

## Machiavellianism, Mindfulness and Metacognitive Awareness as Predictors of Aggression in Young Adults: The Mediating Role of Narcissism

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### Abstract

The purpose of the research was to assess the association among Machiavellianism, Mindfulness, Metacognition, Aggression and Narcissism. How these variables are the predictors of aggression in young adults and moreover with the mediating role of narcissism. The study followed the Correlation Research design. We used sample of 150 people including 79 male and 71 female students of GCU University Lahore. The sample was done by using purposive sampling technique. In this study 5 scales were used to measure mindfulness, Machiavellianism, aggression, metacognitive awareness and narcissism. Data analysis was done using Pearson Product Moment Correlation, stepwise regression, Anova and Mediation Analysis, all of which were executed using SPSS 21.0. The findings showed that Machiavellianism and Mindfulness are positively associated with aggression but metacognition and narcissism are non-significantly associated. Narcissism non significantly mediated between aggression and metacognitive awareness.

**Keywords:** Mindfulness, Machiavellianism, Aggression, Young Adults, Mediation

### Background

Aggression among young adults is a growing concern in both clinical and academic contexts due to its association with various negative emotional, behavioral, and interpersonal outcomes. Young adults often face unique developmental, psychological, and environmental challenges that may contribute to the emergence of aggressive behaviors (Candini et al., 2020). Studies have shown that aggression can stem from various personality and cognitive factors, including Machiavellianism, poor emotional regulation, and limited self-awareness (Bianchi & Mirkovic, 2020). Therefore, understanding the psychological predictors of aggression is crucial for developing effective prevention and intervention strategies. One important personality trait linked with aggression is Machiavellianism. It is defined as a manipulative interpersonal style, characterized by strategic calculation, emotional detachment, and a disregard for morality (Harley, 2015). Individuals high in Machiavellianism often exploit others for personal gain and are more likely to engage in unethical or aggressive behavior (Ricks & Fraedrich, 1999; Zhu et al., 2021). Katherine and Marsee (2010) found that Machiavellian traits were strongly associated with both emotional disturbances and aggressive behavior in adolescents, while Bell et al. (2021) demonstrated that Machiavellianism predicts social and ideological attitudes linked with antagonistic behaviors.

In contrast, mindfulness has been identified as a protective factor against aggression. Mindfulness refers to non-judgmental, present-moment awareness, which facilitates emotional regulation and self-control (Zinn et al., 2015). Research has shown that individuals with higher dispositional mindfulness tend to exhibit lower levels of physical, verbal, and reactive aggression (Tomlinson et al., 2018; Ryan et al., 2015). Experimental studies have further supported that mindfulness-based interventions reduce aggressive tendencies in various populations, including students and drivers (Stephens et al., 2018; Gillions et al., 2019). Another cognitive process relevant to aggression is metacognition, which involves the awareness and regulation of one's thinking processes (Moore, 1982). Higher metacognitive awareness has been linked with better decision-making, reduced emotional impulsivity, and lower risk of aggressive outbursts (Candini et al., 2020). Poor metacognitive functioning, on the other hand, has been associated with violent tendencies and difficulties in social judgment (Syaiful et al., 2022). Metacognition also plays a role in modulating the impact of mind-wandering and emotional dysregulation (Deng et al., 2019), both of which can fuel aggressive reactions. Furthermore, narcissism a personality trait characterized by grandiosity, entitlement, and sensitivity to criticism may act as a mediator or moderator between these variables and aggression. Research suggests that narcissism may exacerbate aggressive tendencies, especially when one's self-image is threatened (Du et al., 2022). In combination with traits like Machiavellianism or low mindfulness, narcissism can lead to heightened emotional reactivity and interpersonal conflict. Given this background, the present study aims to assess the predictive roles of Machiavellianism, mindfulness, and metacognitive awareness in aggression among young adults, while also exploring the moderated mediating role of narcissism (Amad et al., 2021). Understanding how these psychological traits interact can provide important insights for developing interventions to reduce aggression and promote healthy psychological functioning in young populations.

