

Dark Tetrad Trait and Gaslighting: Examining the Mediating Role of Cognitive Distortions Among Young Adults

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Abstract

The study aimed to determine the relationship between dark tetrad traits, cognitive distortion and gaslighting in peer relationships among young adults. A sample of 300 young adults, both male and female, between the ages of 18 and 30, was selected using convenience sampling. The Short Dark Tetrad Scale, Victim Gaslighting Questionnaire, and Cognitive Distortion Scale were administered to the participants. Our independent variable was dark tetrad traits, independent variable was gaslighting, while cognitive distortion was mediator. The current study employed correlational research design to uncover how cognitive distortions mediate the relationship between these dark traits and gaslighting among young adults in peer relationships, providing vital insights into the psychological mechanisms that impact mental health and relationships. Pearson Product-Moment Correlation and Simple Mediation Analysis were used to analyze the data. Mediation analysis revealed that dark tetrad traits have significant and positive direct and indirect effects on gaslighting, with cognitive distortions partially mediating this relationship. The findings have implications for mental health interventions that can be made by the development of targeted intervention plans to guide university students about mental health issues, such as gaslighting.

Key Words: Dark Tetrad traits, Cognitive distortions, Gaslighting tactics, Peer relationship.

Introduction

In human relationships, there is a marginal difference between being influenced or being manipulated and it often goes unnoticed due to its subtle changes. Gaslighting is one of the most insidious types of manipulation; it is a psychological manipulation technique in which victims are made to doubt their own sense of reality, memory, and sanity (Stern, 2007). These tactics can hurt one's self-esteem, psychological well-being and undermine trust in interpersonal

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relationships. With the boom of digital communication, such manipulative practices have become increasingly prevalent (Klein & Woad, 2022), indicating the significance of understanding the psychological and personality-based mechanisms that underlie gaslighting.

Gaslighting has been frequently examined in the context of romantic relationships, studies found that it can happen in a variety of relational domains such as workplace partnership, employer-employer interactions, teacher-student relationships, and peer relationships (Akdeniz & Cihan, 2024). In addition to diverse domain, power imbalance, social hierarchies, they are linked to gender inequality, an imbalance in social status or a situation involving levels of education, income, and occupation are facilitating factors for gaslighting (Graves & Samp, 2021; Irigaray et al., 2023). Recent studies found that although interest in gaslighting has grown, empirical research remains limited and culturally narrow, underscoring the need to extend beyond western culture (Akdeniz & Cihan, 2024).

In furtherance of this, Hill (2024) provides a critique of Cameron Kirk-Giannini's Dilemmatic theory of gaslighting. Through philosophical analysis of peer cases, Hill claims that gaslighting can occur even without intent to harm. By showing how epistemic competence and peer disagreement can silence marginalized voices, Hill situates that gaslighting within the broader process of epistemic injustice, particularly prominent in academic and peer contexts where young adults navigate power dynamics and identity.

Personality traits that have become apparent as key elements in understanding gaslighting behavior are dark tetrad traits. It consists of narcissism, Machiavellianism, psychopathy, and sadism, and represents a constellation of socially aversive traits associated with exploitation and manipulation (Paulhus & Williams, 2002; Paulhus & Dutton, 2016).

Individuals high in these traits are vulnerable to self-enhancement, deception, and callousness, creating fertile ground for manipulative tactics. Emotional research has demonstrated that dark tetrad traits are positively linked with the use and acceptance of gaslighting strategies, with psychopathy and Machiavellianism being particularly robust predictors (March et al., 2019; March et al., 2023).

Cognitive dictation are systematic thinking errors that skew one's perception of reality and help maladaptive interpersonal behavior. Patterns like black and white thinking, discounting the positive, jump to the conclusion and externalize blame contribute to maladaptive relational styles. (Beck, 1976). Gaslighting creates self-doubt and confusion, eroding an individual's sense of reality by exploits epistemic trust (Spear, 2019).

