

The Influence of Dark Triad Personality Traits and Family Climate on Aggressive Behaviour among Juvenile Offenders: A Psycho-Social Investigation

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Abstract

One of the most serious problems of the juvenile delinquency systems, the mental health field, and correctional facilities in the world is aggressive behaviour among juvenile offenders. Although maladaptive personality traits and dysfunctional family environments have been established as key factors in aggression, few studies have investigated the interaction of Dark Triad personality traits and family climate on aggressive behaviour in juvenile delinquents. Knowing these relationships can be crucial to the design of effective rehabilitation and intervention programs for young offenders and to the reduction of aggression and recidivism. The current study sets out to explore the relationship between Dark Triad personality traits (Machiavellianism, Narcissism and Psychopathy) and family climate and aggressive behaviour among juvenile offenders. In particular, the study examines the direct impact of the DT on aggression and explores the mediating role of family climate in these relationships. A quantitative research approach of cross-sectional design will be used. Standardised psychometric scales such as the Short Dark Triad Scale (SD3), Family Environment Scale (FES) and Buss–Perry Aggression Questionnaire (BPAQ) will be used to gather data from around 100 youth who are detained in youth observation homes and juvenile rehabilitation centres. Stratified random sampling will be employed to ensure good representation of participants. The proposed relationships between the study variables and the family climate as a mediator will be analysed using the analysis technique of descriptive statistics, reliability analysis, Confirmatory Factor Analysis (CFA), and Structural Equation Modelling (SEM) using AMOS/SmartPLS. The study is likely to find that there are important positive correlations between juvenile offenders' Machiavellianism, narcissism, psychopathy and aggressive behaviour. The family environment is expected to show a strong negative correlation with aggression, suggesting that a supportive family environment leads to a decrease in the aggressive tendencies of children. Moreover, family climate is hypothesised to partially mediate the link between DDT and aggressive behaviour, indicating that negative family experiences could exacerbate the effect of negative personality profiles on aggression. The study has suggested a holistic psycho-social framework for understanding the aggressive behaviour of juvenile offenders, which includes the dual role of personality traits and family environmental factors. The results will be useful for the juvenile delinquency, personality psychology and criminology literature as they will provide a complete picture of youth aggression. The study also emphasises the need for family interventions and psychological assessment in juvenile rehabilitation programs for behavioural change and prevention of re-offending among youth.

Keywords: Dark Triad Traits, Machiavellianism, Narcissism, Psychopathy, Family Climate, Aggressive Behaviour, Juvenile Offenders, Juvenile Delinquency, Structural Equation Modelling.

1. Introduction

The term juvenile delinquency has become a global issue with serious social and public health consequences. Aggressive behaviour is one of the most visible manifestation. Juvenile delinquents with aggressive behavior engage in violence, property crimes, quitting school, abusing drugs, not adjusting properly, and are likely to be criminals in adulthood. Consequently, identifying the psychological and environmental causes of aggression among juvenile offenders is a top priority among researchers, mental health professionals and criminal justice agencies. As per recent evidence aggression is not only a result of adverse environmental conditions but also reveals an underlying personality structure which among other things shapes relevant behaviour in social situations (Naidoo et al, 2025).

One of the psychological frameworks to explain antisocial behaviour is the Dark Triad personality model. It has received significant attention. The Dark Triad consists of Machiavellianism, narcissism, and psychopathy, which are three different personality traits that are socially aversive in nature. Machiavellian individuals manipulate and deceive strategically. Narcissists are fixated on self, with sense of entitlement and grandiosity. Psychopathy refers to a lack of empathy, impulse control, and antisocial behavior. According to Paulhus and Williams, these traits are linked to aggression, delinquency, violence, and other forms of youth maladaptive behaviour. (25 words). According to research done in the past few years, Dark Triad traits strongly predict aggression, risky behaviour and anti-social behaviour in adolescents.

Recent research has indicated that adolescents exhibiting psychopathy and Machiavellianism are likely to demonstrate aggressive and delinquent behaviours. Narcissism, on the other hand, plays a role in aggression but only when a threat occurs to their self-esteem or social status. A growing body of evidence suggests Dark Triad traits are important predictors of behavioural maladjustment, as they explain substantial variation in aggression among youth. Naidoo et al. (2025) revealed that the Dark Triad accounted for over 21% of the variance in aggression scores among adolescents and thus is important for understanding aggression-related behaviours.

While important predictors of aggressiveness are personality characteristics, environmental influences too are important. The family environment is one of the uppermost environmental variables affecting adolescent behavioural development. Family climate is the emotional atmosphere within the family system. These are referred to cohesive family relations, communication, emotional support, parental involvement and supervision abilities and conflict management. Family climate creates positive behaviour and efficient thinking patterns through emotional regulation. Social and psychological competence is enhanced due to a functional family climate. The dysfunctional family climate which is hostile, neglectful, rejective, and full of recurrent conflict. This creates an angry child with behaviours and aggression. Research has shown that, among other things, a lack of parental supervision, dysfunctional families and negative parent-child relationships make adolescent delinquency and aggressive behaviour more likely.

A new study suggests family climate can influence the emergence of Dark Triad personality traits. Teens who are exposed to parental rejection, harsh discipline, emotional neglect, a recalcitrant father or ineffective mother, and a dysfunctional family environment are likely to develop manipulative, narcissistic and psychopathic tendencies. In a recent study investigating the interaction patterns of parents, it was found that Dark Triad traits correlated significantly with adolescents' risky behaviours confirming that family-related experiences may facilitate the emergence and manifestation of maladaptive personality traits.

