

Relationship of Tetrad Dark Personality Traits and Delinquent Behavior among Adolescents: Moderating Role of Social Support

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Abstract:

The current research studies the relationship between Dark Tetrad personality dimensions: Machiavellianism, narcissism, psychopathy, sadism, and delinquency in adolescence while considering the role of social support as the moderator. For this study the cross-sectional research design was used and the sample included 300 adolescents comprising 150 males and 150 females in the age group of 10 to 19 years randomly selected from twin cities of Islamabad and Rawalpindi. The data were collected using the Short Dark Tetrad (SD4) self-reported delinquency – Problem Behavior Frequency Scale and Child and Adolescent Social Support Scale (CASSS). The analyses conducted found positive and significant correlations between the dark personality traits and the delinquent behaviors with each of the dark personality traits being positively correlated with the manifests of delinquent behaviour. Furthermore, the study revealed that social support acted as a moderator that could help decrease the delinquency rate among the adolescents who possess a high level of dark personality traits. These imply that dark personality facets and insufficient social support should be targeted to reduce delinquency among adolescents. The results imply that any prevention or treatment programs targeted at decreasing delinquency must take into account the presence of dark personality features in adolescents, especially through modulating the perceived usefulness of social support. The insights from the research can be quite useful for schools, families, and community-oriented programs to design effective interventions not only to address behavior management but also to address the potentially detrimental effects associated with these personality traits.

Keywords: Delinquency, Sadism, Psychopathy, Machiavellianism, Narcissism, Social Support, Adolescence, Pakistan

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Introduction:

A wide range of risk factors have been linked to delinquent behaviour in teenagers (Segeren et al., 2020). Several personality traits have been linked to juvenile delinquency (Greelings et al., 2020). The current study examined the role of socially aversive tetrad dark personality traits: psychopathic, narcissistic, Machiavellian, and sadistic tendencies. Prior studies have made a reasonable contribution towards explaining the association between the dark personality and delinquency, while the moderating effect of social support has not been researched extensively. As for social support, it is normally defined as assistance and available

resources that a person can rely on within his or her social environment; it is considered an important factor that helps to determine people's emotional and behavioral reactions to various types of life stress stimuli (Bavik et al., 2020; Tsoy et al., 2021). Similar to self-esteem, that can significantly predict behavioral outcomes, social support is likely to be critical in mediating the effects of dark personality traits on delinquency. One can assume that people with low social support are at higher risk of developing negative behavioral effects of these traits, while those with social support may adapt or moderate their levels of stress and antisocial behavior (Fang et al., 2022). This implies that while lack of or high levels of social support may compound or reduce the influence of dark personality traits on delinquency. The Dark Triad is a set of three personality variables that are considered undesirable in social settings, namely, Machiavellianism, narcissism, and psychopathy, and were first introduced to psychology over two decades ago (Aluja et al., 2022). All of these traits are related to the lack of empathy, dishonesty, and complete disregard for the suffering of others. Seven years after the Dark Triad was established, the concept of sadism was introduced, creating the Dark Tetrad, which enhanced the understanding of the dark personality attributes (Furnham & Horne, 2021). The primary dimension that connects all four factors within the Dark Tetrad is callousness; a lack of affective empathy leading to a lack of emotional concern to harm others (Dinić et al., 2020). This absence of empathy enables Dark Tetrad personalities to engage in prejudicial and abusive acts without the usual guilt feelings or remorse. When it comes to the Dark Tetrad, each of the four personality traits is characterized by specific features and behavior. For example, Machiavellianism is a personality that can be described by having a manipulative and cynical attitude where people care about no one but themselves and will do anything to achieve their objectives (Edit, 2020). This trait refers to the manipulation of situations and other people while disregarding principles and standards. Machiavellian has been found to be practical and unemotional and tend to use other people in social interactions for personal gains. Narcissism, on the other hand, involves high self-esteem, exaggerated estimation of one's capabilities, and expectation of preferential treatment (Cain, 2020). Given that narcissism encompasses several dimensions, the Dark Triad and Dark Tetrad studies seem to be largely concerned with grandiose narcissism, which is characterized by an inflated self-esteem. Narcissists have a compulsive need for appreciation and they tend to think that they are entitled to special treatment. In high self-esteem, a narcissist may use people or discard them as they try to retain the high-ranking position of themselves within the community. Among the Dark Tetrad traits, the most well-known is psychopathy – a personality disorder that manifests as a lack of empathy, guilt, or remorse, as well as impulsivity and pro-antisocial behavior (De Brito et al., 2021). Psychopaths are usually amiable personalities and can easily con persons due to their lack of conscience and little respect for other people's right or the law. They are prone to committing actions that are adversative to other people such as being aggressive, lying, and disobeying rules and regulation, and they do not feel bad doing all these to others. Psychopathy has been more researched concerning its connection with criminal conduct, and the research conducts carried out are conclusive that psychopathy leads to violent offenses or criminal recidivism, delinquency, and among other offenses. Sadism, the most recent addition to the Dark Tetrad, constitutes a unique type of evil personality, where having joy in inflicting pain on others is seen as pleasurable (Pfатtheicher et al., 2021). People with sadistic personality have their needs to dominate others by hurting them in different ways. While, for instance, psychopathy may entail the use of aggression in a utilitarian kind of manner in order to get what one wants, then sadism is about the pleasure in