Furthermore, McKinnon (2017) differentiates psychological gaslighting, which involves manipulating perceptions and memories through environmental changes, from epistemic gaslighting or testimonial injustice, where an individual's experiences are invalidated due to prejudice. Both involve cognitive distortions. Klein et al. (2023) further distinguish the gaslighting from healthy relational dynamics, emphasizing its unidirectional, manipulative nature and its roots in social cognitive and epistemic processes. Studies have also found links between dark tetrad trait and distorted thinking and harmful interpersonal strategies like gaslighting. According to Hart et al. (2018) individuals possessing these traits tend to normalize socially inappropriate behavior due to cognitive biases. Pace et al. (2019) established a link

between blaming others and antisocial behavior in adolescents, while Trémolière and Djeriouat (2016) showed that dark tetrad traits can skew moral judgment, minimizing harm and personal responsibility. This research investigates the role of dark tetrad traits and cognitive distortions in gaslighting among young adults peer relationship. Victims susceptibility and peer dynamics remain underexplored, as prior studies have mainly concentrated on perpetrators and romantic or workplace contexts. This research provides an indigenous viewpoint on the psychological process that upholds gaslighting in daily interactions by investigating how cognitive distortions mediate this phenomenon.

In this study it is hypothesized that there will be a significant relationship between dark tetrad traits and cognitive distortions, significant relationship between cognitive distortions and gaslighting among peers in young adults and cognitive distortions will significantly mediate between the relationship between dark tetrad traits and gaslighting within peer relationships among young adults

Theoretical framework

I. Sociological theory of gaslighting

The sociological theory of gaslighting put forth by Sweet (2019) explained that gaslighting is not just individual psychological abuse but a macro aggressive phenomenon grounded in social inequalities related to gender, race and class. Gaslighting exploits stereotypes and institutional biases to distort a victim's reality especially in context of power imbalance. Sweet connects gaslighting to larger social structures, contending that it takes advantage of existing weakness and societal norms.

II. Cognitive Behavior Therapy (CBT)

CBT posits that emotional disorders are often triggered by cognitive distortions, that is individuals' habitual alterations and interpretations of their experiences (Beck, 1967). Cognitive distortions serve as the foundation for fundamental beliefs or schemas. As schemas are formed in early childhood, any early reasoning mistakes may be evident in the thinking processes that support schemas. Cognitive distortion occurs when information is processed incorrectly or inefficiently. Individuals who demonstrate elevated cognitive distortion tend to perceive the occurrences in their lives as pressure.

III. The Dark Factor of Personality

Zettler et al. (2021) proposed the Dark Factor of Personality. According to this hypothesis, interpersonal harm is predicted by three different but conceptually related psychological traits: psychopathy, narcissism, and Machiavellianism. These characteristics comprise the Dark Triad (DT) framework. Similar to the general (g) component of intellect, the letter D represents the single underlying general dispositional propensity that gives birth to particular negative attributes. Therefore, D is the essential quality that unifies all of these undesirable traits and is the origin of all similarities.

3. Method

The study sample included 300 Pakistani university students (52.7% male; 47.3% female) aged between 18 and 30 years. A convenience sampling technique was employed. Participants were recruited through various online platforms, including social media, academic forums, and

local groups. This study employed a correlation design.

Assessment Measures

I. The Short Dark Tetrad (SD4) Scale

Paulhus et al, (2020) developed the Short Dark Tetrad (SD4) scale, which consists of 28 items. The five-point Likert scale ranged from 1 (strongly disagree) to 5 (extremely agree). The measure consists of four independent subscales: psychopathy, sadism, narcissism and Machiavellianism, each with seven items that scored from 7-35, where high scores indicates greater presence dark traits. It contain no reverse-coded items and demonstrates good reliability; psychopathy (.81), sadism (.81), narcissism (.80) and Machiavellianism (.75) (Paulhus et al., 2020)

II. Victim Gaslighting Questionnaire (VGQ)

In 2021, Bhatti and colleagues created and validated the Victim Gaslighting Questionnaire (VGQ). The scale consists of 14 self-report items assessing behaviors, belief, and feelings resulting from gaslighting, rated on a five point Likert scale (1 being strongly disagree to 5 being strongly agree). Score ranges from 14-70, with higher scores indicating more frequent gaslighting experiences. This scale included two subscale, loss of trust and peer disagreement and it was developed through focus groups with domestic violence victims and literature review. Scale demonstrates strong reliability with a Cronbach's alpha of $\alpha = 0.934$ and high subscale correlations ($r=0.95$ and 0.87) (Bhatti et al.,2021).

