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Exploring the bright side of dark personalities: The dark triad as predictors of innovative work behavior in managers

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Abstract: There has been a growing interest in studying dysfunctional personality traits in the workplace. In line with this trend, this study examines how the Dark Triad personalities (Machiavellianism, narcissism, and psychopathy) can predict innovative work behavior. Additionally, the study builds on Trait Activation Theory and proposes a moderating effect of training satisfaction on this relationship. The purpose of this study is to understand if the Dark Triad traits predict innovative behavior while simultaneously examining the role of training satisfaction in channeling these traits toward innovative behavior. A questionnaire-based survey was conducted on the five largest telecommunication companies in Pakistan. The data gathered was analyzed using structural equation modeling. Results established a positive relationship between each trait of the Dark Triad and innovative work behavior. Moreover, training satisfaction was found to moderate the relationship between the psychopathy trait and innovative work behavior. In light of these findings, the study contributes to personality-behavior research in organizations by demonstrating that the Dark Triad predicts innovative work behavior in managers and that the innovative behaviors associated with the psychopathy trait can be enhanced in the presence of training satisfaction.

Keywords: dark triad; Machiavellianism; psychopathy; narcissism; training satisfaction; innovative work behavior

1. Introduction

There has been a growing interest in studying managers' dark personality traits for more than a decade now (LeBreton et al., 2018; Smith et al., 2018). One of the most prominent models of negative/dark personality traits studied in organizational contexts is the Dark Triad. The reason for the scholarly focus on the Dark Triad (DT) as an indicator of managers' negative personalities is due to the striking overlap of each trait's characteristics. The term Dark Triad encompasses three personality traits: narcissism, Machiavellianism, and psychopathy. Narcissism refers to excessive self-aggrandizement. Initially, narcissism was explored by clinicians in their medical examinations of troubled personalities, but over time, psychologists found that a milder display of narcissism is actually a personality type rather than a disorder (Campbell and Miller, 2011). Machiavellianism refers to personalities that possess three interconnected values: (1) a firm belief in the effectiveness of manipulative strategies in dealing with others, (2) a pessimistic view of human nature, and (3) a moral viewpoint that prioritizes expedience over principle. Niccolo Machiavelli suggested that even a morally honorable man must intentionally use ruthless, amoral, and deceptive methods when dealing with deceitful individuals. This forms the basis of Machiavellianism. The third personality trait of the Dark Triad is psychopathy. It is identifiable by an absence of empathy for people and societal norms, impulsive

behavior, and a lack of shame or repentance when their actions harm others. Interpersonally, they are often very attractive and convincing. They have very shallow emotions and typically lead carefree lifestyles, which can include criminal activities to achieve their goals with ease (Babiak et al., 2010).

The Dark Triad is fundamentally studied in psychology. Organizational and management studies have recently started exploring it in work contexts (Cohen, 2016; O'Boyle Jr et al., 2012; Palmer et al., 2017). There is still a paucity of fully optimizing the limitless research avenues it can open for management. Understanding the Dark Triad in organizations can be a possible solution to tackle toxic working conditions created by their dysfunctional nature while optimizing certain productive elements unique to these personalities. Most organizational research on the Dark Triad has focused on studying the undesirable effects of such personality traits in different work settings. However, a parallel stream of research has progressively emphasized a more positive and inclusive approach for such personalities by focusing on the potential benefits of the Dark Triad at work. Accordingly, Jonason, Wee, et al. (2015) suggested that rather than outright rejecting Dark Triad employees by declaring them categorically unfit, certain settings may capitalize on their unique characteristics. Such research studies argue that although the three traits are generally considered socially undesirable, in organizational contexts, they may sometimes be beneficial. For instance, it has been found that narcissistic individuals are more likely to emerge as leaders and are also perceived to be more effective as leaders (Nevicka et al., 2011), that psychopathy in managers is positively associated with ratings of charisma and presentation style (Babiak et al., 2010), and that Machiavellianism in employees is positively related to career commitment (Zettler et al., 2010). The findings of these studies suggest that having such personality traits can predict productive outcomes as well. One such outcome is innovative work behavior.