causing suffering. This trait is more perilous given that an individual with sadistic tendencies will hurt or abuse another person without any prior aggression. Psychopathologists also confirm that there is a strong relationship between sadism, on the one hand, and interpersonal aggression and antisocial behavior, on the other, and thus being the actual predictor of criminal and deviant conduct. In other words, the Dark Tetrad traits are significantly associated with maladjustment, negative interpersonal, and social outcomes. People possessing such characteristics struggle with relationship issues since their inability to comprehend other people's emotions makes them toxic employees or partners who abuse and deceive others at work and in daily life (Coleman, 2021). However, these traits are known to predict criminal activities such as violent, fraud, and theft from the society. For instance, the meta-analytic investigation proved that the Dark Triad personality feature named psychopathy is the most connected with violent behaviors, delinquency, and other kinds of antisocial activity intents (Muris et al., 2020). Specifically, psychopathy and criminality are connected since impulsivity, lack of empathy, and callousness are key aspects of psychopathy known to predict criminal behaviors, especially in situations where people can engage in criminal opportunities to defraud or harm others.

Despite getting rise in interest in recent years, little research has been done on sadism as a dark personality trait and it is emerging from studies that it along with psychopathy, predict antisocial behavior. For instance, researchers have established that there is a correlation between sadism and aggression, psychopathy and vandalism, and other attitudes to deviance among the students (Chabrol et al., 2020; Pfattheicher et al., 2021). Although it was added at a later stage within the Dark Tetrad, sadism is emerging to be a very important facet in the study of the antisocial and criminal behaviors linked to the dark personality traits. Based on these outcomes, the role of social support as a potential mediator is of special interest. To an extent, this means that if social support can negate or lessen the negative effects of dark personality traits, then it may well be a way of giving an individual a second chance, and so prevent them from engaging in delinquency and like behaviours. More research needs to be conducted in order to better understand these findings and evaluate how various types of social support can impact the manifestation and effects of dark traits. With proper knowledge of the relationship between social support and dark personality traits, it is easy to address the effects n each of the personality traits and reduce how they affect persons and the public.

Problem Statement

Delinquency among adolescents is a complicated and alarming problem which deserves intensive research aimed at acquiring a better understanding of the factors that underlie it. This study investigates the reciprocal relationship between the dark personality traits (narcissism, Machiavellianism, psychopathy, and sadism) and social support as the possible factors to influence adolescent delinquency. The previous studies have already established the correlation between dark personality traits and various forms of delinquent and risky behaviour ((Kazdin, 1992, Loeber et al., 2000). For example, a person with high narcissism could display a sense of entitlement causing rule-breaking, and those with psychopathy could display impulsivity and aggression. The objective of this research is to unravel distinct contributions of the traits to delinquent behaviour that could help in focusing on specific risk factors which form the basis for implementing targeted interventions. This study recognizes not only individual attributes but also the critical role of social support in countering negative impacts and promoting prosocial

behaviour. Studying the way social support from family, friends or community networks acts as a moderator between dark personality traits and delinquency helps in identifying the protective factors. Analysing the interaction of these factors can provide more complete explanation of adolescent deviancy that can be used to revise existing theories. The existing models of delinquency might accommodate interactions between personality and social context for a more complex comprehension. By exploring the concrete mechanisms linking these variables, it helps identify other potential areas of investigation and refine our understanding about the nature of this phenomenon. Adolescence is the target age of this research, being a critical developmental stage when delinquency normally starts. The susceptibility to behaviour during this developmental phase offers great opportunities for prevention and intervention measures. The impact of this research goes beyond immediate interventions. Through the process of specifying the personality-environment interactions, we will enhance our abilities to predict risks for individual adolescents. We should be able to prevent any detrimental behaviours before they occur. Furthermore, identifying the true causes of delinquency can give rise to preventative methods that address both individual traits and wider social settings and in doing so, help create healthier and safer communities. This research is quite important in the Pakistani context given that juvenile delinquency has become a major concern for our society due to the serious challenges that are expected to be faced in this country in the long term. The past research has mainly focused on extrinsic factors such as socioeconomic and educational attainment, while darker personality traits and their role in juvenile behaviour have been less well studied. This study is also significant in the field of clinical psychology as it seeks to identify the psychological mechanisms underlying the juvenile delinquency. By examining the role of social support as a moderator, the current research will contribute to the development of universal interventions (interventions) that target individual personality variables and environmental factors. Future psychologists can use these results to gain insights into the dynamics of personality, social support, and delinquency. This research will guide them in the development of culturally appropriate treatment strategies and prevention strategies. Regarding the social aspect, the study considers the unique structure of social structures in Pakistan, based primarily on family and community relations. The study also focuses on the cultural factors considered so that it can provide insights towards adolescence violence in Pakistani context.