III. Cognitive Distortion Scale (CDS)

Covin and his colleagues developed the Cognitive Distortion Scale. In this scale ten different categories of cognitive distortions are evaluated by 20-item self-report test. It is a seven points Likert scale, where 1 represents never and 7 represents always. Each cognitive distortion is rated on the scale's two subscales, interpersonal performance (PA) and personal achievement (IP). The scale has strong internal consistency with the (Cronbach's $\alpha = .85$) (Covin et al., 2011).

Table 1 shows that the sample distributions are free of skewness and kurtosis values as all values lied between the acceptable range of +2 to -2.

Result showed that all dark tetrad traits were significantly negatively and weakly associated with cognitive distortion and positively associated with both subscale of victim gaslighting scale i.e. loss of self-trust and peer disagreement. Similarly, interpersonal performance and personal achievement were both significantly, moderately and negatively related to loss of self-trust and peer disagreement, indicating that strong social competence and perceived success were linked to reduced self-doubt and peer conflict.

Table 1
Psychometric Properties of Study Variables (N = 300)

Variables	k	M	SD	Range	a	Skewness	Kurtosis
Dark tetrad trait	28	2.45	0.60	28-140	0.88	0.18	0.32
Machiavellianism	7	2.29	0.73	7-35	0.85	0.28	-0.05
Subscales							
Narcissism subscale	7	2.32	0.76	7-35	0.82	0.22	-0.26
Psychopathy subscale	7	2.48	0.82	7-35	0.78	0.25	-0.42
Sadism subscale	7	2.69	0.91	7-35	0.72	0.33	-0.38
Cognitive Distortion	20	4.54	0.97	20-140	0.95	-0.24	-0.08
Interpersonal Performance subscale	10	4.45	1.02	10-70	.90	-0.16	-0.34
Personal Achievement subscale	10	4.63	0.98	10-70	0.89	-0.47	0.23
Gaslighting	14	2.14	0.71	14-70	0.86	0.43	0.37
Loss of Self-trust subscale	7	2.08	0.74	5-25	0.72	0.44	0.05
Peer Disagreement subscale	7	2.17	0.79	9-45	0.81	0.42	0.19

Note. K = Total no of items, a = Cronbach's alpha, M =mean. SD= standard deviation

Table 2
Correlation between Dark Tetrad Traits, Cognitive Distortion and Gaslighting among Peers (N=300)

	n	M	SD	1	2	3	4	5	6	7	8
Machiavellianism	300	2.29	.73		-.34**	.37**	.39**	-.18**	-.18**	.42**	.39**
Narcissism	300	2.32	.76		--	.49**	.31**	-.14*	-.14*	.36**	.43**
Psychopathy	300	2.48	.82		--	-	.46**	-.25**	-.26**	.48**	.40**
Sadism	300	2.69	.91		--	-	-	-.15**	-.17**	.37**	.34**
Interpersonal performance	300	4.45	1.02		--	-	-	-	.89**	-.34**	-.30**
Personal achievement	300	4.63	.98		--	-	-	-	-	-.32**	-.29**
Loss of self-trust	300	2.08	.74		--	-	-	-	-	-	.63**
Peer disagreement	300	2.17	.79		-	-	-	-	-	-	-

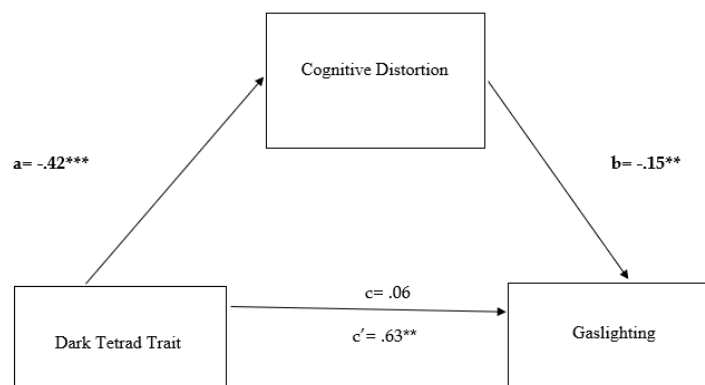
Note. M=mean; SD= Standard Deviation; *= $p < .05$; **= $p < .01$; ***= $p < .00$

Table 3

Schematic Presentation of Direct and Indirect Path of Dark Tetrad Traits, Cognitive Distortion, and Gaslighting in Peers among Young Adult (N=3003)