The role of the Dark Triad in predicting innovative work behavior of employees is an underexplored area. Research on the personality-performance linkage is age-old; however, examining personality traits in relation to innovative work behavior is lacking. Our study expands this line of research by examining the link between managers' Dark Triad personality traits and their innovative work behavior. Innovation has globally impacted every industry, making the study of different predictors and antecedents of innovative behavior paramount for advancing innovation literature. In this vein, studying the Dark Triad as a predictor of innovative work behavior aligns with current industry and literature demands. Employee innovative work behavior has been linked to personality in the past, but this avenue of research still needs expansion, particularly the link between dark personality traits and innovative behavior. Very few studies speak directly about this relationship (Wisse et al., 2015). However, there is some relevant research that can serve as a foundation for our argument. Most of this work is related to creativity and the Dark Triad (Dahmen-Wassenberg et al., 2016; Jonason, Abboud, et al., 2017; Jonason, Richardson, et al., 2015). West (2002) explained how creativity is considered the starting point of innovation. Therefore, it is conceivable to extend these findings in the context of the Dark Triad and innovative work behavior. By doing so, we hope to add insight into the limited understanding of how employees' dark personalities may affect their innovative work behavior.

Although this research avenue of studying the positive outcomes of the Dark Triad is promising, we believe that for such negative personalities to exhibit their productive side, organizations need to provide the right kind of supporting environment. This notion can be easily drawn from the famous Trait Activation Theory (Tett and Burnett, 2003). This theory is an extension of the personality-job fit model. It posits that personality traits can be expressed as valued work behavior in the presence of certain trait-relevant situational cues in the environment. We, therefore, build our argument on this theory: if Dark Triad employees are subjected to relevant situational cues, their dark traits will be expressed as valued work behavior. Thus, drawing from Trait Activation Theory, we have tested the role of a trait activator (training satisfaction) in our model. Schmidt (2007) combined the definitions of job training and job satisfaction to introduce a new concept of training satisfaction. His definition of training satisfaction is “the extent to which people like or dislike the set of planned activities organized to develop the knowledge, skills, and attitudes required to effectively perform a given task or job.” In this study, we suggest training satisfaction acts as a trait activator for Dark Triad employees to exhibit innovative work behavior. We have therefore tested the moderating effects of training satisfaction on the relationship between the Dark Triad and innovative work behavior.

We believe our study makes three significant contributions in bridging crucial research gaps: (1) It examines a positive outcome of the Dark Triad. Positive organizational outcomes of the Dark Triad are rarely researched. Although prior studies have examined the Dark Triad’s relationship with creativity, our study takes the lead in testing the Dark Triad in relation to innovative work behavior (Spain et al., 2014). (2) Establishing the role of “training satisfaction” as a moderator. This study thereby extends the literature on this novel concept of training and development research. There is a huge lack of empirical studies revolving around this concept. By establishing the role of training satisfaction as a moderator, our study informs management that it is not the number of training programs only but the contentment and satisfaction levels of employees’ training and learning needs that are essential for managing Dark Triad personalities at work. (3) By building the argument on Trait Activation Theory, our study design has made significant advancements in this theory. Its integration into a personality-behavior model and its validation in an entirely new and unique Asian context of Pakistan’s telecommunication industry is not found in the extant literature.

2. Literature review

2.1. Dark triad and employee innovative work behavior

De Jong and Den Hartog (2008) defined innovative work behavior as “an individual’s behaviors directed towards the initiation and intentional introduction of new and useful ideas, processes, products, or procedures within a work role, group, or organization.” It is important to understand that no matter how much potential an individual has to be innovative, support from surroundings and environment is crucial for the display of innovative behavior (Zibarras et al., 2008). Due to the significance of situational factors in helping with the expression of innovation, scholars have long studied organizational factors that lead to innovation (Anderson et al., 2014). However,

studying the link between individual characteristics such as personality traits and innovation is still scarce. While limited, past studies have confirmed that innovativeness is positively related to personality traits such as the Big Five (Zhou and Hoever, 2014) and proactive personality (Ng and Feldman, 2013).

Creativity and innovation reflect originality, and original behavior often goes against behavioral norms. Therefore, innovative behavior could logically be conceptualized as deviant behavior (Runco, 2004). This helps us develop our argument that dark or deviant personality traits can predict innovative behavior. Spain et al. (2014), while reviewing dark personality studies, pointed out that creative performance was the least researched organizational outcome of dark personality at work. All this research is promising, but far more research is required to explore the relationships between innovative work behavior and personality, especially dark personality.

