The Dark Side of Success: A Study of Dark Tetrad Traits and Subjective Entrepreneurial Success-Achievement

Hanzla Ahmed^{1*}, Hira Awan², Ayesha Farooq² **Abstract**

The research investigated the relationship between Dark Tetrad personality traits (narcissism, Machiavellianism, psychopathy, and sadism) (Paulhus et al., 2021) and subjective perceptions of entrepreneurial success (Wach et al., 2020). Our hypothesis stated that these dark personality traits would positively correlate with subjective entrepreneurial success-achievement among the entrepreneurs. It was also hypothesized that Dark Tetrad traits would differ between genders. The research utilized quantitative methods with convenience-based non-probability sampling to gather survey responses from 200 entrepreneurs, 100 males and 100 females. The analysis showed two dark personality traits linked positively to subjective entrepreneurial success (Machiavellianism and narcissism). The independent samples *t*-test demonstrated how Dark Tetrad traits differ between genders. Women obtained significantly lower scores in Machiavellianism compared to men. Similarly, males displayed higher scores in the narcissism trait than females. Finally, males exhibited higher psychopathy levels when compared to female participants. In sadism, results were not statistically significant. Therefore, data shows partial evidence for hypotheses and findings are discussed in the context of entrepreneurs.

Keywords: Achieved Success, Correlation, Dark Personalities, Dark Tetrad, Dark Traits, Entrepreneurial Achievement, Entrepreneurs

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Introduction

Entrepreneurship stimulates innovation and economic growth, therefore, researchers often focus on this domain for their studies. fascination with entrepreneurial success continues to grow among people but researchers have yet to thoroughly investigate darker personality traits that may influence subjective entrepreneur success-achievement. The Dark Tetrad traits include the four personality traits: Machiavellianism. narcissism. psychopathy, and sadism. These personality characteristics form

behavioral spectrum that includes manipulative activities, self-centeredness, along with lack of empathy, and deriving pleasure from harming others, respectively (Paulhus et al., 2021). Understanding the way dark personality traits affect success perceptions (Wach et al., entrepreneurs requires comprehensive assessment. In the entrepreneurial domain characterized by risk-taking decisions it becomes fundamental to understand how dark personality traits influence success.

The study examines entrepreneurial success by analyzing how Dark Tetrad traits subjective entrepreneurial influence success-achievement. In order to gain a better understanding of the relation Dark Tetrad entrepreneurial success and achievement, the study examined possible correlation between all four dark traits and subjective entrepreneur success-achievement. Furthermore, we examined differences between genders in the expression of the Dark Tetrad traits. An online questionnaire

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reached participants from varied demographic backgrounds and industries to obtain a thorough understanding of the relationships between Dark Tetrad traits and subjective entrepreneurial success. A broad target demographic was chosen to overcome the limitations of previous studies (Hmieleski & Lerner, 2016). Similarly, another study investigating Dark Tetrad traits and entrepreneurial intentions included only students as the study population (Khawar et al., 2022). Therefore, this study fills the void in the personality psychology literature. This research aims to better understand how personality characteristics entrepreneurial success and achievement, and how Dark Tetrad traits differ among genders.

Background of the Research

The research was conducted to understand how Dark Tetrad traits affect subjective entrepreneurial success. The personal lives and interpersonal relationships of those possessing Dark Tetrad personality traits (Machiavellianism, psychopathy, sadism and narcissism) face difficulties in their lives according to research findings. The research makes it clear that relationship iealousy shows positive links Psychopathy and Machiavellianism traits while narcissism leads to romantic relationship jealousy (Vujović Međedović, 2023).

Scientific studies have not yet thoroughly examined the path which these Dark Tetrad traits take to impact entrepreneurial success or achievement. People with these traits are self-centered and perform unethical actions against others which can create a destructive workplace environment. By understanding Dark Tetrad traits, we can better determine potential negative markers that contribute to business failures and unethical conduct in entrepreneurship. Early risk factor detection enables policymakers along with educators and business leaders to put strategies in place that reduce their effects and promote better business standards.

The first variable includes four personality traits which combine narcissism, Machiavellianism, psychopathy and sadism. These traits display self-centering tendencies and manipulation of others, emotional detachment and deriving pleasure by inflicting harm, respectively. These four are classified as the Dark Tetrad (Paulhus et al., 2021).