Even with the rising number of studies and an increasing number of studies on Dark Triad traits and influential family factors, there are still considerable gaps in the existing literature. To begin with, most studies have focused on general adolescent populations, university students or community samples rather than juvenile offenders. Moreover, apart from the first reason, personality characteristics and family climate have been studied mostly independently. Thus, there is no coordinated explanation for aggressive behaviour due to this reason. Third, only

a few studies have investigated if family climate is a mechanism between Dark Triad and aggression. The evidence from juvenile justice contexts is still thin on the ground especially in developing countries.

A more comprehensive psycho-social perspective is needed to explain aggressive behaviour among juvenile delinquents. A single thing is unlikely to cause aggression. Instead, it is the interaction between the person's own personality and experiences in the environment. Thus, this study focuses on Dark Triad personality traits, family climate and aggressive behaviour among juvenile delinquents aged 16-18 years. By adopting a combined model that incorporates personality as well as family-based explanations, the present study aims to make contributions to the juvenile delinquency, forensic psychology, and criminology literature. Further, it aims to provide research-based insights relevant to rehabilitation as well as intervention programmes.

Statement of the Problem

Aggressive behaviour is one of the most common problems in juvenile correctional and rehabilitation institutions. While past research shows that Dark Triad personality traits, narcissism, Machiavellianism and psychopathy are associated with aggression and antisocial behaviour, and family climate plays an important role in adolescent development, little research has investigated these factors simultaneously in juvenile offenders. As a result, there is insufficient evidence on how maladaptive personality traits and family environment contribute to aggressive behaviour. This lack of knowledge hinders the development of effective rehabilitation programs to help young offenders reduce aggression and reoffending.

Research Objectives

General Objective

To examine the association between Dark Triad personality traits, family climate, and aggressive behaviour among juvenile offenders.

Specific Objectives

- To examine the influence of Machiavellianism on aggressive behaviour among juvenile offenders.
- To investigate the influence of narcissism on aggressive behaviour among juvenile offenders.
- To assess the influence of psychopathy on aggressive behaviour among juvenile offenders.
- To examine the influence of family climate on aggressive behaviour among juvenile offenders.
- To investigate the mediating role of family climate in the relationship between Dark Triad personality traits and aggressive behaviour.

Research Questions

- Does Machiavellianism significantly influence aggressive behaviour among juvenile offenders?
- Does narcissism significantly influence aggressive behaviour among juvenile offenders?
- Does psychopathy significantly influence aggressive behaviour among juvenile offenders?
- Does family climate significantly influence aggressive behaviour among juvenile offenders?
- Does family climate mediate the relationship between Dark Triad personality traits and aggressive behaviour among juvenile offenders?

Research Hypotheses

H1: Machiavellianism positively influences aggressive behaviour among juvenile offenders.

H2: Narcissism positively influences aggressive behaviour among juvenile offenders.

H3: Psychopathy positively influences aggressive behaviour among juvenile offenders.

H4: Family climate negatively influences aggressive behaviour among juvenile offenders.

H5: Family climate mediates the relationship between Machiavellianism and aggressive behaviour.

H6: Family climate mediates the relationship between narcissism and aggressive behaviour.

H7: Family climate mediates the relationship between psychopathy and aggressive behaviour.

Research Gap

- Very limited studies have focused specifically on juvenile offenders.
- Dark Triad traits and family climate are usually examined separately.
- The mediating role of family climate remains underexplored.
- Evidence from correctional and rehabilitation settings is scarce.
- Limited integrated psycho-social models exist explaining aggression among juvenile offenders.

2. Literature Review

2.1 Dark Triad Personality Traits

The Dark Triad personality construct has become a key research topic in personality psychology and criminology. The Dark Triad is a new construct introduced by Paulhus & Williams (2002), made up of three personality traits that are socially aversive: Machiavellianism, Narcissism, Psychopathy. These constructs have different characteristics, but they all have common behavioural tendencies linked to elements of exploitation, aggression and antisocial behaviour.

The findings of recent studies have been remarkably consistent that people who score high on the Dark Triad traits have higher levels of problematic and aggressive behaviour. Muris et al. (2017) found that Dark Triad traits were positively related to externalizing of behavioural problems, delinquency and aggression in adolescent participants. Likewise, Sleep et al. (2019) reported that people with high scores on the Dark Triad dimensions are more likely to be hostile, less likely to be empathetic, and more likely to be involved in interpersonal conflict. The results indicate that the Dark Triad traits are potential psychological risk factors of aggression.

This association is also supported by recent empirical work. Jiang et al. (2024) found that the Dark Triad constructs significantly predicted cyber-aggression, bullying and anti-social behaviour among adolescents. Similarly, Alavi et al. (2025) found that psychopathy and narcissism were important factors in the development of aggressive behaviours and behavioural dysfunction in youth. Additionally, Naidoo et al. (2025) showed that Dark Triad traits accounted for a significant amount of variance in the scores for aggression among adolescent samples, indicating that they are useful in predicting adolescents' aggressive behaviours.

According to the theoretical explanations, people with high scores on the Dark Triad traits show less empathy, less emotional control, and more aggression for their own interests. These characteristics have been increasingly

recognised as playing an important role in the aggressive and delinquent behaviour of adolescents and juvenile offenders.

2.2 Machiavellianism and Aggressive Behaviour

The characteristics of the Machiavellianism are manipulation, strategic calculation, emotional detachment, and exploiting others to serve one's own interests (Christie & Geis, 1970). People with high Machiavellianism scores consider social relationships as tools to their own use and often use deceptive means to get things done.