A cohesive theory that can explain creativity and innovation in relation to personality is yet to be formulated (Kapoor, 2015). This gap in research can be attributed to a severe lack of studies that directly address the relationship between the Dark Triad and employee innovative work behavior, which is why a broad theory in which this relationship might be embedded has not been reported. However, studies have found linkages with some relevant constructs like the Dark Triad and entrepreneurial activity (Do and Dadvari, 2017), leader dark traits and innovation (Volmer et al., 2016), and the Dark Triad and creativity (Butler, 2015; Dahmen-Wassenberg et al., 2016; Jonason, Abboud, et al., 2017). A few studies have also pointed out the theoretical underpinnings of the three individual traits in relation to innovative behavior. For instance, Eysenck (1993) discussed chance-configuration theory as a foundation for understanding the psychoticism and creativity linkage. Similarly, Sordia et al. (2020) discussed how divergent thinking, derived from Guilford's theory of creativity, is linked with the Dark Triad. Guilford's theory posits that divergent thinking leads to creativity, and such thinking is also directly related to the Dark Triad (Jonason, Richardson, et al., 2015). These theoretical foundations of creativity can be extended to support the relationship between the Dark Triad and innovative behavior as well.

McLaren (1993) suggested that innovation can be fully comprehensible only when studied in relation to its dark side. Thus, studying it with respect to dark personality is a step ahead in innovation research. Wisse et al. (2015) explored the relationship between the Dark Triad and supervisors' perception of employee innovative behavior, but their findings alone are not sufficient, and they themselves demanded that their exploratory attempts be replicated. This warrants further testing of the linkage between the Dark Triad and innovative work behavior. This study addresses this research gap and proposes hypotheses for each trait of the Dark Triad in relation to employee innovative work behavior.

2.2. Machiavellianism and innovative behavior

Machiavellians, by definition, are fixated on the quick and easy attainment of their goals. Their tendency to be creative and innovative stems from this characteristic. They are constantly looking to adopt creative measures that help them achieve their

desires and goals in the shortest time possible. Research has repeatedly linked Machiavellianism to innovation through various indirect linkages. For instance, Hutter et al. (2015) comprehensively studied three different dimensions of Machiavellianism in relation to online innovation and found all three to be powerful predictors of innovation-related behavior. Eysenck (1993) pointed out that characteristics such as being uncooperative and rejecting the rules are positively associated with the creativity levels of individuals. Similarly, Zibarras et al. (2008) argued that innovation-related associations with Machiavellianism are positive effects of an otherwise dysfunctional personality trait. Deluga (2001) identified Machiavellianism as a means of political creativity and discussed the positive affiliation between presidential Machiavellianism and the creativity-related aspects of charismatic leadership. Moreover, Machiavellianism was found to be positively associated with entrepreneurial intention (Wu et al., 2019). Since entrepreneurship is a key driver of innovation and innovative behaviors, this finding suggests a positive relationship between Machiavellianism and innovative behavior. All these findings warrant further exploration into the linkage of Machiavellianism with other forms of behavioral innovation as well. It is conceivable from the literature discussed here that Machiavellianism would be positively related to innovative work behavior. To test this relationship, the following hypothesis is proposed:

H₁: Machiavellianism is positively related to employee innovative behavior.

2.3. Narcissism and innovative work behavior

Of the three traits in the Dark Triad, narcissism is the most studied in relation to creativity (Wisse et al., 2015). Studies examining the association between narcissism and creativity have found that although narcissists claim to be very creative, their creative performance is no better than that of non-narcissists (Goncalo et al., 2010). However, narcissists were found to be more creative when given an opportunity to elicit their ideas. Studies regarding group-level creative outcomes found a non-linear relationship with narcissism, whereby the most favorable creative outcomes were achieved when the group members displayed moderate levels of narcissism (Goncalo et al., 2010). Since creativity is considered the starting point of innovation, these studies can help form the basis for future studies regarding the effects of narcissism on innovation and innovative work behavior (West, 2002). Narcissism has been studied in relation to many organizational outcomes such as performance, job satisfaction, and counterproductive work behavior (O'Boyle Jr et al., 2012). Recently, its relationship with innovation has also been explored by scholars, but only at the organizational level, i.e., firm innovation strategy and organizational innovation (Kashmiri et al., 2017). These studies have called for exploring narcissism and its impact on individual innovative behavior, like innovative performance outcomes and innovative work behavior of employees. A handful of efforts in this regard are worth mentioning. For instance, Kusumawardani and Wulansari (2018) established a mediation relationship between narcissistic personality and innovative work behavior. Another prominent study is by Smith and Webster (2018), which studied the indirect effects of grandiose narcissism on innovation. Their findings established this indirect relationship, which was mediated by adaptability. They argued that little research has

investigated narcissism as a predictor of innovation, particularly innovation in the workplace. Hence, further research should explore the direct relationship between narcissism and innovative work behavior.