### **Problem Statement**

Aggression in young adults is a real psychological and sociological worry, especially in the context of universities. One of the key personality variables of concern is Machiavellianism, characterized by manipulation of others, emotional detachment, and a willingness to exploit others for self-gain (Liu et al., 2021). Recent research has found evidence of an increase in Machiavellianism, a sub-area of the Dark Triad, and impaired empathy, and communication, and the dissolution of healthy relationships in young adults (Kinrade et al., 2022). Mindfulness and metacognitive awareness are protective trait variables that promote emotion regulation and provide a protective influence against impulsiveness and aggressive behavior. The nature of the relationship between these variables and aggression may be complex and mediated by other personality traits or dimensions such as, narcissism. Narcissism is characterized by grandiosity and over-reaction to threats against the self and may play a mediation role in the relationship between Machiavellianism and aggression. Understanding the interaction of each of these variables is crucial to developing intervention methods intended to improve interventions to reduce aggression and learner emotional well-being among young adults. This study aims to investigate the predictive role of Machiavellianism, mindfulness, metacognition awareness, and aggression, while exploring narcissism as a mediator.

### **Purpose of the Study**

The main objective of the study is to explore the predictive functions of Machiavellianism, mindfulness, and metacognitive awareness on aggression in young adults. With narcissism becoming more common in young adults, the study intends to also examine the mediating role of

narcissism in these relationships. These constructs of psychology and experimentation link to increased emotional dysregulation, relational or interpersonal distress, and aggression; therefore, it is essential to investigate the potential interdependent effects of these traits. This research aims to review how they appear in the culture of young adults in Pakistan, where there is a lack of empirical studies. The researchers aim to find way to help improve the local literature by contributing insights that could potentially lead to culturally competent interventions to help promote emotional regulation, social awareness, and changes in behavior among youth. Overall, the study aims to help understand the psychological underpinnings of aggression, advancing our understand of how personality traits and cognitive-emotional competencies shape behavioral dispositions and actions.

### **Aims & Objectives**

The purpose of the research was to assess the association among Machiavellianism, Mindfulness, Metacognition and Aggression and Narcissism. How these variables are the predictors of aggression in young adults and moreover with the mediating role of narcissism. The study aimed to assess the role of Dark Tetrad personality traits psychopathy, narcissism, extreme selfishness and sadism on the life style of students that how many negative means they use to promote their selves and harm others for their own wellness. How gender differences contribute to promote psychopathic behaviors by using Machiavellian traits and what are factors behind these negative behaviors. The objective of this study was to investigate that how mindfulness and metacognition help young adults to change their negative behaviors into optimistic views toward other students.

### **Hypotheses**

- There would be a significant relationship among Machiavellianism, metacognitive awareness, aggression and mindfulness and Narcissism.
- Machiavellianism, metacognitive awareness, mindfulness and Narcissism would predict Aggression.
- Narcissism would significantly mediate the association between Mindfulness and Machiavellianism
- Narcissism would significantly mediate the association between metacognitive awareness and aggression.

### **Method**

#### **Research Design**

The study followed the Correlation Research design.

#### **Sample**

We used sample of 150 peoples including 79 male and 71 female students of GCU University Lahore. The sample was done by using purposive sampling technique.

#### **Inclusive/Exclusive criteria**

1. Young adults were included in this study with the age range of 18 to 28 years.
2. Those who were not fall in the age range of 18 to 28 were be our exclusive criteria.

#### **Measuring Instruments**

In this study used 5 scales to measures mindfulness, Machiavellianism, aggression and metacognitive awareness and narcissism.

### **Aggression**

Aggression had been assessed through the Buss-Perry Aggression Questionnaire (BPAQ) (Buss & Perry, 1992), which is a well-established tool for assessing individual differences in aggression. The BPAQ consists of 29 self-report items to be rated on a 5-point Likert scale, with response options ranging from “extremely uncharacteristic of me” to “extremely characteristic of me.” The BPAQ is intended to assess four separate but related dimensions of aggression: Physical Aggression (items 1–9;  $\alpha = 0.78$ ), Verbal Aggression (items 10–14;  $\alpha = 0.48$ ), Anger (items 15–21;  $\alpha = 0.76$ ), and Hostility (items 22–29;  $\alpha = 0.71$ ). Each of the four subscales assesses a different aspect of aggression: Physical Aggression assesses either the use or the threat of physical force; Verbal Aggression pertains to confrontational or hurtful speech; Anger assesses emotional arousal and impulsive behaviors; and Hostility concerns cognitive components, such as cynicism and resentment. While the Verbal Aggression subscale had lower reliability than the others, the BPAQ had good internal reliability as a measure of aggression overall (Cronbach’s  $\alpha = 0.85$ ), and was able to reliably measure the multidimensionality of aggression across the sample population.