Theoretical Framework

The Tetrad Dark Personality Traits Model (Paulhus & Williams, 2002), which organizes dark personality traits of Machiavellianism, narcissism, psychopathy, and everyday sadism around four characteristic behaviours of manipulation, grandiosity, lack of empathy, and sadistic pleasure. Such personality traits may make individuals vulnerable to delinquent behaviour as these traits affect them in terms of their attitude, beliefs and actions. As an example, narcissistic individuals with a high level of narcissism may indulge in criminal acts to exhibit their power or get recognition while those with a high level of psychopathy may lack empathy and act impulsively and antisocially. The present study aims at measuring the influence of these traits on conduct disorder among nonclinical population. It is necessary to comprehend Tetrad dark personality traits in delinquent behaviours in such a way that individuals who need help can be identified, and their intervention can be formulated to prevent antisocial behaviours. The Social Support Theory (Vaux, 1988) stresses the significance of interpersonal relationships and social support networks in providing individuals protection during stressful life circumstances or

adverse events. An adequate social support constitutes emotional, informational, and instrumental assistance which helps to diminish the effect of risk factors over problematic behavior. Social support is a crucial moderating factor in the context of current research that lessens the effect of Tetrad dark personality traits on adolescent delinquent behavior. Adolescents who have strong social support are not as likely to be involved in delinquency, even if they have maladaptive personality traits because they have invested in supportive relationships and coping resources. As the moderating role of social support is discussed, the significance of relationships in reducing the impact of Tetrad dark personality traits on the delinquency is noted. Learning how social support works as a protective factor can transfer into interventions that encourage positive youth development and reduce delinquency

Analysis of the Past Literature:

Criminal conduct involves negative and unlawful actions that are opposed to prevailing cultural, legal or other rules and ethos, such as theft, graffiti, and violence (Hoeben et al., 2021). While delinquency is often related only to adolescents, it can involve other age categories as well. The occasional act of becoming a delinquent is usual during adolescence, but continued runs can lead to conduct disorder, where there is a violation of other's rights and societal rules (Richards & Keatley, 2022; Psychiatric Association, 2023). There is a correlation between personalities and delinquency. Jennings et al., (2012) note that narcissistic personality disorder which includes grandiosity and low empathy, is positively correlated with youthful aggression as well as delinquency. Lambe et al. observed that adolescents possess narcissistic traits giving them to be aggressive and exploiting their partners. Juvenile delinquency also relates to Machiavellian personalities which include manipulative and strategizing personality hence the cold personality (Pandey, 2022; Krieg, 2022). Criminal psychopathy that entails traits such as being callous, lacking in remorse and having spite is associated with higher levels of delinquency, particularly in aggressive conduct (Frick et al., 2015; Patterson et al., 2017). For psychopathic adolescents, there are approach behavior and utilitarian approach behaviour, yet under the presence of negative stimuli, there is show of aggression (Foster et al., 2018). There have also been indications of sadistic temperament being an explanation for delinquency, among male youths who might direct their impulsiveness and aggression toward being delinquent (Baert et al., 2020). Nonetheless, it is acknowledged that research on this topic which correlates sadistic traits and delinquency among female children is scanty. Social context and support matter because people in adolescents' lives can affect their emotional and behavioral functioning (Buehler, 2020; Bavik et al., 2020).

Conceptual Framework

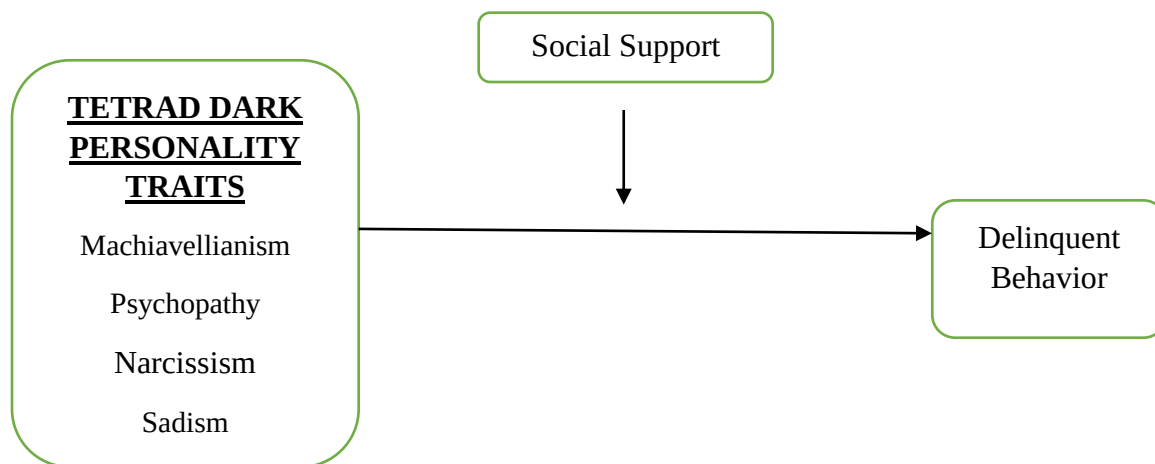


Figure 1. Figure of social support functioning as a moderator between Dark personality traits and delinquent behaviour.