This argument concludes that organizations should not label narcissistic employees as harmful but instead explore ways to reap benefits from their unique characteristics, such as their heightened desire for extreme superiority and need for constant praise. These characteristics can increase their disposition to display more innovative work behaviors compared to regular employees. Therefore, to examine the relationship between narcissism and innovative work behavior, we propose the following hypothesis:

H₂: Narcissism is positively related to employee innovative behavior.

2.4. Psychopathy and innovative behavior

Eysenck (1993) has shown that the peculiar thinking associated with psychoticism is positively related to creative thinking and performance. Trends in the literature show psychopathy to predict both positive and negative organizational outcomes. In their study, Jonason, Abboud, et al. (2017) made interpretations regarding psychopathy in relation to creativity, but suppression in their multiple regression revealed that only some parts of psychopathy are problematic, while majorly it is positively related to creativity. Babiak et al. (2010) found psychopathy to be positively associated with creativity, good strategic thinking, and communication skills but negatively associated with management skills and being a team player. Kapoor (2015) identified psychopathy as a predictor of negative creativity. Jonason, Abboud, et al. (2017) also found a positive relationship between psychopathy and harmful creativity (negative creativity). Jonason, Richardson, et al. (2015) explored the dark side of creativity and established that psychopaths had a predisposition to be creative. Their findings suggest those high in psychopathy also reported higher mechanical skills and lower academic scores, which could explain their interest in creative and vocational activities. They further suggested that behavioral versions of creativity should be explored by future research. In line with this argument, we examine innovative work behavior as that behavioral version of creativity. The studies discussed above establish that even though negative, corporate psychopaths are nonetheless disposed to exhibit some kind of creativity. It is also directed in these studies that productive creativity and innovation should also be explored as an outcome of psychopathy. To identify the relationship between psychopathy and innovative work behavior, we propose the following hypothesis:

H₃: Psychopathy is positively related to employee innovative behavior.

2.5. Dark triad and training satisfaction

Linking personality to the concept of training in different contexts is not new. For example, Grover (2018) examined training performance as an outcome of the Big Five personality traits. Past theory and research argue that personality plays a vital role in determining the approachability of participants to receive and learn new skills in training programs (Aguinis and Kraiger, 2009). However, limited studies address dark personality in relation to training. For instance, Padilla et al. (2007) established that

individuals possessing a trait of overconfidence will face difficulty in accepting negative developmental feedback and may dismiss it entirely. Their findings suggest that narcissists, having an innate desire to be the best in their respective areas, may exert considerable effort in training and development programs. This implies that a narcissist would go to great lengths to get his training needs fulfilled. Similarly, for psychopaths, their anti-social tendencies explain why they are interested in more short-term and less formal training, but nonetheless, they have a high need for training and learning (Jonason et al., 2014).

Training research in the context of the dark triad is limited. All three traits of the dark triad have certain overlapping characteristics. All of them desire power and the attainment of their inflated goals and interests. These inflated desires to be the ‘best of all’ explain how dark triad personalities can have higher needs for training and growth (Spain et al., 2014). An organization that does not provide them with enough growth opportunities will frustrate them and cause an exaggerated expression of their negative traits. Extant research regarding personality and its effect on receiving and designing training programs is promising, but it is essential to explore other facets of training to fully understand the dynamic relationship between personality and training (Ineson, 2011). One such facet is addressed by our study. Providing training and learning opportunities is not sufficient until employees are satisfied with the overall efforts of the organization to train and develop them. This aspect of the training concept is called training satisfaction (Schmidt, 2007). Drawing from trait activation theory and in light of the literature discussed above, we propose that training satisfaction can moderate the relationship between the dark triad and innovative work behavior. This moderating effect of training satisfaction is explained below.