### **Mindfulness**

Mindful Attention Awareness Scale (MAAS) was utilized for measurement of the level of mindfulness among the participants. Its a measure designed by Brown and Ryan (2003). The MAAS is a 15-item self-report measure that taps into a fundamental aspect of mindfulness, which is a receptive and attentive awareness of present moment experiences. Participants rated or self-reported how often they experienced each item on an interval scale from 1 (almost always) to 6 (almost never). Thus the MAAS assesses the extent to which individuals are aware of and attentive to their thoughts, emotions, and environment in everyday life. Given the MAAS has an excellent reliability with internal consistency estimates as indicated by Cronbach's alpha of 0.92, thus the MAAS is to be considered a reliable measure of trait mindfulness.

### **Metacognitive awareness**

The Metacognitive Awareness Inventory was assessed for the measurement of metacognitive awareness designed by Schraw & Dennison (1994). MAI assesses metacognitive awareness associated with learning; MAI contained 52 items. Test-retest reliability coefficient of MAI over three-week period was 0.95 and also having strong alpha reliability of 0.95.

### **Machiavellianism**

Machiavellianism was measured using the Mach-IV Scale (Christie & Geis, 1970), one of the most common measures of personality. The Mach-IV Scale is composed of 20 items, that each present a statement, the respondents indicate their level of agreement. The respond will choose one of the five responses on a Likert (1 = strongly disagree, 5 = strongly agree) every item on the scale will take less than 2 minutes to respond only takes 5 minutes to complete . The Mach-IV Scale yields an acceptable level of internal consistence with a Cronbach's alpha of .70.

### **Narcissism**

The Hypersensitive Narcissism Scale (HSNS) was used to measure narcissism, which is the 10-item follow-up measure derived from Murray's (1938) construct and is implemented to measure covert narcissism. The HSNS has provided a comparable pattern of correlation as the MMPI-derived composite measure, supporting it is convergent validity through the Big Five Inventory, which is almost zero correlation with the HSNS and MMPI-derived composite measure compared to the Narcissistic Personality Inventory (NPI) used to measure overt narcissism, indicating

distinction between the two audit categories. The items were rated on a 5-point Likert scale. The HSNS has good internal consistency, with a Cronbach's alpha of .83.

### Data Analysis

The data collected was analyzed using SPSS 22.0. Pearson product moment correlation was used for assessment of correlations among the constructs. In addition, predictive associations among the variables were tested through stepwise regression. Moreover, independent sample t test was used for identification and analysis of gender differences. Additionally, mediation analysis was used to assess the mediating effect of narcissism.

### Procedure

For this study, an official approval was received from the university administration. After receiving the official letter of approval, data collection at Government College University, Lahore continued. Participants were informed about the study, both purpose and process, and provided a written informed consent form to acknowledge that participation was voluntary. Students were asked to fill out questionnaires targeted to assess psychosocial correlates in five ways with the additional aim of determining possible and relevant environmental influences on constructs. Participants' answers were based on their responses to standardized scales correlating with each construct. Ethical practices were adhered to throughout the process. Ethical practices included official approval from the university, clearly explaining the study to participants, and receiving written consent before data collection began.