Methodology:

Research Design and Approach

The study employed a correlational research design, which is a type of quantitative research approach. The study investigated the potential relationship between Tetrad Dark Personality Traits, Delinquent Behaviour Among Adolescents and Social Support using a correlational research methodology. Correlational research aids in predicting and understanding the link between variables (Comiskey, 2015).

Sampling Size and Technique

The sample size was determined by using G-Power software for quantitative data collection. The convenient sampling technique is used in collecting data from adolescents of college. The study was conducted on a sample of 300 adolescents, including 150 male and 150 female participants, all aged between 10 and 19 years. Data was collected from two public and two private colleges in the twin cities of Islamabad and Rawalpindi. The adolescents were from lower, middle, and upper class. Adolescents who have completed their college education i.e., intermediate or above intermediate level were excluded. Adolescents with any physical disability and psychological problem were excluded. 3.5.1 Written consent was obtained from all the participants willing to participate in the study. Informed consent sheet will be utilized for this purpose. The demographics sheet was used to obtain basic socio-demographic information like age, gender, qualification, occupation, socioeconomic status, family system, no. of siblings, birth order, earning members and head of the family.

Instruments for Data Collection**The Short Dark Tetrad (SD4)**

The Short Dark Tetrad (SD4) was created as a concise assessment of the Dark Tetrad, which includes narcissism, Machiavellianism, psychopathy, and sadism. The scale consists of 28 elements. Using a 5-point Likert scale (0 = strongly disagree, 5 = strongly agree), with four subscales: clever, special, wild, and mean. Items may be administered with or without subheadings. The alpha value of the scale is 0.79 (John & Paulhus, 2021).

Self-Reported Delinquency—Problem Behaviour Frequency Scale

Self-Reported Delinquency: Problem Behaviour Frequency The scale is a measure of adolescent problem conduct. It is a self-report tool for determining the frequency of problem behaviours such as physical aggressiveness, rule-breaking, and substance usage. The scale consists of 36 items, each scored on a five-point scale ranging from never to very often. The scale was broken into five subscales: physical aggressiveness, rule violation, substance misuse, sexual conduct, and property destruction. The point values for all responses are added. High scores suggest increased rates of delinquency. The alpha value of the scale is 0.78 (Thornberry et al., 2003). Never = 1; 1-2 times = 2; 3-5 times = 3; 6-9 times = 4; 10-19 times = 5; 20+ times = 6.

The Child and Adolescent Social Support Scale

Adolescents in grades 3 through 12 use a thorough self-report questionnaire called the Child and Adolescent Social Support Scale (CASSS) to assess how much social support they believe they receive from various sources (Malecki et al. 2000). The CASSS includes 60 items organised into five subscales, each with 12 items related to instrumental, emotional, informational, and assessment support. Participants rate the frequency of perceived assistance on a 6-point Likert scale (never to often), and its value on a 3-point Likert scale. The frequency ratings for each subscale are added to get a frequency total score for each of the five subscales. These five subscale scores can then be added to result in an overall total social support score. Likewise, importance ratings are summed for each subscale and then the five importance subscale scores are summed for a total importance scale.

PROCEDURE

The current study was done on a representative sample of (N= 300). Adolescents, including males (n=150) and females (n= 150) having age 10 to 19 years were considered in the study. Education of respondents was less than intermediate. The study was carried out in single phase. The inclusion and exclusion criteria was applied. The participants were given the questionnaire, including informed consent, demographic sheet and the relevant scales. SD4 (Short Dark Tetrad) scale was used to measure dark personality traits like narcissism, Machiavellianism, psychopathy, and sadism. The frequency of problems such as physical aggression, rule violation, and substance use were measured using Self-Reported Delinquency—Problem Behaviour Frequency Scale. Besides, the Child and Adolescence Social Support Scale was employed to obtain the information on participants' perceptions of social support offered to them. Data obtained was entered into a secure data management system SPSS version 25, and data accuracy was assured through double-checking and data cleaning. Descriptive statistics was

employed to summarize demographic information and depict the sample. Correlation and Regression analysis were used to determine the association between the dark personality traits and delinquent behaviour, in addition to moderation analysis intended to explore the moderating effect of social support in the relationship between the dark personality traits and delinquent behaviour. The statistical analysis and interpretation of the results was done and a report was prepared that discusses the correlation of dark personality traits, delinquent behaviour, and the moderating role of social support.

Results and Interpretation:

Table 1. Descriptive Statistics of Demographic Variables of the Data Set

Variables	<i>F</i>	%	<i>M</i>	<i>SD</i>
Age	300	100	15	3.0
Gender				
Male	150	50		
Female	150	50		
Education				
Primary	38	13		
Secondary	152	51		
High School	110	37		
Socioeconomic Status				
Upper	44	15		
Middle	212	71		
Lower	44	15		
Family Structure				
Nuclear	221	74		
Joint	79	26		
Birth Order				

1 st Born	74	25
Middle Born	124	41
Last Born	58	19
Only Child	44	15
Head of Family		
Father	180	60
Mother	66	22
Both	42	14
Grand Parents	12	4

Note. No of participant (N) =300, *f*=Frequency; %=Percentage, *M*=Mean, *SD*=Standard Deviation

Table 1 presents the descriptive statistics of the demographic variables in the dataset. The data was collected from 300 participants, with an equal gender distribution of 150 males and 150 females. The average age of the participants is 15 years, indicating that the majority are mid-teenagers, although there is some variation in age across the sample. Most respondents have completed their secondary education, with only a few having completed only primary education. Regarding socioeconomic status, the data shows that most participants belong to the middle socioeconomic group and are from nuclear families, with a smaller number coming from joint family systems. Additionally, the majority of the participants are middle-born children, with only a few being the only child in their family. Furthermore, it was found that, in most cases, the father is the head of the family.