Some previous research has shown that Machiavellianism is linked positively to aggression, bullying and delinquency. Abell and Brewer (2014) found that people with Machiavellian traits demonstrate more indirect and relational aggression. Studies have recently been conducted with adolescents, revealing that Machiavellianism predicted aggressive behaviour, with higher levels of hostility and lower levels of empathy (Jiang et al., 2024).

This connection between Machiavellianism and aggression can be understood in terms of the instrumentality of aggressive behaviour. In contrast to the impulsive aggressor, the Machiavellian is more likely to engage in aggression in a strategic manner to exert control over others and to accomplish his goals. This trait makes it especially relevant to understanding aggressive behaviour among juvenile offenders and is considered to be one of the most important traits of his personality.

2.3 Narcissism and Aggressive Behaviour

Narcissism is defined as a personality trait with characteristics of grandiosity, entitlement, superiority and excessive self-focus (American Psychiatric Association, 2022). Narcissistic people tend to be self-confident and dominant in social situations, but are sensitive to criticism and threats to their self-image.

Narcissism has been proven to be related to aggressive behaviour when the person's self-esteem or superiority is threatened. Bushman and Baumeister (1998) showed that when a person is challenged with a situation that threatens his or her ego, he or she will be more aggressive afterwards. Positive relationships between narcissism and physical aggression, verbal aggression, bullying and cyberbullying have been subsequently replicated (Jones & Paulhus, 2017).

Recent research has indicated that narcissism is a strong predictor of aggression in adolescents again. However, Alavi et al. (2025) found that narcissism traits played a significant role in the occurrence of aggressive behavioural outcomes, especially in the case of social rejection or criticism. The results indicated that narcissism might make people more aggressive, given its ability to heighten emotional reactions and aggression towards perceived threats.

2.4 Psychopathy and Aggressive Behaviour

In criminological studies, psychopathy has received the most attention of the three dimensions of the Dark Triad and its correlation with violence and criminal behaviour. Psychopathy is defined by impulsivity, callousness, emotional detachment, lack of remorse, and antisocial tendencies (Hare, 2003).

Many studies have cited psychopathy as one of the best predictors of aggression. Frick and White (2008) found that psychopathic characteristics in adolescents were significantly correlated with conduct disorder, violent behaviour and delinquency. In the same way, Salekin et al (2010) have identified that psychopathy scores were related to reactive and proactive aggression among juvenile offenders.

These results continue to be substantiated by recent studies. Naidoo et al. (2025) found that psychopathy had the highest correlation with aggression of all the Dark Triad dimensions. Psychopathic people often have trouble managing their emotions, making impulsive choices and have lower empathy for others, making them more likely to adopt aggressive behaviour patterns.

2.5 Family Climate and Aggressive Behaviour

One aspect of family climate that has long been identified as an important factor in the behavioural development of adolescents is the family climate. Family climate is the overall emotional, social and relational style of the family system and can be described in terms of communication, emotional support, cohesion, parental involvement, supervision and conflict management (Moos & Moos, 2009).

Family relationships are crucial in the development of emotional and behavioural outcomes, as suggested by Attachment Theory and Social Learning Theory. Favourable family environments foster emotional security, self-control and social competence, while negative family environments heighten risk for behavioural issues and aggression.

Empirical research has consistently implicated family climate as a predictor of aggression. Poor parental supervision and family dysfunction were associated with a high risk of delinquent behaviour in adolescents, as found by Hoeve et al. (2009). Likewise, Pinquart (2017) found a link between high aggression and conduct problems and family conflict and negative parenting practices.

This is further reflected in recent studies. A supportive family environment was found to be associated with less aggression and behavioural problems in adolescents compared to conflictual family environments, as shown by Masykuroh et al. (2025). Concurrently, Simão et al. (2025) found that positive family relationships were factors that protect against aggressive and delinquent behaviour.

2.6 Family Climate and Dark Triad Traits

Recent research has also indicated that family climate can be related to the onset of Dark Triad personality traits. Developmental theories suggest that negative family experiences, such as neglect, rejection, inconsistent parenting, and family conflict, can lead to maladaptive personality formation.

The study has revealed that those who were raised in dysfunctional family circumstances are more prone to become manipulative, narcissistic and psychopathic. Additionally, Jonason et al. (2014) found that there were strong relationships between negative parenting experiences and the Dark Triad traits. More recently, Motavalli et al. (2025) also established that parenting behaviours have a significant impact on the Dark Triad personality traits and risky behaviours among adolescents.

The present results may imply that family climate can be an important context for how the Dark Triad traits are manifested and how they manifest themselves in behaviour.

2.7 Family Climate as a Mediator between Dark Triad Traits and Aggressive Behaviour

Increasingly, modern developmental studies have acknowledged the role of mediating processes between personality traits and behaviour. One possible pathway could be the family climate itself, which affects emotional regulation, social learning, coping and behavioural adjustment.

The behavioural expression of the Dark Triad traits might be dampened in supportive family environments, where emotional stability and prosocial behaviour are encouraged. Dysfunctional family environments, on the other hand, can perpetuate negative personality traits and make individuals more aggressive. There is evidence that the relationship between personality traits and behavioural outcomes, such as aggression and delinquency, is mediated by the family relationships (Motavalli et al., 2025).

Although these findings, the empirical studies that have investigated the mediating role of family climate between Dark Triad traits and aggressive behaviour are still limited, especially among juvenile offenders. This gap is the main reason for the current study.