The second variable is the perception that hold about entrepreneurs their entrepreneurial successes and achievements, which is called subjective entrepreneurial success-achievement. The comprehensive assessment entrepreneurial achievements includes five aspects; personal fulfillment, performance. community impact and personal financial rewards and workplace relationships (Wach et al., 2020).

Literature Review

Research in recent years has investigated how individual personality traits affect entrepreneurial success by establishing positive and negative attributes entrepreneurship. (Xie et al., 2018). According to them, Xie et al, narcissism (a negative trait) hinders growth. On the other hand, a study examined the role of narcissism in entrepreneurial intentions, findings revealed positive the and correlations between narcissism and locus of control, general self-efficacy, and risk propensity (Mathieu & St-Jean, 2013). The findings suggest that narcissism plays a role in explaining entrepreneurial intentions; however, this study only focuses on narcissism and neglects other traits within the Dark Tetrad. This shows a contradiction between the aforementioned two studies and calls for a further assessment regarding the correlation between Dark Tetrad Traits and entrepreneurship. This study hopes to fill the gap by at least gaining a better understanding of the relation between dark personality traits and success-achievement in entrepreneurs.

Furthermore, recent research has explored how positive traits (entrepreneurial fitness) and dark traits (narcissism,

Machiavellianism) influence entrepreneurial intentions (Hanson et al., Entrepreneurial 2024). demonstrated a positive connection to entrepreneurial intentions according to their research. The study findings underline how researchers must analyze positive and negative personality traits for a thorough examination of entrepreneurship-related traits and behavioral intentions. The two aforementioned studies only focus on entrepreneurial intention, this may display a relation between some dark personality traits (but not all) and entrepreneurship, however, it does not reveal a correlation between dark personality traits and subjective entrepreneurial successachievement (Faratzi et al., 2024).

The studies show that personality traits contain complex dimensions that need thorough investigation. Thus, they highlight the importance of researching personality traits and their impact on the entrepreneurial realm.

The Rationale of the Study

Researchers have paid limited attention to exploring the relationship between Dark Tetrad traits (Paulhus et al., 2021) and their connection to entrepreneurial successes and achievements. Research has established that both generalized self-efficacy and proactive personality entrepreneurial success (Rauch & Frese, 2007), however, research focusing on personality traits darker and relationship with entrepreneurial success remains limited or has certain limitations. mentioned above. This research investigates Dark Tetrad traits to identify if play possible any entrepreneurial realm and business ventures in general, thus, presenting important insights to business organizations and investors and policymakers and educators. Additionally, the study of dark personality professional traits success on entrepreneurship may contribute new knowledge to the field of personality psychology. The previous studies showed possible gaps in academic knowledge on

this very area (McLarty et al., 2021). Furthermore, previous research on dark personality traits concentrated entirely on the clinical field (Miller et al., 2007). This study fulfills a missing piece of scientific literature by studying how dark personality traits affect professional success and achievement in entrepreneurial settings.

Objectives of the Study

The research aimed to study Dark Tetrad traits and their relation with subjective entrepreneurial success-achievement and detect possible gender-related differences in the expression of Dark Tetrad traits among the target demographic (entrepreneurs).

Hypotheses

H I: There will be a significantly positive correlation between Dark Tetrad traits (narcissism, psychopathy, sadism, and Machiavellianism,) and subjective entrepreneurial success among the entrepreneurial demographic.

H II: Men & women will differ in Dark Tetrad traits (narcissism, psychopathy, sadism, and Machiavellianism) among the entrepreneurial demographic.

Method

Research Design

This quantitative research design evaluated how Dark Tetrad personality traits affect subjective entrepreneurial success-achievement in the entrepreneurs. Researchers used cross-sectional research design with correlational approach to investigate relationships between variables in this study.

Participants

The recruitment of participants occurred through non-probability, conveniencebased sampling methods which drew participants from entrepreneurial communities on social media platforms, and were contacted directly via direct messaging features and email communications. Α total of 200 entrepreneurs were randomly approached and selected from across various sectors to participate in the study which included 100 male and 100 female participants within the 25-60 age group from different backgrounds and industries.

Inclusion Criteria

100 male, and 100 female entrepreneurs aged 25 to 60 years from a broad range of industries were included in the study through a non-probability, convenience-based sampling approach.

Exclusion Criteria

Anyone who did not meet our aforementioned inclusion criteria was excluded from the analysis. For instance, we discarded four participants above our age range of 60 years.