### Results

**Table 1** *Demographic Characteristics of the Participants (N =150)*

Variables	<i>f</i>	%
Gender		
Male	79	52.7
Female	71	47.3
Age		
18-23	91	60.7
24-28	59	39.3
Marital Status		
Single	124	82.7
Married	26	17.3
Education Status		
Matric	6	4.0
Inter	29	19.3
Graduate	77	51.3
Postgraduate	38	25.3
Residential		
Urban	86	57.3
Rural	64	42.7
Socioeconomic Status		
Low	11	7.3
Middle	130	86.7
High	9	6.0

Note. *f* = Frequency

The analysis shows that 47.3% of the participants were females and 52.7 were males. All these pupils belonged to the age ranged from 18 to 23 and 24 to 28 years where 60.7 % were from the age ranged of 18 to 23 and 39.3 % were the age ranged from 24 to 28. Including the sample of 150, 82.7 % were single and 17.3 % married. Educational status was matric to postgraduate and 4.0 % were matric students, 19.3% were Intermediate students, 51.3 were Graduate and 25.3% were belonged to postgraduate. In terms of residential status 57.3% were belonged to urban areas and 42.7% from rural areas. In terms of socioeconomical status 7.3 % belonged from Low economic status, 86.7 % from middle economic status and 6.0% from low economic status.

**Table 2** *Cronbach Alpha Reliabilities of the Study Instruments*

Variables	$\alpha$	No. of Items
Mindfulness	.91	15
Machiavellianism	.71	20
Metacognitive Awareness	.89	52
Aggression	.94	29
Narcissism	.82	10

Note: M= Mean, SD= Standard Deviation,  $\alpha$ = Reliability coefficient.

Reliability analysis was conducted to check the reliabilities of the Mindfulness, Machiavellianism, Metacognitive Awareness, Aggression and Narcissism. Aggression had the highest reliability .94 followed by Mindfulness .91, Metacognitive Awareness .89, Narcissism .82 and Machiavellianism had .71 reliability. All scales were marked for having a high reliability except Machiavellianism.

**Table 3** *Associations among Mindfulness, Machiavellianism, Aggression, Metacognition and Narcissism*

Variables	1	2	3	4	5
Mindfulness	-	-.53**	-.23**	.53**	-.17*
Machiavellianism		-	-.03	-.44**	.10
Aggression			-	-.11	-.08
Metacognitive Awareness				-	-.06
Narcissism					-

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

Pearson product moment correlation was conducted to assess the association among Mindfulness, Machiavellianism, Aggression, Metacognition and Narcissism. The results showed that there was a significant positive relationship between Mindfulness and Machiavellianism ( $r = -.53, p < .00$ ) with

aggression ( $r=-.23, p<.00$ ) with Metacognitive Awareness ( $r=.53, p<.00$ ) and with Narcissism ( $r=-.17, p<.03$ ). Machiavellianism was also shown to have a significant relationship with aggression ( $r=-.23, p<.00$ ) with Metacognitive Awareness ( $r=.53, p<.00$ ).

**Table 4** *Stepwise Regression for predicting Aggression*

Variables	<i>B</i>	<i>R</i> <sup>2</sup>	$\Delta R$	<i>SE</i>	$\beta$	$\rho$	<i>CI</i>	
							LL	UL
Model 1		.05	.05					
Mindfulness	-.12			.04	-.24	.00	-.21	-.04
Model 2		.09	.08					
Mindfulness	-.19			.05	-.36	.00	-.29	-.09
Machiavellianism	-.19			.07	-.23	.01	-.35	-.04

*Note.*  $N=150$ , *CI*=Confidence Interval, *LL*=Lower Limit, *UL*=Upper Limit

Stepwise regression was used to access whether Machiavellianism and Mindfulness significantly predict Aggression. The results shows that only mindfulness ( $B=-.19, p<.05$ ) and Machiavellianism ( $B=-.19, p<.05$ ) significantly predict aggression. Moreover,  $R^2$  accounted only for 9% variance on dependent variable. On the other hand, Metacognitive Awareness ( $B=-.03, p<.69$ ) and Narcissism ( $B=-.12, p<.11$ ) did not significantly contribute in prediction of aggression therefore it was excluded from the table.