Literature Gap

Based on the literature reviewed, five key gaps have been identified:

- Previous research has largely been on the general adolescent population not juvenile offenders.
- The study of Dark Triad traits in correctional and rehabilitation environments is scarce.
- The effects of personality and family climate on the children have been studied separately at large.
- Empirical study of the mediating role of family climate has been limited.
- The evidence from developing countries is limited, reducing the extent to which it can be generalised.

The gaps make the integrated model examining the relationship between Dark Triad personality traits, family climate and aggressive behaviour among juvenile offenders worthwhile.

3. Research Methodology

3.1 Research Design

This research is quantitative, which aims to analyze the relationship between the personality factors of the Dark Triad, family climate, and aggressive behavior in juvenile offenders. Because quantitative research allows for objective measurement of latent constructs and can allow for testing of theoretic relationships, it is especially suitable for studies of psychological and behavioural phenomena. This study uses a cross sectional design type of research with an explanatory approach to collect data from the respondents at one time. This design would be appropriate to test the amount of association between the Dark Triad traits and aggressive behaviours of juvenile offenders and to assess the mediation of family climate in the hypothesized model.

The study is based on deductive research method which tests the hypothesis generated from the already existing theories and empirical literature through statistical methods. In particular, this study aims to confirm a psycho-social model that combines explanations from personality and familial surroundings to explain the phenomenon of aggressive behaviour in juvenile offenders. The main statistical approach used is Structural Equation Modelling (SEM), which can be used to examine multiple direct and indirect relationships between multiple latent variables simultaneously.

3.2 Research Paradigm

In conducting this study, the positivist research paradigm is used. The concept of positivism states that social and psychological facts can be observed, measured, and explained with empirical approaches. The paradigm is hypothesis testing, quantification of variables and statistical testing of theory propositions. Since the present study aims to explore measurable constructs, like Machiavellianism, narcissism, psychopathy, family climate and aggressive behaviour, the positivist paradigm is a suitable paradigm to be used in this study.

Moreover, the positivist approach is supported by the application of psychometric standard instruments and complicated statistical modelling, which increased the reliability, validity, and generalizability of the results.

3.3 Study Population

The respondents of the present study are the juvenile offenders who are accommodated in the juvenile justice (Care and Protection of Children) Act, observation house, special house, juvenile rehabilitation centre and correctional institution. These facilities hold young people for rehabilitation, counselling or correctional treatment who are in breach of the law.

Juvenile offenders are a population of interest for the study of aggressive behaviour as they have higher incidence rates of behavioural and emotional problems than the general adolescent population. Past studies have shown that

children in the juvenile justice system are more likely to be aggressive, impulsive, have conduct problems, and exhibit antisocial behaviour. Therefore, understanding the psychological and family risk factors for aggression in this population may be helpful for rehabilitation and prevention interventions.

Male and female juvenile offenders (12-18 years old) will participate in the study. Participants should have adequate language and cognitive skills to read and fill out the survey instruments. Those who are diagnosed with severe psychiatric disorders or mental or cognitive disabilities that could impair their ability to give valid answers will be exempted from the procedure.

3.4 Sample Size Determination

Sample size is an important consideration in order to obtain reliable estimates, and to ensure statistical power in structural equation modelling. Hair et al. (2022) indicated that the sample size in multiple latent variables SEM analysis should be relatively large to obtain a stable parameter estimation and good model fit. In the same way, Kline (2023) suggests that with multiple constructs in a mediation model, the sample size should be at least 300.

Based on these recommendations and the complexity of the conceptual model considered, the study will be carried out using a sample of about 100 young offenders. This sample size will give sufficient power for Confirmatory Factor Analysis (CFA), reliability, validity testing and mediation analysis. In addition, the larger the sample, the more generalizable the results and the less likely that the results will be biased in their estimation.

3.5 Sampling Technique

The study will utilise multi-stage stratified random sampling to ensure a wide representation of participants within the different demographic categories and institutional settings. In stage 1, juvenile correctional institutions and rehabilitation centres will be identified based on access and administrative approval. The second stage will involve stratifying participants by gender and age bands to be representative of the population. Lastly, the sampling will be a simple random sampling from the institutional record, and respondents will be picked up.

Stratified random sampling improves the representativeness of the sample and reduces sampling bias. It also provides that the results are representative of the diversity of experiences and characteristics in the juvenile offender population.

3.6 Variables of the Study

Conceptual Model has Independent variables, Mediating variables, and Dependent variables. The three dimensions of the Dark Triad personality construct are used as independent variables, namely Machiavellianism, Narcissism and Psychopathy. The mediating variable is family climate, and the dependent variable is aggressive behaviour.

The study is based on two propositions: (1) dark triad characteristics have a direct effect on aggressive behaviour, and (2) dark triad characteristics have an indirect effect on aggressive behaviour. Given that family climate is hypothesised to impact emotional regulation, interpersonal functioning, and behavioural adjustment of juvenile offenders, its mediation of these relationships was expected.

3.7 Research Instruments

Data will be gathered by the standardised and widely validated psychometric instruments. Using scales that have been validated increases the reliability and validity of measurement and allows for comparisons with prior studies.

Dark Triad Personality Traits is a measure of the Dark Triad personality traits.

The Short Dark Triad Scale (SD3; Jones & Paulhus, 2014) will be used to measure the dark triad personality traits. The SD3 is one of the most commonly used instruments to measure Machiavellianism, narcissism and psychopathy in adolescent and adult populations.

The instrument is made up of 27 items spread evenly over the three dimensions. They answer each statement about the degree to which they agree, using a five-point Likert scale, ranging from very strongly disagree to very strongly agree. The SD3 is reliable and valid in previous studies in various cultures.