Criterion Variable	Predictor Variable	95% CI			
		β	p	LL	UL
Direct Effects					
Gaslighting	Dark Tetrad Trait	.63***	.000	.52	.74
Cognitive Distortion	Dark Tetrad Trait	-.42***	.000	-.60	-.24
Gaslighting	Cognitive Distortion	-.15**	.000	-.22	-.09
Indirect Effect					
Gaslighting	Dark Tetrad Trait through Cognitive Distortion	.06	---	.03	.12

The results presented in table 3 shows the mediating role of cognitive distortions in the relationship between dark tetrad traits and gaslighting. A significant positive direct effect of dark tetrad traits on gaslighting was observed showing that individuals with higher levels of dark tetrad traits are more likely to use gaslighting tactics. In contrast, dark tetrad traits were found to be negatively predicted cognitive distortions, suggesting that individuals with higher dark tetrad traits are less likely to report cognitive distortions. Furthermore, cognitive distortions demonstrated a significant negative relationship with gaslighting, indicating that higher cognitive distortions are associated with a lower tendency to engage in gaslighting. The indirect effect of dark tetrad traits on gaslighting through the mediating role of cognitive distortion was also found to be significant, which suggests that cognitive distortion partially mediates the relationship between dark tetrad traits and gaslighting.

**Figure 3.1**

The mediating role of cognitive distortions in the relationship between dark tetrad traits and gaslighting in peers among young adults.

Discussion

Results of this study showed significant relationship between dark tetrad traits, cognitive distortion, and gaslighting in peers among young adults. It also found the partial mediating role of cognitive distortion between dark tetrad traits and gaslighting. The first hypothesis was that there would be a significant relationship between dark tetrad traits and cognitive distortions among peers among young adults. Results confirmed a strong inverse association between dark tetrad traits and cognitive distortion, consistent with prior research linking moral disengagement to antisocial behavior and dark personality factors (Sijtsema et al., 2019). Individuals high in Machiavellianism, narcissism, psychopathology, and sadism showed unique distortion patterns, narcissism relied on self-enhancement biases to buffer dissonance (Nott & Walker, 2021), sadists and psychopaths showed reduced emotional sensitivity that bypassed moral defenses (Vida et al., 2024), and Machiavellian individuals deliberately manipulated cognition to enable exploitation (Kowalski et al., 2024). These links were further shaped by cultural values and gendered socialization, as seen in reduced overt narcissism in collectivist societies (Liu et al, 2023) and greater risk-taking distortions among men (Moraes et al,2023). Similarly, across cultures psychopathy consistently predicts reduced guilt but differs in expression, appearing as overt aggression in Serbia and social manipulation in Asia (Mededovic & Petrovic,2015). Sadism is characterized by a unique form of reward-driven harm, with slower processing of negative cues suggesting deliberate enjoyment of others' suffering, predicting both victimization and perpetuation (Pineda et al, 2022). These effects are further moderated by gender and contextual lens, men show higher dark tetrad scores and risk-taking distortion (Moraes et al., 2023), while narcissistic women favor relational tactics over direct hostility (Brown et al.,2019). Moreover, academic competition fosters Machiavellian manipulation (Foley., 2020), and although dark tetrad traits predict cyberbullying globally, Asian participants report lower sadism reflecting cultural stigma against overt aggression (Brown et al., 2019).

The second hypothesis posits that there would be a significant relationship between cognitive distortions and gaslighting among peers among young adults. The result showed that cognitive distortions showed a significant inverse relationship with gaslighting behaviors, supporting dual-process models of cognition that position distorted thinking as breeding ground for manipulation. Peers became more susceptible to reality distortion due to personalization, catastrophizing, and emotional reasoning (Miano et al., 2021; Rietdijk, 2018), whereas gas lighters themselves used overgeneralization and mind-reading to justify dominance (Sarkis, 2018). Furthermore, self-verification theory supports that individuals seek consistency in their self-concept, even when negative (Hilman, 2023). According to Ermolova et al., (2024) individuals with entrenched negative self-schemas may resist gas lighters' false negatives because distorted self-views act as a psychological anchor, resists the external reality. Similarly, black and white thinkers may also limit gaslighting by adopting a firm stance that reduces ambiguity, while confirmation biases can weaken a gas lighter's ability to provoke doubt (Stern, 2023). Early distortion, such as emotional numbness, may foster resilience against manipulation (Presseau et al., 2018). Studies found that peer gaslighting correlates with 34% more catastrophizing thoughts than control groups, even without other abuse. Gaslighting predicts increased cognitive distortions and depressive symptoms (Tripathi & Shekhar, 2024; Tager et al., 2024). Furthermore, dynamics are moderated by cultural orientation, in collectivist