2.6. Moderating effect of training satisfaction: A trait activation perspective

As we discussed before, Schmidt (2007) merged two essential concepts of organizational studies: job satisfaction and job training, to derive the term training satisfaction. He argues that a very important chunk of overall job satisfaction lies in employee satisfaction with the training provided by their employer. Training satisfaction, being a novel concept, has not been researched extensively. However, the two components that make up its basis have had their fair share of research. A direct relationship between both job satisfaction and job training with innovative work behavior has already been established in past studies (Agogué et al., 2014; Sheeba and Christopher, 2020). This warrants further examination of innovative work behavior in relation to the compound construct of training satisfaction as well. Studies have established how organizational training and innovative work behavior are positively related (Sartori et al., 2018). Based on these prior researches and trait activation theory, this study proposes that training satisfaction will positively moderate the relationship between the dark triad and innovative work behavior, such that dark triad personalities will behave more innovatively when their training needs are met and they are satisfied with the training provided by their employers. Central to trait activation theory is its assumption of “situation strength”. It conceptualizes that situation strength is crucial in trait expression. If the situation is strong, it shall promote the desired outcomes.

Judge and Zapata (2015) tested an interactionist model with a specific focus on the assumption of “situation strength.” Their findings supported their model in which they tested strong and weak situational factors that triggered the Big Five personality traits in relation to job performance. In light of this assumption, we suggest that training satisfaction, as a strong situational cue, would trigger the dark triad such that the positive outcome of innovative work behavior will be strengthened. To examine this moderating effect, the following hypotheses are proposed:

H_{4a}: Training satisfaction moderates the relationship between Machiavellianism and innovative work behavior such that this relationship is stronger when there is training satisfaction.

H_{4b}: Training satisfaction moderates the relationship between narcissism and innovative work behavior such that this relationship is stronger when there is training satisfaction.

H_{4c}: Training satisfaction moderates the relationship between psychopathy and innovative work behavior such that this relationship is stronger when there is training satisfaction.

The theoretical framework showing the proposed hypotheses of the study can be seen in **Figure 1**.

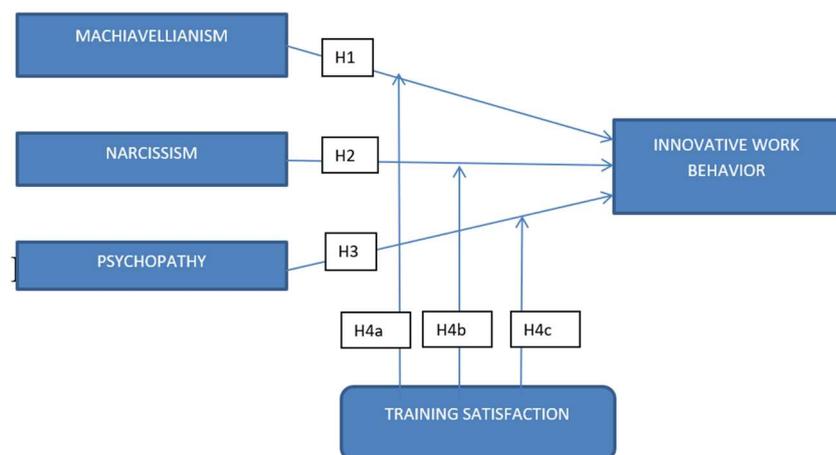


Figure 1. Theoretical framework.

3. Methodology

Our study is based on primary data collected through a survey conducted between August and December 2022 from a total of 700 managers working in the five largest telecommunication firms in Pakistan. Respondents were selected through simple random sampling since the population was known. We had access to the list of employees of all organizations included in the study, which made the use of this sampling technique possible. Once the complete sampling frame (list of all units) was obtained, the RAND function in Microsoft Excel was used for randomization, after which a final sample was selected. The rationale for using this technique is maximum representation and extra precision.

The data collection process was categorized into two phases. In the first phase, we physically visited the head offices of all five organizations. At this stage, we were able to administer 500 surveys, out of which 334 were usable. To improve our sample

size, we moved to the second phase of data collection. In this phase, an online survey was conducted using Google Forms. The second phase of data collection through the online survey was specifically conducted for top-tier executives who were difficult for us to approach physically. In this phase, 167 surveys were returned to us out of a total of 200 online surveys. Therefore, the total sample from both stages of data collection was 700; however, only 501 questionnaires were returned, resulting in a response rate of 71.5%. Attached to the questionnaire, the respondents also received a cover letter that ensured their confidentiality. We ensured that the data collected was to be used solely for academic research purposes.

Respondents rated themselves on the Dark Triad, training satisfaction, and innovative work behavior scales. The questionnaire measured all variables on a five-point Likert scale. Items were adapted from credible sources. For the Dark Triad, the Short Dark Triad (SD3) by Jones and Paulhus (2014) was used. Training satisfaction was measured through the Job Training Job Satisfaction Scale (JTJS), which is a 12-item self-rated scale developed by Schmidt (2004). Innovative work behavior (IWB) was measured through items adapted from Janssen (2000) and Scott and Bruce (1994).