Measurement of Family Climate

The selected dimensions of the Family Environment Scale (FES) of Moos and Moos (2009) will be used to assess family climate. The scale assesses the interpersonal relationships and feeling in the family.

These dimensions selected are family cohesion, communication, emotional support, expressiveness, parental involvement and conflict management. Higher scores represent more positive and supportive family climates, while lower scores represent more unhealthy family climates with poorer relationships and more conflict.

Aggressive behaviour is measured by the following:

The Buss–Perry Aggression Questionnaire (BPAQ) is one of the most well-validated questionnaires to measure aggression, and will be used for this purpose. The questionnaire has four factors: physical aggression, verbal aggression, anger and hostility.

Participants answer on a 5-point Likert scale from extremely uncharacteristic of me to extremely characteristic of me. The BPAQ has established robust psychometric characteristics and has been extensively employed with adolescents, offenders and forensic samples.

3.8 Pilot Study

A pilot study will be carried out with some 40 youthful offenders not part of the main study sample before the main data collection period. The pilot study has a number of useful purposes, such as checking the clarity of the items in the questionnaire, seeing whether the language is appropriate or not, checking for possible problems in answering the questions, and estimating preliminary reliability coefficients.

The outcome of the pilot phase will be to inform the development of the survey instrument and how suitable it is to the target population. Participants that involve in the pilot study will not be included in the final sample to avoid contamination of results. The assessment of reliability and validity of the instrument.

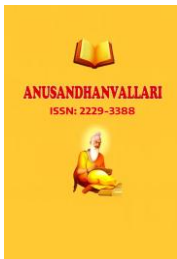
Reliability and validity of measurement instruments are important to produce the results of the research that can be relied on. Cronbach's Alpha and Composite Reliability (CR) will be used to test for internal consistency reliability. Scores greater than 0.70 will be judged acceptable and will reflect satisfactory levels of reliability of the measurement scales.

The confirmatory factor analysis will be used for the evaluation of construct validity. Factor loadings, Average Variance Extracted (AVE) and Composite Reliability will be used as indicators to assess convergent validity. The loadings of the factors should be >0.70 , and AVE should be >0.50 , which indicates good convergent validity.

The Fornell-Larcker criterion and the Heterotrait-Monotrait Ratio (HTMT) will be used to examine discriminant validity. These procedures ensure that all constructs are empirically different from one another in the model.

3.10 Data Collection Procedure

The data collection will begin after approval is obtained from the appropriate institutional authorities and ethics committees. Juvenile justice system institutions and rehabilitation centres will be contacted and permission sought before approaching potential participants.



Participants will be told what the study is about, and that their answers will be kept confidential, they will be made aware that participation is voluntary, and that they may withdraw from the study at any time without losing privileges. Questionnaires will be administered in a supervised manner for accuracy and understanding. All responses will be anonymous and only for academic research.

3.11 Data Analysis Techniques

The data analysis will be done by SPSS Version 29 and AMOS Version 29. The analysis process will be done in stages.

First, descriptive statistics will be used to summarise the demographic characteristics and distributions of variables. Participant features will be reported with mean, standard deviations, frequencies and percentages.

After that, reliability and validity tests will be conducted. The measurement model will be assessed by confirmatory Factor Analysis, and the construct validity will be verified. After the adequacy of the measurement model, the hypothesised relationships between variables will be tested with the help of Structural Equation Modelling.

Bootstrapping procedures with 5,000 resamples will be used to explore the mediation effect of family climate. This would give more accurate estimates of indirect effects and is often recommended for mediation analysis in behavioural research.

Several goodness-of-fit indices will be used to evaluate model adequacy: Chi-square/df ratio, Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Standardised Root Mean Square Residual (SRMR) and Root Mean Square Error of Approximation (RMSEA).

3.12 Ethical Considerations

The study is conducted on a vulnerable population group, therefore research will be conducted using strict ethical standards. Ethical approval will be secured with the appropriate institution ethics committee before the data is collected.

Attendees will be completely voluntary, and informed consent will be obtained from institutional representatives and adolescent consent will be obtained from youth participants. The confidentiality and anonymity will be respected and no personal details will be taken.

The study will follow the ethical principles of beneficence, non-maleficence, autonomy and justice. To ensure that respondents do not suffer from psychological distress or discomfort as a result of participation, every effort will be made to avoid this. The information collected will be kept safely and only be used for research.

3.13 Proposed Structural Model

The suggested structural model suggests that the pathways proposed are direct positive influences of Machiavellianism, narcissism and psychopathy on juvenile offenders' aggressive behaviour. Further, it is expected that these personality traits are to influence the family climate which in turn is to affect aggressive behaviour. Based on this, family climate is treated as a mediator of the relationship between Dark Triad traits and aggression.

The integrated psycho-social view is a holistic perspective on juvenile aggressive behaviour, with implications for rehabilitation programmes, psychological treatments and family-based treatments.

4. Results and Discussion

4.1 Demographic Profile of Respondents

A total of 100 juvenile offenders participated in the study. The demographic characteristics of the respondents were analysed using frequency and percentage distributions. The findings revealed that the majority of respondents were male (72%), while females accounted for 28% of the sample. Regarding age distribution, most respondents belonged to the 15–16 years age group (41%), followed by 17–18 years (35%) and 12–14 years (24%).

Table 4.1 Demographic Characteristics of Respondents (N = 100)

Variable	Category	Frequency	Percentage (%)
Gender	Male	72	72.0
	Female	28	28.0
Age	12–14 Years	24	24.0
	15–16 Years	41	41.0
	17–18 Years	35	35.0

The demographic profile indicates that the sample was dominated by middle and late adolescents, which is consistent with the age range commonly associated with juvenile offending behaviour.