**Table 5** *Mean Difference between Mindfulness and Machiavellianism on Aggression*

Variables	<i>SS</i>	<i>df</i>	<i>MS</i>	<i>F</i>	$\rho$	Partial $\eta^2$	Observe Power
Mindfulness	3283.35	45	72.96	2.06	.01	.73	.97
Error	1166.82	33	35.35				
Machiavellianism	2324.74	32	72.64	2.05	.02	.66	.96
Error	1166.82	33	35.35				

*Note.*  $*p<0.05$

In the previous analysis, Levene's Test for Equality of Variances determined that the assumption of homogeneity of variance was not violated since no significant mean difference existed among the variables, and a normality test was conducted for the dependent variable, Aggression, with the variables being normally distributed and thus another key assumption was satisfied to subject the data to ANOVA. The analysis established that Mindfulness and Machiavellianism have a significant main effect on Aggression, specifically Mindfulness, yielded  $F(45, 33) = 2.06$ , Partial  $\eta^2 = .73$ , and Observed Power = .97, and Machiavellianism yielded the same results of  $F(45, 33) = 2.06$ , Partial  $\eta^2 = .73$ , and Observed Power = .97. The overall model showed a significant effect

on Aggression  $F(32, 33) = 2.05$ , Partial  $\eta^2 = .66$ , and Observed Power = .96, which concludes that these independent variables explain a significant amount of variance in aggression.

**Table 6** Mean difference between Metacognitive Awareness and Narcissism on Aggression

Variables	SS	df	MS	F	$\rho$	Partial $\eta^2$	Observe Power
Metacognitive Awareness	4625.41	60	77.09	1.99	.04	.85	.91
Error	771.50	20	38.57				
Narcissism	884.21	10	88.42	2.29	.05	.53	.85
Error	771.50	20	38.57				

Note:., \* $p < 0.05$

Levene's test revealed no significant differences in the means between the variables, suggesting that the homogeneity of variance assumption was met, and a normality test conducted for the dependent variable, Aggression, demonstrated that the variable was normally distributed. The analysis showed that Metacognitive Awareness, and Narcissism had a significant main effect on Aggression. Metacognitive Awareness yielded  $F(60, 20) = 1.99$ ,  $p < 0.05$ , partial  $\eta^2 = 0.85$ , and observed power = 0.91 respectively; Narcissism found  $F(10, 20) = 2.29$ ,  $p < 0.05$ , partial  $\eta^2 = 0.53$ , and observed power = 0.85. This suggests that both variables account for a big proportion of variance from aggression.

**Table 7** Mediating Effect of Narcissism on the association between Mindfulness and Machiavellianism

Steps	B	SE	$\rho$
Step 1(Path c) Outcome: Machiavellianism			
Mindfulness	-.34	.04	.00
Step 2(Path a) Outcome: Narcissism			
Mindfulness	-.02	.01	.05
Step 3(Path b) Outcome: Machiavellianism			
Narcissism	.07	.29	.80
Step 4(Path c') Mediator: Narcissism			
Predictor: Mindfulness	-.33	.04	.80

Note. B=standardized coefficient, SE= Standard Error, \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .0001$

The current analysis employed the bootstrapping technique outlined by Preacher and Hayes (2008) to examine whether narcissism mediated the relationship between mindfulness and Machiavellianism. Path "c" tested the direct relationship between mindfulness (independent variable) and Machiavellianism (dependent variable). The results showed there was a significant negative predictive relationship ( $B = -0.34$ ,  $p < .001$ ) where increased mindfulness predicted less Machiavellianism. Path "a" evaluated the relationship between mindfulness and the presumed



mediator (narcissism). This path resulted in a significant negative predictive relationship ( $B = -0.01$ ,  $p < .05$ ) where increased mindfulness was also associated with less narcissism. On the other hand, path "b" evaluated narcissism's effect on Machiavellianism, and this was nonsignificant ( $B = 0.07$ ,  $p = .80$ ) suggesting there was no significant relationship between them.

For path "c" (direct effect of mindfulness on Machiavellianism controlling for narcissism), this was still significant and suggests that adding in narcissism did not appear to substantially change the relationship. The bootstrapped confidence intervals (BootLLCI and BootULCI) for the indirect effect also included zero, which supports that narcissism was not a substantial mediator of the two variables. Overall, these results indicate that there was no mediating effect, and the relationship between mindfulness and Machiavellianism is directly related, as opposed to mediate by narcissism.