Table 1Demographic Characteristics of the Participants (N=200)

Variables		f (%)	Ages	f (%)	
Genders	Male	100 (50.0)	25	5 (2.5)	
	Female	100 (50.0)	26	5 (2.5)	
			27	8 (4.0)	
			28	9 (4.5)	
			29	12 (6.0)	
			30	11 (5.5)	
			31	5 (2.5)	
			32	5 (2.5)	
			33	7 (3.5)	
			34	4 (2.0)	
			35	6 (3.0)	
			36	7 (3.5)	
			37	6 (3.0)	
			38	5 (2.5)	
			39	11 (5.5)	
			40	9 (4.5)	
			41	2 (1.0)	
			42	6 (3.0)	
			43	6 (3.0)	
			44	2 (1.0)	
			45	5 (2.5)	
			46	10 (5.0)	
			47	3 (1.5)	
			48	10 (5.0)	
			49	5 (2.5)	
			50	3 (1.5)	
			51	2 (1.0)	
			52	7 (3.5)	
			54	2 (1.0)	
			55	1 (0.5)	
			56	5 (2.5)	
			57	2 (1.0)	
			58	4 (2.0)	
			59	5 (2.5)	
			60	5 (2.5)	

Note. f= frequency, %= percentage

Assessment Measures

Demographic Information Questions

Relevant demographic data were requested from participants to examine the characteristics of the research sample. The demographic questions were asked about their gender and age. By gathering this information, we were able to assess the gender differences in dark tetrad traits.

Subjective Entrepreneurial Success- Achievement Scale (SES-AS)

It measures perceptions of entrepreneurial success across various dimensions (Wach et al., 2020). Subjective Entrepreneurial Success-Achievement Scale (SES-AS) served to evaluate participants' subjective views regarding their entrepreneurial achievements. In 2020 Dominika Wach along with her colleagues published the SES-AS scale which consists of 17 items evaluate different aspects that entrepreneurial success-achievement, including financial rewards and personal fulfillment together with workplace relationships, firm performance community impact (Wach et al., 2020). Participants evaluated the items through a Likert scale to determine how successful they felt in each domain.

Wach et al (2020) investigated the reliability and validity of the Subjective Entrepreneurial Success-Achievement Scale (SES-AS) in their paper "Entrepreneurs' achieved success: developing a multi-faceted measure." Internal consistency reliability of SES-AS was evaluated through Cronbach's Alpha (a) coefficients which was above .70 indicating good internal consistency for three subscales. However, the reliability measures for community impact (.53) and personal fulfillment (.65) came out lower than the others. Composite reliability (CR) was above the recommended .60 for four out of five facets, except community impact (Wach et al., 2020).

Short Dark Tetrad Scale (SD4)

Dark Tetrad traits such as sadism, narcissism, and Machiavellianism together with psychopathy are measured using this scale (Paulhus et al., 2021). The Short Dark Tetrad Scale (SD4) functions as an evaluation tool in this study. The 28 items of the SD4 scale, where seven items specifically measure one of the distinct dark traits (narcissism, Machiavellianism, psychopathy and sadism) in the scale (Paulhus et al., 2021). The survey participants rate each item on a Likert scale to rate their agreement or disagreement with the statements representing Dark Tetrad traits.

The authors reported in a paper in 2021 that reliability, construct validity, and factor structure were satisfactory for the SD4 in three different studies (Paulhus et al., 2021). The reliability coefficients (alphas) for the SD4 subscales were found to be in the optimal range that was recommended in a paper (Simms & Watson, 2007). The alpha reliability coefficients for the four subscales by gender were as follows: .80 for Narcissism, .75 for Machiavellianism, and .81 for Psychopathy and Sadism (Paulhus et al., 2021). The increase in alpha reliability compared to the previous version of the instrument (Short Dark Triad or SD3) indicates improved internal consistency and reliability of the SD4 scale. These findings show that SD4 serves as a reliable instrument to evaluate Dark Tetrad traits because the alpha coefficients are within the recommended range.

Procedure

Direct online recruitment methods were to obtain participants from entrepreneurial communities on social media platforms through non-probability, convenience-based sampling, and were contacted via direct messaging features and email invitations.