Table 2. *Correlation for Dark Personality Traits, Delinquent Behaviour, and Social Support Variables*

Variables	1	2	3	4	5	6	7
Dark Personality Traits	—						
Machiavellianism	.963**	—					
Narcissism	.957**	.942**	—				
Psychopathy	.966**	.889**	.877**	—			
Sadism	.957**	.869**	.858**	.950**	—		

Delinquent Behaviour	.138*	.149**	.150**	.116*	.115*	—
Social Support	-.021	-.041	-.032	-.007	-.001	-.057

Note. N=no of responses= 300; * $p < .05$. ** $p < .01$

Table 2 presents the correlation statistics, revealing strong and significant positive correlations between the Short Dark Tetrad Scale (SD4) and individual dark personality traits. This indicates that higher scores on the Short Dark Tetrad Scale are associated with more pronounced dark personality traits in individuals. The significant correlations, with p-values less than 0.01, suggest a close relationship between these traits and a potential for their co-occurrence. The Short Dark Tetrad Scale score serves as a composite measure of these dark traits, highlighting their interconnections. Machiavellianism shows a significantly positive correlation with Narcissism (0.942**), Psychopathy (0.889*), and Sadism (0.869**), suggesting that individuals high in Machiavellianism are also likely to exhibit traits of Narcissism, Psychopathy, and Sadism. Additionally, the correlation data indicates a positive relationship between Narcissism and Psychopathy (0.877**) as well as with Sadism (0.858**), implying that a person with Narcissistic traits is also likely to display Sadistic and Psychopathic tendencies. The Pearson correlation coefficient for the relationship between Sadism and Psychopathy is 0.950**, indicating a strong and significant positive correlation. This suggests that individuals with pronounced Psychopathic traits are also likely to exhibit Sadistic tendencies. The correlation statistics reveal a significant positive correlation (0.149) between Dark Personality Traits and Delinquent Behavior, indicating that higher levels of dark personality traits are associated with a slight increase in delinquent behavior. Additionally, a significant positive correlation is observed between Machiavellianism and Delinquent Behavior, suggesting that as Machiavellianism increases, so does the likelihood of engaging in delinquent behavior. Moreover, there is a significant positive correlation between Narcissism and Delinquent Behavior (0.150**), indicating that individuals with strong Narcissistic traits are more likely to exhibit delinquent behavior. Psychopathy, another dark personality trait examined in this study, has a correlation value of 0.116**, signifying a significant positive relationship between psychopathy and delinquent behavior. This suggests that individuals with pronounced psychopathic traits are more inclined to engage in delinquent behavior, with an increase in psychopathy leading to an increase in such behavior. Similarly, the correlation statistics show a smaller yet significant positive relationship between Sadism and Delinquent Behavior (0.115**). This implies that individuals with strong Sadistic tendencies are more likely to engage in delinquent behavior, with an increase in Sadism corresponding to an increase in delinquent actions. Additionally, the current study examined Social Support as a moderating variable between Dark Personality Traits and Delinquent Behavior. The correlation statistics reveal a significant negative correlation between Social Support and Delinquent Behavior, indicating that an increase in social support is associated with a reduction in delinquent behavior. This suggests that Social Support can play a crucial role in mitigating delinquent behavior among respondents. The results of the correlation analysis indicate that all four personality traits—Machiavellianism, Narcissism, Psychopathy, and Sadism—are positively correlated with delinquent behavior. This

suggests that individuals exhibiting these dark personality traits are more likely to engage in delinquent behavior. Conversely, Social Support shows a negative correlation with delinquent behavior, indicating that higher levels of social support are associated with a decrease in such behavior. Based on the correlation statistics, all the hypotheses in the study are supported.

Table 3. Multiple Regression Results for Delinquent Behaviour, Dark Personality Traits, Machiavellianism, Narcissism, Psychopathy, Sadism, and Social Support Variables

Predictor	B	95% CI		S.E	β	t	p
		LL	UL				
Constant	41.4	36	47	2.9	—	14.2	.000
Dark Personality Traits	.05	.01	.09	.02	.14	2.4	.01
Machiavellianism	.15	.03	.06	.24	.12	.63	.05
Narcissism	.17	.04	.06	.24	.12	.69	.04
Psychopathy	.12	.04	.07	.28	.09	.43	.03
Sadism	.02	.03	.05	.25	.01	.07	.05
Social Support	-.01	-.02	-.04	.01	-.05	-.84	.04
R	.15*						
R ²	.02*						