societies often conform through covert gaslighting, whereas individualist cultures favor overt denial and black and white thinking (Brewer & Chen, 2007; Engassser, 2024). Personality data further clarifies this relationship. Among 259 young adults, perpetrators scored high on detached and psychotic traits linked to dichotomous thinking, while victims exhibited disinhibition and hostility, suggesting impulsivity and cognitive rigidity increase vulnerability (Miano et al., 2021). Gaslighting erodes perception, trustful discourse, and self-discovery with overgeneralization and emotional reasoning amplifying susceptibility (Rietdijk, 2018; Miano et al., 2021). In addition, these effects are influenced by gender and cultural factors too, patriarchal norms intensify gaslighting against women and marginalized groups, while low socioeconomic individuals lacking access to counter narratives exhibit higher distortion rates (Muller, 2024).

According to the third hypothesis, cognitive distortions significantly mediated the relationship between dark traits and gaslighting. The results of the current study confirmed. Despite some negative correlations, the mediation model remained valid through inconsistent or competitive mediation, where indirect and direct effects act in opposite directions (McKinson et al., 2000; Lynch, 2011). Similar results from self-esteem happiness research (Salavera et al., 2020) support the possibility of mediators operating in divergent directions. This interpretation is supported by empirical evidence. Sohail et al. (2024) illustrated gaslighting mediating role between emotional sensitivity and dark personalities, exploring how distorted schemas in dark tetrad individuals amplify threats to dominance or self-image. Narcissists, for instance, may gaslight others to protect fragile self-concepts. March et al. (2025) further report that men, particularly those high in vulnerable narcissism and primary psychopathy, are more tolerant of gaslighting, strengthening gendered differences in manipulation tolerance. The present findings extend prior research by confirming significant indirect effect, dark tetrad traits influence gaslighting vulnerability primarily through cognitive processing patterns. This aligns with evidence linking dark traits to altered emotional valence ratings (Wertag et al., 2024) and suggests that distorted thinking, rather than direct personality effects, drives manipulative behaviors. The phase of emerging adulthood, which is a period marked by identity formation and unstable relationships, appears especially high risk for gaslighting exposure. Traits such as separation insecurity and distractibility may increase the susceptibility by shaping maladaptive cognitive patterns (Bellomare et al., 2024). These findings emphasize that young adulthood, an important period of identity development, relational experimentation, and shifting social roles is particularly sensitive to manipulative dynamics. Vulnerability to gaslighting and distorted thinking is further influenced by gender norms, socioeconomic disparities, and cultural expectations further shape (Müller, 2024; Stern, 2022). This study highlights potential intervention points by clarifying the cognitive mechanisms through which dark personality traits facilitate gaslighting. Interventions that aim at maladaptive schemas, critical thinking education, and tackling power imbalances may reduce susceptibility to manipulation and foster healthier peer relationships.

7. Conclusion

Dark tetrad traits exhibited weak negative association with cognitive distortions, yet moderate positive associations with gaslighting. Cognitive distortions were found to have

moderate negative correlations with gaslighting, indicating that distorted thinking might lower vulnerability to manipulation. Cognitive distortions partially mediated between the dark tetrad and gaslighting. The results emphasize the necessity of tackling personality traits and cognitive patterns to comprehend and avert peer gaslighting in young adults.

8. Limitations and Suggestions

These findings should be viewed alongside key limitations. Peer dynamics and outcomes may have been affected by other factors like social media usage, social comparison, and cyberbullying. Simultaneously, local mental health contexts and coping mechanisms could have influenced the individuals' responses. Lack of clear gaslighting universal definition and strong measures, combined with the use of brief tools such as the Victim Gaslighting Questionnaire and Short Dark Tetrad 4, may have limited the precision and depth. Future research should utilize longitudinal designs to elucidate causal relationships and examine cultural values, emotional intelligence, individual differences, peer dynamics, and social support as potential moderators for a deeper understanding of gaslighting, cognitive distortions, and dark tetrad traits.

Implications

The current study offers essential implications for mental health and education by informing evidence based strategies that promote resilience, empathy and ethical peer interactions among young adults. It highlights the significance programs that teach students about gaslighting and provide them with tools to resist manipulation.

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