Participants provided their demographic data and rated on the Short Dark Tetrad Scale (SD4) and Subjective Entrepreneurial Success—Achievement Scale (SES-AS) through an internet-based questionnaire. The average completion time was ten to fifteen minutes. Furthermore, participants were assured of confidentiality and thanked for their participation.

Ethical Considerations

The authors of the SD4 and SES-AS granted official permission for their scales' use in this research project. All participants provided their informed consent for participation in this study. Additionally, the study protected participant confidentiality together with their right to remain anonymous. The researchers processed all gathered data securely, to ensure confidentiality and adhere to ethical guidelines throughout the research. Finally, the study was approved by Virtual University of Pakistan as part of the student's final year research project for his Bachelors of Science in Psychology degree.

Statistical Analysis

A Pearson's product-moment correlation analyzed the correlation between Dark Tetrad traits and subjective entrepreneurial success-achievement. Furthermore, an independent samples t-test was conducted to investigate if Dark Tetrad traits differ between genders in their target demographic.

Results

Descriptive analysis was performed to get the mean, and the standard deviation for the study's variables (Dark Tetrad traits and subjective entrepreneurial successachievement). Additionally, the reliability analysis was also performed for The Short Dark Tetrad scale and Subjective Entrepreneurial Success—Achievement scale.

Table 2 *Reliability Score of Scales (N=200)*

Scales	k	a
Dark Tetrad Scale	28	.79
Subjective Entrepreneurial Success-Achievement Scale	17	.95

Note. k= number of items, a= Cronbach alpha reliability

The Short Dark Tetrad scale has 28 items while its Cronbach's alpha reliability coefficient is .79, thus demonstrating strong internal consistency. The Subjective

Entrepreneurial Success-Achievement Scale comprises 17 items and shows a high level of internal consistency at .95.

Table 3 *Correlation between the Variables (N=200)*

Variables	1	2	3	4	5	M	SD
1.Subjective Entrepreneurial Success- Achievement	-	0.45**	0.52**	0.01	-0.05	3.52	.92
2. Machiavellianism	•	-	0.65**	0.39**	0.28	3.67	.64
3. Narcissism			-	0.52**	0.44**	3.44	.72
4. Psychopathy				-	0.45**	2.84	.79
5. Sadism					-	2.70	.84

^{**}p<.01

Note. M = mean, SD = standard deviation. k = number of items, $\alpha = \text{Cronbach alpha reliability}$

entrepreneurial Subjective successachievement displayed positive a correlation between two of the four Dark Tetrad traits as indicated by Table 4 results. The analysis showed that Machiavellianism (r = .45, p < .01) and narcissism (r = 0.52, p < .01)p < 0.01) correlated positively with subjective entrepreneurial success. However, subjective entrepreneurial demonstrated statistically success no significant relationship with psychopathy and sadism. The results are statistically significant according to the p-value (p <.01), in other words, the relationships exist and are beyond random chance. The analysis results also revealed intercorrelations between the Dark Tetrad traits: Machiavellianism has a correlation with narcissism (r = .65) and psychopathy (r = .39). The analysis revealed narcissism

has correlation with both psychopathy (r = .52) and sadism (r = .44). Finally, psychopathy showed a statistically significant link with sadism (r = .45). Therefore, the results provide partial support for Hypothesis 1, with only Machiavellianism and narcissism showing significant correlations with subjective entrepreneurial success-achievement.

It was also hypothesized (H2) that male and female participants will demonstrate different levels of Dark Tetrad personality traits (narcissism, psychopathy, sadism, and Machiavellianism) within the entrepreneurial demographic. Researchers performed an independent samples t-test to determine if there are any gender differences present in the expression of Dark Tetrad traits among entrepreneurs.

Table 4 *Independent Sample t-test for Gender Differences (N=200)*

Variables	men (n=100)	women (n=100)			95 % CI		
	M (SD)	M (SD)	t	p	LL	UL	Cohen's d
Machiavellianism	3.89(0.59)	3.46(0.61)	5.08	.001	0.26	0.60	.72
Narcissism	3.69(0.66)	3.20(0.70)	5.01	.001	0.29	0.67	.72
Psychopathy	2.97(0.81)	2.72(0.74)	2.22	.02	0.03	0.46	.32
Sadism	2.80(0.88)	2.60(0.78)	1.71	.08	-0.03	0.43	.24

Note. M= mean, SD= standard deviation, LL= lower limit, UL= upper limit

The data in Table 5 indicates that female entrepreneurs have lower scores than their male counterparts on the Dark Tetrad especially scores scores. ofMachiavellianism, narcissism. and psychopathy. The results showed male entrepreneurs scored higher Machiavellianism (M = 3.89, SD = .59) than female entrepreneurs with a (M = 3.46, SD)= .61). According to Cohen's d = .72, the medium to large effect size suggests substantial and noticeable differences between male and female Machiavellian tendencies, suggesting males exhibit greater strategic manipulation tendencies. Furthermore, the t value of 5.08 suggests a strong difference between men and women in this population. These differences are of statistical significance and not due to random chance, (p < .01).