Note. β = Standardized Coefficient; CI= Confidence Interval; LL=Lower Limit; UL=Upper Limit, S. E=Std. Error; B =Unstandardized Coefficient; R²= coefficient of determination. * $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3 presents the results of the regression analysis conducted to assess the impact of various predictors, including dark personality traits (Machiavellianism, Narcissism, Psychopathy, and Sadism), the Child and Adolescent Social Support Scale (CASSS), and Delinquent Behavior (DBQ). The table shows a constant value of 41.4, representing the expected value of the dependent variable when all predictors are zero. The standard error (SE) is 2.9, indicating a relatively precise estimate of the constant, with a 95% confidence interval ranging from 36 to 47. Regarding the Dark Personality Traits, the unstandardized coefficient is 0.05, suggesting that for

each 1-unit increase in Dark Personality Traits, Delinquent Behavior (DB) increases by 0.5 units. The confidence interval for this variable, ranging from 0.01 to 0.09, does not cross zero, indicating that this predictor is statistically significant. The standardized coefficient of 0.14 further confirms a positive relationship, although the effect size is small. For Machiavellianism, the unstandardized coefficient is 0.15, indicating a positive relationship with Delinquent Behavior. The confidence interval for this variable ranges from 0.032 to 0.06, does not cross zero, suggesting that the relationship between Machiavellianism and Delinquent Behavior is statistically significant. The standardized coefficient for Machiavellianism is 0.12, reflecting a small effect size. Similarly, for Narcissism, the unstandardized coefficient is 0.17, indicating a positive relationship. However, the confidence interval for Narcissism, ranging from 0.04 to 0.06, also not crossing zero, indicating a significant effect on Delinquent Behavior. The standardized coefficient of 0.12 suggests a small effect size that is statistically significant. For Psychopathy, the unstandardized coefficient is 0.12, indicating a positive relationship with Delinquent Behavior. However, the confidence interval is broad 0.04 to 0.07 and doesn't cross zero, indicating that the relationship between Psychopathy and Delinquent Behavior is statistically significant. The standardized coefficient of 0.09 suggests a small, significant positive impact. In the case of Sadism, the unstandardized coefficient is 0.02, also indicating a positive relationship with Delinquent Behavior. The confidence interval for Sadism, ranging from 0.03 to 0.05, does not cross zero, indicating a significant effect. The standardized coefficient of 0.01 further confirms a significant impact of Sadism on Delinquent Behavior. Finally, Social Support was also tested as an independent variable. The unstandardized coefficient for Social Support is -0.01, indicating a negative relationship with Delinquent Behavior. However, the confidence interval for this relationship ranges from 0.02 to 0.04, not crossing zero, signifying that the relationship is statistically significant. The standardized coefficient for Social Support is 0.05, indicating a very small, yet significant impact.

Table 4. Moderation Analysis using centred Variables Predicting Delinquent Behavior

Relationship	Estimate	S.E	p	Confidence	Interval
				Lower Bound	Upper Bound
Fixed Effects					
Constant	84.3	14.4	.001	56	113
Dark Personality Traits	.31	.12	.01	.54	.07
Social Support	-.39	.13	.002	-.65	-.15
Dark Personality* Social Support	.003	.001	.003	.001	.005

Conditional Effects					
-1 SD	-.02	.03	.49	-.08	.04
Mean	.02	.02	.25	-.02	.07
+1 SD	.11	.03	.000	.06	.17
1					

