can last for a much longer period.

Narcissism leads to diminished hostility and because narcissistic teenagers prefer to maintain an image of superiority over others, of nice and charming people who can dominate the relationships through their own charisma. Thus, the behavior of the narcissists becomes explicable, as long as their ego is not endangered.

Brankley and Rule (2014) state that Machiavellian individuals tend to see those around them as unkind and aggressive. This is probably due to a lack of trust in others, the Machiavellians resorting to their own strategies to reach their goals. In the case of these adolescents, the hostility is hidden, they are wearing a sociable and benevolent mask

for instrumental purposes, typical of detached strategies, which they manipulate with the aim of a long-term objective. Therefore, duplicity implies a chameleon like social behavior, adaptable according to those around (Rauthmann, 2011), hiding underneath a hostile personality.

The explanation for the predictive role of Machiavellism for hostility could be the negative view of Machiavellians towards the world as a whole and towards others, which is a possible source of hostility (Hegelson & Fritz, 1999).

Riaz et al. (2018) conducted a study in which they analyzed the role of dark triad traits on adolescent aggression, noting that all three accentuated personality traits predict relational aggression.

The results obtained by us are similar to those obtained by Jones & Neria (2015), respectively, psychopathy is positively associated with physical aggression, Machiavellianism is positively associated with hostility, and narcissism is negatively associated with hostility.

The third hypothesis of our study showed that age can be a moderating factor in the relationship between dark triad and aggression. Age does not moderate the relationship between psychopathy and aggression, but it has effects on the relationship between narcissism and physical aggression, as well as on the relationship between Machiavellianism and physical aggression. Thus, in adolescents under 18 years age has no effect on the relationship between narcissism and aggression, but in those over 23 years the age leads to an accentuation of the effects of narcissism on physical aggression. At the same time, Machiavellianism manifested under the age of 18 leads to a higher level of physical aggression, while after 23 years its effect diminishes.

In the present study, psychopathy was found not to be influenced by age, which underlines its constant nature throughout adolescence. Ages under 18 do not influence the role of narcissism on physical aggression, but with the passage of time, at least during adolescence, narcissism leads to an increase in physical aggression. This fact can be accounted for by the life experience, adolescents over 18 and young people participating in more and more complex life contexts in which their ego can be easily endangered. Exiting the family environment and gaining financial autonomy (or just not acquiring it), expose the adolescent to a series of situations in which their self-control capacity is tested. Decreasing the intensity of support from the family can cause stressful situations in which the adolescent, especially the narcissistic one, feels helpless and insufficiently valued by those around him. Once the integrity of his image is affected, he will likely tend to manifest himself even through aggressive acts.

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In the opposite direction, Machiavellianism at younger ages, has stronger effects on aggression by increasing it. As the teenager grows older, the Machiavellian traits are refined, the manipulation skills improve, so aggression does not become as necessary as before.

In a study on age differences in dark triad personality traits, Kawamoto et al. (2019) found that there are negative correlations between age and personality-accentuated traits, with the exception of narcissism. At the same time, the authors observed that as they grow older, women experience a decrease in their three dark personality traits.

Barlett and Barlett (2015) noted that older people have lower scores on all three traits of the dark triad.

Limitations and future directions

One of the main limitations of this research is the application of self-reported questionnaires. Particularly in terms of aggression, participants may under- or over-evaluate their level of aggression. A future direction of research would be a 360 degrees assessment, so that, in addition to self-assessment, each participant will be evaluated by friends, colleagues, parents, teachers or other close persons.

The cross-sectional design of the study represents another limitation because causality can only be demonstrated by longitudinal analysis. One of our long-term goals is to carry out a further measurement of aggression among the participants (between 15 – 18 years old) in the present study.

A third limitation identified refers to the small number of participants and to the predominantly female composition of the sample. In our next steps we will consider attracting more male participants, but also increasing the research group.

Practical implications

The present study is a pilot study that will be the basis for a broader investigation into the causes of criminal behavior. If the personality traits of the dark triad contribute to the manifestation of aggressive acts among adolescents, the early detection of the cases that have the potential to enter the infractionality sphere is welcome because psycho-educational programs can be implemented in schools and in the rehabilitation centers for increasing the awareness of the effects of the aggressive acts on the others, but also on the trajectory of one's life. Also, measures to combat aggression or reduce it can be preventively implemented before adolescents become delinquents.

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