4.2 Descriptive Statistics

Descriptive statistics were computed to examine the average scores and variability of the study variables.

Table 4.2 Descriptive Statistics

Construct	Mean	Standard Deviation
Machiavellianism	3.68	0.74
Narcissism	3.44	0.69
Psychopathy	3.89	0.82
Family Climate	2.91	0.78
Aggressive Behaviour	3.71	0.71

Results showed that the mean score (M) of psychopathy is the highest (M = 3.89), followed by aggressive behaviour (M = 3.71) and Machiavellianism (M = 3.68). The mean score for family climate was the lowest (M = 2.91), indicating that family support and communication was not that good for many respondents.

The results indicate that the juvenile offenders in sample show moderate to high level of Dark Triad traits and aggressive behaviour. The relatively low family climate score suggests that family dysfunction might be a significant context for behavioural outcomes.

4.3 Reliability Analysis

Reliability analysis was conducted using Cronbach's Alpha to determine the internal consistency of the measurement scales.

Table 4.3 Reliability Statistics

Construct	Number of Items	Cronbach's Alpha
Machiavellianism	9	0.842
Narcissism	9	0.811
Psychopathy	9	0.876
Family Climate	15	0.889
Aggressive Behaviour	29	0.914

The results indicate that all constructs exceeded the recommended threshold value of 0.70. Aggressive behaviour demonstrated the highest reliability coefficient ($\alpha = 0.914$), while narcissism recorded the lowest but still acceptable value ($\alpha = 0.811$). Therefore, all measurement scales were considered reliable for subsequent analysis.

4.4 Confirmatory Factor Analysis

Confirmatory Factor Analysis (CFA) was conducted to assess convergent validity and construct reliability.

Table 4.4 Convergent Validity Assessment

Construct	Factor Loading Range	Composite Reliability (CR)	AVE
Machiavellianism	0.721–0.856	0.86	0.57
Narcissism	0.705–0.841	0.84	0.54
Psychopathy	0.743–0.889	0.89	0.61
Family Climate	0.718–0.891	0.90	0.63
Aggressive Behaviour	0.735–0.914	0.92	0.65

All factor loadings exceeded 0.70. Composite Reliability values were above 0.70, while AVE values exceeded the recommended threshold of 0.50. These results confirm satisfactory convergent validity and internal consistency.

4.5 Correlation Analysis

Pearson correlation analysis was performed to examine the relationships among the study variables.

Table 4.5 Correlation Matrix

Variable	1	2	3	4	5
Machiavellianism	1				
Narcissism	.452**	1			
Psychopathy	.617**	.534**	1		
Family Climate	-.381**	-.297**	-.446**	1	
Aggressive Behaviour	.492**	.417**	.658**	-.511**	1

p < .01

The correlation results indicate that all Dark Triad dimensions were positively associated with aggressive behaviour, whereas family climate demonstrated a significant negative relationship with aggression.

4.6 Structural Model Fit Assessment

The adequacy of the structural model was evaluated using multiple goodness-of-fit indices.

Table 4.6 Model Fit Indices

Fit Index	Recommended Value	Obtained Value
χ^2/df	< 3.00	2.31
CFI	> 0.90	0.945
TLI	> 0.90	0.936
GFI	> 0.90	0.912
RMSEA	< 0.08	0.058
SRMR	< 0.08	0.049

All fit indices met the recommended criteria, indicating that the proposed model adequately represents the observed data.

4.7 Hypothesis Testing

Structural Equation Modelling was used to test the proposed hypotheses.

Table 4.7 Direct Effects

Hypothesis	Relationship	β	t-value	p-value	Decision
H1	Machiavellianism - Aggressive Behaviour	0.231	3.142	0.002	Supported
H2	Narcissism - Aggressive Behaviour	0.187	2.781	0.006	Supported
H3	Psychopathy - Aggressive Behaviour	0.463	6.411	<0.001	Supported
H4	Family Climate- Aggressive Behaviour	-0.318	4.855	<0.001	Supported

The results indicate that Machiavellianism significantly influences aggressive behaviour ($\beta = 0.231$, $p < 0.01$), supporting H1. Narcissism also demonstrated a significant positive influence on aggression ($\beta = 0.187$, $p < 0.01$), supporting H2.

Psychopathy emerged as the strongest predictor of aggressive behaviour ($\beta = 0.463$, $p < 0.001$), providing support for H3. This finding suggests that emotional detachment, impulsivity, and lack of empathy substantially increase aggressive tendencies among juvenile offenders.

Family climate exhibited a significant negative influence on aggression ($\beta = -0.318$, $p < 0.001$), supporting H4. This result indicates that supportive family environments reduce aggressive behaviour among adolescents.

4.8 Mediation Analysis

Bootstrapping analysis with 5,000 resamples was employed to examine the mediating role of family climate.

Table 4.8 Indirect Effects

Hypothesis	Mediation Path	Indirect Effect	p-value	Decision
H5	Machiavellianism - Family Climate - Aggressive Behaviour	0.084	0.011	Supported
H6	Narcissism- Family Climate - Aggressive Behaviour	0.071	0.018	Supported
H7	Psychopathy - Family Climate - Aggressive Behaviour	0.122	0.003	Supported

The findings indicate that family climate significantly mediates the relationship between Dark Triad personality traits and aggressive behaviour. The strongest indirect effect was observed for psychopathy, suggesting that family environmental factors play an important role in explaining how psychopathic tendencies translate into aggressive behaviour.