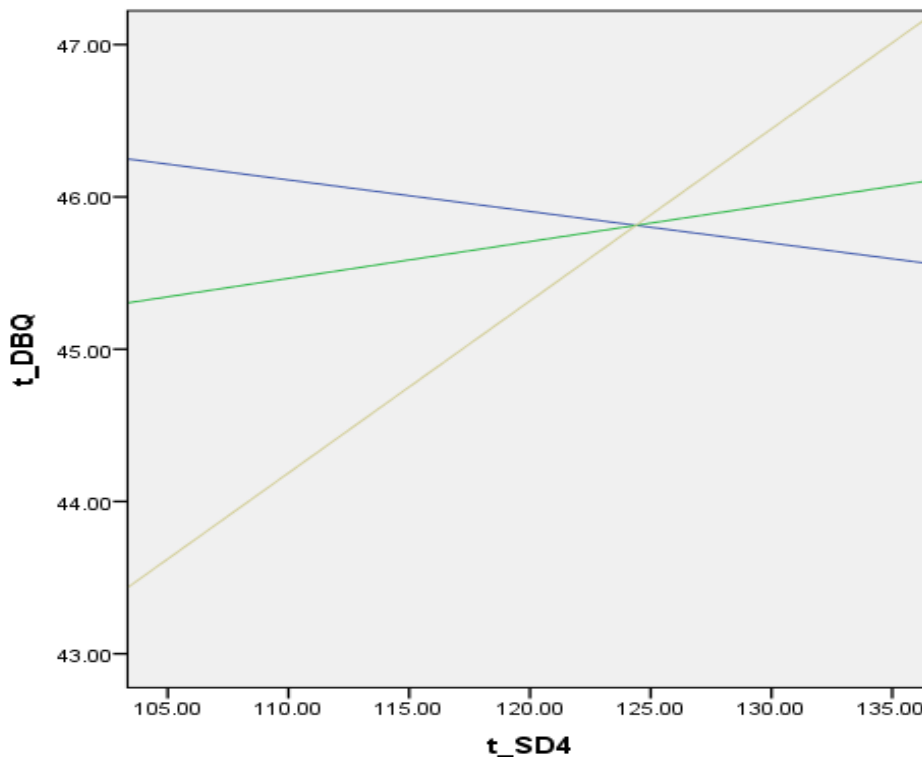
Note. CI= Confidence Interval; LL=Lower Limit; UL=Upper Limit, S. E=Std. Error.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4 shows the results of a moderation analysis through the use of centred variables for predicting Delinquent Behavior. In this specific context, the focus was on testing the relationship between the personality trait SD4 and the Social Support, for seeing whether Social Support has a moderating effect on the relationship between Dark Personality Traits and Delinquent Behavior. The value of constant is 84.3 that shows the predicted value of delinquent behavior, in case when Dark Personality Traits as well as Social Support are at centred mean values (zero). Moreover, the t-value is 5.8 and p-value is 0.001, that shows the constant is not zero, and the confidence interval ranges from 56 to 113 and this also shows a high degree of confidence in such estimate. The value of coefficient for Dark Personality Traits is -0.31, and the t-value is -2.6, and p-value is 0.01. This shows a statistically significant, but negative relationship between Dark Personality Traits and delinquent behavior. This also depicts that with the increase in Dark Personality Traits, the delinquent behavior decreases. Moreover, the confidence interval for Dark Personality Traits is from -0.54 to -0.07, that further confirms that there is significant but negative relationship between these variables. There is a significant negative impact of Social Support on delinquent behavior, as shown through the coefficient of -0.39. Moreover, the value of t is -3.1 and p-value is 0.002 that is less than 0.05, so it means the relationship is significant. It depicts that higher levels of social support are linked with lower levels of Delinquent Behavior. The confidence interval for Social Support ranges from -0.65 to -0.15, that indicates a significantly negative relationship. Furthermore, it is found that the value for coefficient for the interaction term SD4 is 0.003, and the t-value is 3.0. Along with this, the p-value for such interaction term is 0.003. This depicts that there is a statistically significant relationship between Dark Personality Traits and Social Support. It means that the level of social support has a moderating impact on the relationship between Dark Personality Traits and Delinquent Behavior. More particularly, it is depicted through positive coefficient that with the increase in social support, the positive impact of Dark Personality Traits on delinquent behavior will reduce slightly. Moreover, the confidence interval for the interaction term is from 0.001 to 0.005, that further confirms that the moderation effect of social support is significant. Table 4 also presents the conditional effects of social support on delinquent behavior at varying levels of social support. When social support is one standard deviation below the mean, there is a slight negative effect on delinquent behavior, and this effect is statistically significant. At the mean

level of social support, there is a minor positive effect (0.02), but this effect is not statistically significant. However, when social support is one standard deviation above the mean, there is a significantly positive impact. This suggests that higher levels of social support are associated with a significant decrease in delinquent behavior, with the effect being both strong and statistically significant. The moderation effect occurs across different levels of social support, but it is most notable when social support is higher (one standard deviation above the mean), where it significantly reduces delinquent behavior. The moderating effect of social support weakens or becomes insignificant at lower or average levels of social support. Therefore, the level of social support plays a key role in moderating the relationship between Dark Personality Traits and Delinquent Behavior, with a stronger moderating effect at higher levels of support.

Graph



The interaction between SD4 and delinquent behavior appears to depend on the level of the moderating variable (social support). The lines show different slopes, which indicate that the relationship between SD4 and delinquent behavior changes depending on the level of social support.

□ **Low social support (blue line):** As SD4 increases, delinquent behavior appears to increase slightly. This is a positive relationship, meaning higher dark personality traits may lead to a small increase in delinquent behavior when social support is low.

□ **Moderate social support (green line):** The slope of the green line is flatter, indicating that at moderate levels of social support, the relationship between SD4 and delinquent behavior is less pronounced, possibly neutral.

□ **High social support (yellow line):** In this case, as SD4 decreases, delinquent behavior decreases significantly. This negative slope indicates that with high levels of social support, lower dark personality traits are associated with lower delinquent behavior.

Table 5. Independent Sample t-test for males and females

Variables	Male		Female		<i>t</i>	<i>p</i>	Cohen's <i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Dark Personality Traits	120	12.4	118	14.8	1.23	.03	0.2
Machiavellianism	30	3.5	30	3.8	-.13	.33	—
Narcissism	30	3.2	30	3.8	1.15	.11	—
Psychopathy	30	2.8	29	3.9	3.01	.000	0.3
Sadism	30	3.2	29	3.9	1.74	.03	0.3
Delinquent Behaviour	46	4.8	45	4.7	.72	.01	0.2
Social Support	109	22.6	107	14.8	.68	.000	0.2

Note. No of males =150, No of females =150, *M*=Mean, *SD*=Standard Deviation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