## Discussion

The purpose of the study was to determine the association among Machiavellianism, Mindfulness, Metacognition, Aggression and Narcissism. How these variables are the diviners of aggression in young adults and moreover with the mediating role of narcissism. The study aimed to estimate the role of Dark Tetrad personality traits psychopathy, narcissism, extreme selfishness and sadism on the life style of students that how many pessimistic means they use to assist their selves and harm others for their own wellness. How gender differences contribute to promote psychopathic behaviors by using Machiavellian traits and what are factors behind these negative behaviors. The objective of this study was to investigate that how mindfulness and metacognition help young adults to change their negative behaviors into positive views toward other students. It was hypothesized firstly, that there will be a significant relationship among Machiavellianism, aggression, metacognitive awareness, mindfulness and Narcissism. The results of our study have shown the confirmation to our hypothesis. The findings of this study indicated that all these variables are correlating with each other. High level of Metacognitive Awareness and Mindfulness predict low level of Aggression. There is literature confirmation that supports our results but their literature is quite disintegrate as they propose to find put the relationship between four or five variants. In a study conducted by Scavone (2010), who aimed to find out the connection among Machiavellianism, aggression, metacognitive awareness, mindfulness and Narcissism, 246 participants from Canada were included in this study. The results supported our results as they concluded that all these variables are correlating with each other. Machiavellianism has been linked to more violent conduct, and mindfulness has been linked to the perpetration of aggression in teenagers, according to earlier research. The current study looked into how Machiavellianism and mindfulness relate to aggression and the role that it plays in metacognition. For this study, a total of 879 young adults in China were enrolled.

Secondly it was hypothesized that Machiavellianism, metacognitive awareness, mindfulness and Narcissism would predict Aggression and there will be a significant correlation among all these variables. The results of our study predicted that Mindfulness and Machiavellianism are significantly predicting aggression in young adults. This shows that those pupils who have high quality of Machiavellian traits and less use of Mindfulness are more aggressive than those who have no Machiavellian trait and high quality of Mindfulness. Furthermore, study predicted that Metacognitive awareness and Narcissism are non-significantly predicting aggression among young adults. Literature shows that high quality of Metacognitive awareness will reduce aggression in young adults and high traits of Narcissism predict aggressive traits but in study these two variables are showing non-significant results. Specifically, agreeing with theory and past

research (Moore & Miller, 2022) found that Machiavellianism positively speculate aggression in young adults and mindfulness negatively predicts aggression. These results also indicate that mindfulness can play a positive role in decreasing aggressive behaviors in young adults. Moreover, some other studies reported relations among Machiavellianism, Mindfulness and aggression in young adults (Kim et al., 2022). Consequently, mindfulness decreases aggressive behavior and since it promotes the ability to cope with negative emotions related to aggressive behaviors. According to recent studies (Zhang & Zhang, 2023), among adolescents, Machiavellianism was positively correlated with aggression and narcissism whereas mindfulness was favorably correlated with low level of aggression. When aggression was introduced into the relationship between Machiavellianism and mindfulness, the indirect impact model shows that the direct influence of these concepts is still substantial. Narcissism plays a mediating function in reducing aggressive tendencies at high levels of mindfulness, which is a form of good current internal state (Du et al., 2022). Teenagers with higher degrees of mindfulness were therefore more likely to be aware of more support and have stronger empathy skills than those with lower levels, which may help to lessen their cyberbullying behaviour. This study offers preliminary evidence that the growth of aggression among Chinese adolescents who exhibit low level of mindfulness and high tendencies of Machiavellianism. These findings also explain, which demonstrated that Machiavellianism, a variable of impel lance, might increase adolescents' propensity to aggressive behaviour and others through the mediating effect of narcissism. On the other hand according to our results Metacognitive awareness and narcissism do not predict aggressive behavioral tendencies, whereas our second was hypothesis rejected.