5. Discussion of Findings

The current study examined the relationship between Dark Triad personality traits, family climate and aggressive behaviour in juveniles who commit offences. The results give ample evidence for the proposed psycho-social framework and suggest that personality traits and family environmental factors play an important role in aggressive behaviour among juvenile offenders.

One of the most important findings of the study is the significant positive relationship between Machiavellianism and aggressive behaviour. The findings suggest that youth who were manipulative and/or exploitative were more likely to engage in aggressive behavior. This result is consistent with the hypothesis that people who are high in the Machiavellianism personality type often use aggression as a means to an end to get what they want and to keep others under control. The findings align with those of Christie and Geis (1970), Jones and Paulhus (2014), and Jiang et al. (2024), who found that those with Machiavellian traits are more likely to show antisocial and aggressive behavioural trends. The result further reinforces the personality theory which proposes that stable personality dispositions have a significant impact on the outcome of behaviour.

Additionally, the study revealed that there was a significant positive correlation between the personality trait of narcissism and aggressive behavior. Higher levels of aggression were reported by juvenile offenders with high levels of narcissism than those with low levels of narcissism. This discovery bolsters the theory that narcississus are prone to becoming aggressive when their self-image, social standing, or superiority is challenged. This finding is consistent with those of Bushman and Baumeister (1998), who showed that narcissistic individuals do become more aggressive after encountering an ego threat. Likewise, more recent findings by Alavi et al. (2025) tested the hypothesis of narcissism as a consistent predictor of adolescents' hostile and aggressive tendencies, with which they agreed. Thus, the present results support the notion that narcissistic characteristics are associated with behavioural problems in youths involved in the juvenile justice system.

The three factors of the Dark Triad, psychopathy, showed the most potent prediction of aggressive behaviour. It was found that among the juvenile delinquents psychopathic traits had the most significant effect on aggression. This finding aligns with much criminological and forensic psychology research evidence that suggests that psychopathy is among one of the strongest factors predicting violence, delinquency, and antisocial behaviour. Hare (2003) says that psychopaths tend to be impulsive, emotionally detached, remorseless, and lacking in empathy, all of which is associated with the tendency toward aggressive behavior. The results also align with those of Frick and White (2008) and Naidoo et al. (2025) who found high correlations between adolescent psychopathic tendencies and behaviour issues. Due to the predominance of psychopathy in the structural model, interventions

aimed at emotional regulation and empathy deficits may be especially relevant for decreasing aggression among juvenile offenders.

The second important result of the study was that family climate was negatively associated with aggressive behaviour. The results showed that juvenile offenders who reported positive family environments (emotional support, communication, cohesion and parental involvement) showed significantly lower aggression levels. On the contrary, those who indicated that their family life was dysfunctional had higher aggressive tendencies. This result aligns with Attachment Theory that states that having a secure emotional connection to others is essential for psychological growth. The finding is also in line with the Social Learning Theory that states that behaviour patterns are learned from important social settings, such as the family. Hoeve et al. (2009), Piquart (2017) and Masykuroh et al. (2025) were also found to have found that family dysfunction is a significant factor affecting adolescents' aggressive and delinquent behavior.

One of the significant findings of the current study is the examination of the mediating role of family climate. The results indicated that family climate moderated the link between the DTPs and aggressive behavior. This finding indicates that aggression is partially inherited via family environmental factors, with Machiavellianism, narcissism and psychopathy having a relationship effect. That is, negative family environments (characterized by family conflict, neglect, and relationship problems) can further increase the association between maladaptive personality types and aggression in adolescence. On the contrary, supportive family climates seem to be able to decrease the behavioural manifestation of the Dark Triad qualities. This is an extension of previous studies, as it shows that family climate is not only a predictor of aggression in its own right, but also an important explanatory mechanism between personality and behavioural outcomes.

The results overall corroborate an integrated psycho-social theory of juvenile aggression. Previous studies have tended to focus on either personality or family factors, but the current study provides evidence that the interaction between personality and family factors is the most important factor to consider when understanding aggressive behaviour among juvenile offenders. The findings are thus significant to the broad body of literature that espouses multidimensionality as a preferred strategy for addressing juvenile delinquency and behaviour problems.

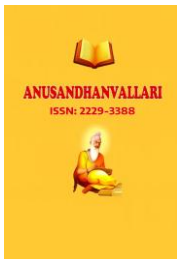
Practically speaking, the results indicate that rehabilitation programs that target only behavioural control might not be enough. It is important to identify and implement intervention strategies that address maladaptive personality traits, as well as family environmental factors, at the same time. Combined use of psychological counselling, empathy development programs, emotional regulation training, and family-based interventions can be effective in decreasing aggressive tendencies and improving rehabilitation outcomes among juvenile offenders.

The study concludes that overall, the findings showed that the negative personality traits of the Dark Triad of personality increase aggressive behaviour, while positive family climates are protective factors that reduce aggression and weaken the impact of negative personality traits on behaviour. The results provide valuable theoretical and empirical knowledge to criminology, forensic psychology, juvenile justice and adolescent mental health studies.

6. Conclusion

The present study aimed at investigating the relationship between the Dark Triad personality traits, family climate and aggressive behavior among juvenile offenders. The study combined the two viewpoints, personality based and family-environmental, in order to create a comprehensive PSYCHO-SOCIAL perspective of adolescent aggression in the juvenile justice system.