An independent samples t-test was performed to compare Dark Personality Trait (SD4), Delinquent Behaviour Questionnaire (DBQ), and Child and Adolescent Social Support Scale (CASSS) scores between males and female's participants. For the SD4, male participants ($M = 120$, $SD = 12.4$) differ significantly from female participants ($M = 118$, $SD = 14.8$), $t(300) = 1.23$, $p = .03$, with a very small effect size ($d = 0.2$). Regarding Machiavellianism, there was no significant difference between male participants ($M = 30$, $SD = 3.5$) and female participants ($M = 30$, $SD = 3.8$), $t(300) = -0.13$, $p = .33$, with a small effect size ($d = 0.11$). For the narcissism, male participants ($M = 30$, $SD = 3.2$) did not differ significantly from female participants ($M = 30$, $SD = 3.8$), $t(300) = 1.15$, $p = .11$, with a very small effect size ($d = 0.13$). For the psychopathy, male participants ($M = 30$, $SD = 2.8$) differ significantly from female participants ($M = 29$, $SD = 3.9$), $t(300) = 3.01$, $p = .000$, with a very small effect size ($d = 0.3$). For the sadism, male participants ($M = 30$, $SD = 3.2$) differ significantly from female participants ($M =$

29, $SD = 3.9$), $t(300) = 1.74$, $p = .03$, with a small effect size ($d = 0.3$). Regarding delinquent behaviour, there was a significant difference between male participants ($M = 46$, $SD = 4.8$) and female participants ($M = 45$, $SD = 4.7$), $t(300) = 0.72$, $p = .01$, with a small effect size ($d = 0.2$). For the social support, male participants ($M = 109$, $SD = 22.6$) and female participants ($M = 107$, $SD = 14.8$) also show a significant difference, $t(300) = 0.68$, $p = .000$, with a small effect size ($d = 0.2$). Overall, significant gender differences were found in dark personality traits (SD4), particularly in psychopathy and sadism, as well as delinquent behavior and social support, though the effect sizes were generally small. There were no significant differences between males and females in Machiavellianism and narcissism.

Conclusion and Recommendations

The main focus of this study was the investigation of interconnection between dark personality traits including narcissism, psychopathy, sadism, and Machiavellianism and delinquent behavior between the adolescents. In addition, the study was also focused on the exploration of the role played by social support in this interconnection. It is important to learn about these dynamics in order to address the psychological factors, which are a contribution towards adolescent delinquency and for the identification of major protective factors. Quantitative research technique was followed in this research study with the use of self-reported questionnaires for the collection of data from sample of adolescents. The analysis of data allowed the examination of the relationships between delinquent behavior, Dark Tetrad traits and perceived social support. The outcomes generated through this study provided information related to the important interconnection between delinquent behavior between adolescents and traits of dark personality. The study showed a direct association between all dark personality traits and delinquent behavior. This is an indication of the linkage between such personality traits and likelihood of engagement in criminal activities. Such personality traits are major contribution towards behaviors that result in different types of delinquency, which ranges from rule-breaking to serious issues. This relationship also highlights the significance behind learning about the impact of personality traits on behavior, specifically during the time of adolescence. This is a major period of development, which is marked through increased vulnerability towards external influences. The findings attained from this study are associated with existing literature that is focused on the role played by personality traits in shaping behavioral results. The development of connection between delinquent behavior and dark personality traits is a major contribution towards growing knowledge related to psychological factors. Additionally, the study also focused on the identification of social support, which is a major variable in the interconnection between delinquent behavior and dark personality traits. Social support, which refers to resources, assistance and emotional backing was proved to have an influence on the extent to which the traits of dark personality have an impact on delinquency. The attained results give a suggestion that suitable social support can lead to the modification of impact of dark personality traits on behavior. It is important to eradicate the negative impact of dark traits on behavior. This also outlines the protective role played by social support in buffering against risks linked with such traits. Adolescents that have robust social networks may have better ability to ensure the management of behaviors associated with dark personality traits, which leads to reduction in likelihood of engagement with delinquent activities. Interventions that lead to improvement in family ties, cater to supportive relationships and develop connections within the

community. This serves as an important tool in terms of prevention of escalation of antisocial behavior.

Limitations and Future Recommendations

Even though, the study leads to important insights, there are still major limitations. The major limitation of the study is collecting data from minors. Initially, cross-sectional design leads to limitations in ability to attain casual inferences. The relationships between social support, dark personality traits and delinquent behavior are currently, which requires longitudinal studies for the establishment of causality. Secondly, the study was completed related to self-reported measures, which may be subject to inaccuracies in self-perception. Moreover, the sample was also limited to particular geographic region, which can lead to negative impact on the generalizability of results to certain population or cultural contexts. The study also focused on nonclinical sample, which might not be able to capture the different range of traits and behaviors present in severe delinquency cases. Future research must focus on addressing such limitations through the adoption of longitudinal design for the exploration of causal pathways between social support, dark personality traits and delinquent behavior. In addition, the incorporation of different informants could result in assessment of personality traits, delinquent behavior and social support. The expansion of sample to include cultural contexts would lead to enhancement in generalized outcomes. Furthermore, future studies could be focused on the exploration of effectiveness of interventions focused on reduction in effect of dark personality traits on delinquency. Finally, it is important to investigate the role played by variables like family dynamics or peer influence in terms of elucidating the interactions that lead to adolescent delinquency.

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