A third hypothesis was that narcissism would mediate the relationship between mindfulness and Machiavellianism. In the literature, increased mindfulness has generally been thought to correlate with decreased narcissism in young adults, while increased Machiavellian traits correlate positively with increased narcissism. However, studies did not find evidence in support of this hypothesis. Specifically, narcissism did not mediate the relationship between mindfulness and Machiavellianism, and identified no statistical evidence to support its role as a mediator in this association. Even though this finding was not significant, previous literature provided some evidence suggesting narcissism might play a mediating role. For example, Block-Lerner et al. (2007) maintained that narcissism should not be considered a beneficial or buffering agent in the relationship between mindfulness and maladaptive traits such as Machiavellianism. Conversely, Liu et al. (2021) suggested that narcissistic traits enhanced through ego-boosting behavior may strengthen Machiavellian traits and narcissist behaviors in young adults.

In addition, narcissism was again shown to be a significant predictor of aggression in young adults (Barry et al., 2007). Narcissism is associated with entitlement, lack of empathy, excessive reaction to criticism, and reactive aggression. While these traits may create aggression, narcissism may also increase Machiavellian behavior, especially when exposed to interpersonal rejection and frustration (Kinrade et al., 2022). Additionally, emphasizing the strength of the relationship, Washburn et al. (2004) found that overt aggression, violent behavior, and relational aggression were still significantly associated with narcissism traits, when controlling for narcissism. In general, research examining narcissism and aggression highlight a strong and direct relationship, indicating the relevance of narcissism in explaining antisocial and manipulative behaviors in young adults.

### **Limitations**

The current study had a number of limitations. First, the sample was limited to the students at Government College University. This restriction diminishes the validity of the findings; particularly due to the lack of students from other colleges and private universities. Without students from a sufficiently diverse range of colleges, we cannot know whether or not the sampled participants fractionally reflect any kind of general student populations. The researchers also faced time limitations that impeded them from disbursing a survey to a more robust sample. In a longer timeframe, it is likely that a more robust sample would yield a more reliable, and likely different set of findings. Additionally, the current study was limited to students at one institution in one area. Including participants from other geographical areas could have added a different aspect of to the study, and added more comprehensive findings. Future research could also employ a longitudinal phased. Longitudinal research is necessary for capturing change over time and for further expounding on the relationships among the variable examined.

### **Implications and Recommendations**

The current study has helped us comprehend the importance of narcissistic behaviour, metacognitive awareness, Machiavellian tendencies, and mindfulness in predicting violence in young adults.

These results can be applied in academic settings. In order to ensure a healthy and supportive environment that will increase students' mindfulness, develop metacognitive awareness, lessen Machiavellian traits, and lessen narcissistic behaviour in their lives, educational institutions should emphasize and provide higher levels of awareness and training to the educational faculty and the families of the students. Additionally, educational psychologists can use these data to create training programs for parents, teachers, and students themselves to accomplish this goal.

These findings are crucial because they demonstrate how various educational environments and systems affect students' key cognitive capacities and are accountable for their future behaviour. It demonstrates that a variety of personal characteristics, both internal and external, have an impact on the development of unhealthy and violent behaviour in young adults. These characteristics include Machiavellian qualities.

To reduce Machiavellian tendencies in young adults, the government should conduct an analysis and improve the educational system. The greatest educational environment design and a unified educational system, the ones that are most successful for students' mental health along with their future success and pessimistic conduct, should be adopted by all institutions. Based on their location on the globe, such educational systems ought to be used in cities. This can help multiple pupils to decrease aggressive behavior.

### **Conclusion**

It can be concluded that low level of mindfulness, metacognitive awareness and high Machiavellian traits directly effect on aggressive behavior in young adults. It has been found that the students with higher level of mindfulness and have metacognitive awareness are more mentally healthy, more creative in their educational as well as in their personal life and in classroom settings. The students with more metacognitive awareness are less aggressive. It can also be concluded that students who are more open to experience Machiavellian traits as well are behaviorally aggressive and have narcissistic traits that prone to produce problems in colleges, universities, classroom settings and can create many other problems. According to our results this can be concluded that environmental resources have been demonstrated to be essential for improving mindfulness and metacognitive awareness. There is not any mediating effect of Narcissism with other four

variables. Furthermore, Machiavellianism and Mindfulness predict high level of aggression in young adults.

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