Results indicated that all three factors of the Dark Triad construct – Machiavellianism, Narcissism, and Psychopathy – had a significant impact on aggressive behaviour. Of these dimensions, psychopathy was the best



predictor; emotional detachment, impulsivity, callousness and lack of empathy were the most salient characteristics of aggression in juvenile offenders. The relationships of Machiavellianism and narcissism with aggressive behaviour were also significant and positive, indicating that manipulative tendencies and low levels of self-esteem would be associated with behavioural maladjustment in correctional groups.

The study also confirmed that family attitudes and values had an important impact on the development of aggressive behaviour. Emotionally supportive, cohesive, communicative and family-involved family environments were correlated with reduced aggression, whereas the dysfunctional family environments were correlated with increased aggression. The results of this investigation point to the role family relationships play in adolescent behaviour development.

One of the key findings of the study is the mediating effect of family climate. The results suggest that family climate is a significant pathway between DTPs and aggression. Stronger family support seems to dampen down the behavioural impact of maladaptive personality traits, while less family support appears to reinforce their impact on aggressive behavior. These findings demonstrate the need to account for personality dispositions and family experiences in accounts of juvenile aggression.

The general conclusion of the study is that aggressive behaviour among juvenile offenders is not exclusively a result of individual personality characteristics and/or environmental factors. Instead, it develops as a result of the psychological dispositions and family circumstances. Therefore rehabilitative measures should be comprehensive, taking into account the multiple risk factors in the personality and the family environment at the same time.

7. Theoretical Implications

This current research provides several meaningful contributions to the field of delinquency, forensic psychology and personality studies.

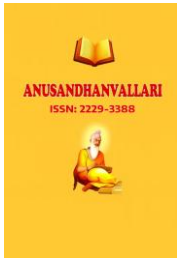
This is the first study to apply the Dark Triad framework to juvenile offenders. While many studies have been conducted with university students or with community samples, the current study shows how Machiavellianism, narcissism and psychopathy can be applied to the study of aggression in juvenile justice environments.

Second, the results offer empirical support for Personality Theory, as they validate the fact that maladaptive personality traits are important factors in aggressive behaviour. The findings support the notion that chronic psychological tendencies contribute to aggression among juvenile offenders.

Third, the findings of the study provide support for Attachment Theory in that it shows the importance of family climate in the development of behaviour. The negative correlations between family climate and aggression agrees with the hypothesis that family climate is positively related to emotional regulation and behavioural adjustment.

Fourth, the results corroborate Social Learning Theory in that they show the effects of family environments on behaviour. Positive family relations seem to foster prosocial behaviour, while negative family environments promote aggression and delinquency.

Last but not least, the study extends the body of research on the area, introducing and testing an integrated psycho-social framework integrating the personality traits alongside the family environmental influences in a single explanatory model.



8. Practical Implications

The results have significant implications for juvenile justice facilities, psychologists, social workers, teachers, and policymakers.

Firstly, psychological screening should be included in juvenile correction facilities to detect offenders who display high levels of Machiavellianism, narcissism and psychopathy. The early recognition of these characteristics could help in targeted interventive or rehabilitative programs.

Second, psychological interventions should be an integral part of the rehabilitation programmes, with psychological components based on evidence such as emotional regulation, empathy enhancement, controlling impulses and developing interpersonal skills. These interventions can lead to a decrease in behavioral effects of Dark Triad personality traits.

Thirdly, family rehabilitation measures should be enhanced. Family counseling, Parenting education, communication training and family therapy may have a positive effect on family functioning and decrease aggression among adolescent delinquent youth.

Fourth, integrated rehabilitation models should be created that take into account the psychological traits of each person and the family's environmental factors. These are likely to be more effective than interventions that target only behavioural management.

Last but not least, there needs to be a partnership between schools, community agencies, and juvenile justice agencies to recognize students at risk of exhibiting behaviors that lead to delinquent and criminal conduct and deliver early intervention services before behaviours mature into delinquency and criminal activity.

9. Limitations of the Study

The study has some limitations, however, due to its contributions.

It is important to note that the cross-sectional design makes it difficult to make causal inferences between the study variables. Longitudinal research is needed to investigate the development of the Dark Triad traits, family climate, and aggression.

The study was conducted using self-report measures, and may be subject to social-desirability bias and inaccurate self-perception. Future studies could involve using several of the data sources mentioned above such as parental reports, institutional records and behavioural observations.

The sample consisted of juvenile offenders who live in correctional and rehabilitation facilities. Thus, the results are not necessarily representative of adolescents in community or different cultural situations.

Furthermore, the present study only focused on family climate as a mediator. There may be other factors that impact the relationship between personality and aggression, including emotional intelligence, empathy, peer influence, self-control, resilience, and adverse childhood experiences.

10. Future Research Directions

Longitudinal designs should be used in future studies to examine the developmental pathways between Dark Triad personality and family climate and aggressive behaviour. The studies would give greater evidence for causal relationships.

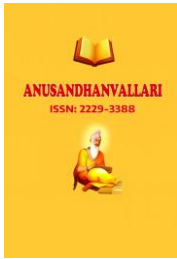
Further mediating and moderating variables such as emotional intelligence, self-control, empathy, resilience, peer relationships and social support can also be explored. The factors may account for a better understanding of juvenile aggression.

Additional comparative research in which youth offenders and non-offending youth would be compared would provide a better understanding of the specific characteristics of delinquent youth. Future research across cultures could also shed light on the cultural and social factors affecting the relationship between the Dark Triad traits and aggression.

Finally there would be evidence of the effectiveness of rehabilitation programmes in juvenile justice that were based on interventions and improve practices in juvenile justice and reduce re-offending rates based on personality-focused treatment strategies which incorporate the family.

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