Men exhibited slightly higher levels of narcissism compared to women (men's M = 3.69 with an SD of .66. While, women's M = 3.20, and SD = .70). According to Cohen's d = .72, which indicates a medium to large effect that shows male entrepreneurs possess more narcissistic tendencies than female entrepreneurs. And p < .001, indicating that these differences are statistically significant. The findings show that male participants exhibited higher psychopathic levels when compared to

females (Men's M = 2.97 and SD = .81. Female participants M = 2.72 with an SD of .74). The effect size measurement of Cohen's d = 0.32, indicates a small to medium effect size in psychopathic tendencies between male and female entrepreneurs. The p-value (p = .02)indicates that these differences are statistically significant (result is unlikely due to random chance). The analysis revealed a small effect (d = .24), and a nonsignificant statistical difference (p = .08 & t (198) = 1.71) in sadism scores between male and female entrepreneurs. Although men tended to have higher scores on average, this sadism difference did not reach statistical significance. Therefore, the analysis results provide partial support (three of four traits were statistically significant) for Hypothesis 2, with significant gender differences found in Machiavellianism (p < .001), narcissism (p< .001), and psychopathy (p = .02), but not sadism (p = .08).

Men displayed higher scores in Machiavellianism, narcissism, and psychopathy, collectively known as Dark Triad traits; these results are supported by previous research (Paulhus & Williams, 2002).

Discussion

According to the research findings, some Dark Tetrad personality traits correlated positively with subjective entrepreneurial success-achievement in the entrepreneur demographic aged 25 to 60 years. However, the research results validated only part of the original hypothesis. The analysis revealed no statistically significant correlation between the Dark Tetrad trait of sadism and subjective entrepreneurial success-achievement. On the other hand, the subjective entrepreneurial successachievement variable showed statistically significant correlations with Machiavellianism, psychopathy and narcissism. The Dark Tetrad traits also significant exhibited statistically intercorrelations; Machiavellianism showed a positive correlation narcissism and psychopathy. Narcissism displayed a positive correlation with psychopathy and sadism. while psychopathy revealed a positive correlation with sadism.

The positive correlation between Machiavellianism subjective and entrepreneurial success in our study might be influenced by the target demographic (entrepreneurs). The research shows that entrepreneurial intentions often appear in people with Machiavellian tendencies (Khawar et al., 2022). It should be noted that the study by Khawar et al only focused on students, and they recommended future researchers to conduct research entrepreneurs to gain a better understanding of the subject, therefore, it may not represent a professional entrepreneurial demographic such as ours. However, due to this limitation in their study caused by their student study sample, we believe our study adds new findings to the scientific Similarly, another literature. aforementioned in the literature review section, had a similar limitation (Hmieleski & Lerner, 2016). They only had business MBA students as their population, and they too mentioned that might be a possible limitation of their study. However, some in their sample population had some entrepreneurial or professional Regardless, experience. attempted to fulfill this gap in knowledge. Furthermore, another study supports the conclusion that narcissism, psychopathy, sadism, and Machiavellianism traits have a positive and significant effect on nascent entrepreneurial behavior (Cai et al., 2021), and that might be significant entrepreneurial demographics. However, in order to get a better understanding of the phenomenon a more thorough study is needed.

Our second hypothesis (H2) stated that dark personality traits between male and female entrepreneurs will differ. The findings showed there is a significant difference between male and female entrepreneurs and their Dark Tetrad scores, particularly in Machiavellianism, narcissism, psychopathy, where men score higher than women. Finally, the sadism trait did not show any statistically significant (p = .08)difference between men and women in their scores with its small effect (d = .24). On average men scored higher across all four Dark Tetrad traits. These higher scores in men are corroborated by research that shows men score higher than women on traits (Machiavellianism, Dark Triad narcissism, psychopathy), with the largest sex difference observed in the UK (Luo et al., 2023). Their study, however, did not mention sadism, which was statistically insignificant in our research findings.

Limitations & Recommendations

One of the crucial initial hurdles of the research was the hesitancy of participants to take part in the study. Therefore, it is suggested future researchers can use shorter surveys to save time for participants and researchers, offer incentives, and leverage entrepreneurial networks and communities to gain access to participants and by building trust through their connections in community they can increase participation rates. Another option is partnerships with entrepreneurial organizations, and clubs that host events,

and seminars for the entrepreneurial crowds. Another obstacle in research was the difficulty in reaching the participants. their busy schedules, entrepreneurs were reluctant to participate. The limited timescale for data collection created limitations that mav influenced the depth of collected data. Entrepreneurs recognized research's value however, they were reluctant to spend their time on it. Furthermore, self-selection bias might enter the study because participants who agreed to join had different characteristics than individuals who refused to participate in the research. Additionally, there might be potential bias in assessment, as the measures were self-rating, as such the participants may have rated themselves more favorably, or rather what they consider is favorable, thereby, introducing self-reporting biases. To overcome this limitation, future researchers studying the topic are recommended to utilize objective performance measures.

Moreover, the study conducted had to rely on a non-probability convenience sampling strategy, as such, the selected sample was too broad to be applicable to any specific industry, location, or and possibly any specific demographic. It is recommended that future researchers may utilize random selection of participants and also target specific demographics based on the regions, cultures, and industries. By doing so, researchers will eliminate self-selection bias and achieve better representation of their research population.

Another possible limitation is inherent in the research's design. The current study is a cross-sectional research design which examined entrepreneurs in a specific time only. As such, it has certain limitations inherent to it, such as it establishes any possible cause-effect relationship between the variables, cannot capture any changes that may occur over time, and may be susceptible to bias, as the sample size may not totally reflect the general population. Therefore, longitudinal studies are recommended for future research, in order

to examine how the success and/or failure of a business venture affects the possible evolution of Dark Tetrad traits.

Conclusion

This study addressed crucial gaps in understanding how Dark Tetrad traits influence subjective entrepreneurial success and gained empirical data relevant to educators, policymakers, researchers, and professionals in the business fields. Specifically, it revealed gender differences in traits' expression, and empirical data on intercorrelations of the Dark Tetrad traits. (i.e. how Dark Tetrad traits correlate to each other). These findings advance personality research, particularly, dark personality research, and especially their relation with entrepreneurs and entrepreneurship, and practical value for entrepreneurs, educators, professionals in the business fields.

Implications

The study examined an important subject matter and generated knowledge which filled gaps in the literature as mentioned before. This knowledge may be beneficial to practitioners and academic researchers working in this field. This study adds nuance to the understanding of how dark traits (not just positive traits) may influence entrepreneurial success. In the corporate world, these findings may be valuable to organizations in managing entrepreneurs, co-founders, or directors with dark traits by understanding how these traits may impact performance, leadership and ethics within the organization. Training programs for entrepreneurs can have self-awareness components to potentially identify, and manage toxic and manipulative behaviors within themselves or within their coworkers. In regards to the academic world, the results highlight the importance of subjective measures of success rather than just financial metrics. And it provides data that suggests that gender plays a role in expression of dark tetrad traits; similar results were found in previous studies as well (Faratzi et al., 2024). Furthermore, the results highlight that not all dark traits

contribute equally to subjective successachievement among entrepreneurs, thus, supporting findings' applicability in the entrepreneurial and corporate world. For instance, only Machiavellianism & narcissism had correlation with subjective success-achievement. Additionally, the findings may be beneficial for coaches, professors, and mentors who guide and train future entrepreneurs.

Ethics Statement

All the ethical standards of APA were met. Informed consent was taken in written form from all the respondents to participate in this study.

Contribution of Authors

Hanzla Ahmed: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft

Hira Awan: Methodology, Writing - Reviewing & Editing, Supervision

Ayesha Farooq: Methodology, Writing - Reviewing & Editing

Conflict of Interest

There is no conflict of interest declared by the authors.

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The authors declared no source of funding. **Data Availability Statement**

The datasets of the current study are not available publicly due to ethical reasons but are available from the corresponding author [H.A.] upon the reasonable request.

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