To check for common method variance, Harman’s single-factor test was applied. The total variance of a single factor was 27.3% (Table 1). Therefore, no common method bias was detected.

Table 1. Harman’s single-factor test.

Extraction sums of squared loadings		
Total	% of variance	Cumulative %
13.658	27.316	27.316

All interviewees confirmed the need to be adaptable to effectively influence team members (Northouse, 2020), taking into account individual characteristics and circumstances. Each interviewee identified the importance of the ‘people’ factor and sought a ‘best approach’ to bring together differing factors to get the best out of everyone, including appreciating differing needs and wants aligned with their own expectations, and an understanding of individual potential. All interviewees recognized the centrality of people in being effective. Mishra et al. (2019) and Ford (2020) emphasized the importance of this within the context of hospitality. P3 acknowledged the positive link between contented employees and satisfied customers, who often become repeat business due to the positive experience, in line with Azik (2017).

Although the literature may suggest that managers struggle to adopt an appropriate balance between service consistency, staff empowerment, and autonomy (Peterson et al., 2020; Witelaw, 2013), each of the interviewees appeared to demonstrate a clear understanding of their workplace context and strategies for action.

4. Results

We first assessed the measurement scales’ convergent validity, discriminant validity, and reliability. A confirmatory factor analysis verified the factor structure of reflective constructs. Convergent validity can be established if factor loadings > 0.5,

composite reliability > 0.7 , and average variance extracted (AVE) > 0.5 (Byrne, 2010; Hair et al., 2006). All item loadings were found to be significant, with all items loading onto their corresponding constructs with values exceeding 0.60 (Hair et al., 2010). Thus, adequate convergent validity was established.

Our results also show good discriminant validity because the square root of AVE values is larger than the correlations between the constructs, as shown in **Table 2** (Fornell and Larcker, 1981).

Table 2. Discriminant validity.

	CR	AVE	TS	NARC	PSY	MACH	IWB	MD
TS	0.94	0.603	0.776					
NARC	0.96	0.738	-0.318***	0.859				
PSY	0.92	0.592	-0.336***	0.099*	0.769			
MACH	0.94	0.660	-0.313***	0.319***	0.054	0.812		
IWB	0.93	0.711	-0.256***	0.258***	0.142**	0.159**	0.843	

* $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$; Square roots of AVEs are reported along diagonal in bold.

For hypothesis testing, structural equation modeling was performed. First, we assessed the measurement model fitness. A confirmatory factor analysis was conducted. All items were found to have loadings higher than 0.5 and statistically significant squared multiple correlation coefficients ($R^2 > 0.25$), thus implying strong internal consistency of the scale. All items were loaded on their specific latent constructs and exhibited statistically significant factor loadings and squared multiple correlations; therefore, there was no need to respecify the measurement model. Moreover, the goodness of fit parameters indicated that the model with its fifty items yielded an adequate fit with the data. The chi-squared ($\chi^2 = 2452.772$), normed chi-squared ($\chi^2/df = 2.114$), comparative fit index (CFI = 0.937), root mean square error of approximation (RMSEA = 0.048), standardized root mean residual (SRMR = 0.043), and p -value of close fit (P -Close = 0.921) were well within the specified cutoff values. For the overall model, some other goodness of fit indices also determined model fitness. These included the normed fit index (NFI = 0.887), Tucker Lewis index (TLI = 0.933), incremental fit index (IFI = 0.937), and goodness of fit index (GFI = 0.807). All indices are shown in **Table 3**. The model with its five constructs was deemed fit and acceptable for further analysis.

Table 3. Measurement model fitness.

Fit statistics of the overall measurement model				Remarks
Index	Acceptable level	Estimated measures	Status	
χ^2	Smaller value	2452.772	-	
df	Should be positive	1160.000	-	
χ^2/df	≤ 3.0	2.114	Excellent	
CFI	> 0.95	0.937	Good	
RMSEA	< 0.06	0.048	Excellent	
SRMR	≤ 0.08	0.043	Excellent	Accepted
P -close	≥ 0.05	0.975	Excellent	

Table 3. (Continued).

Fit statistics of the overall measurement model				Remarks
Index	Acceptable level	Estimated measures	Status	
GFI	≥0.90	0.807	Good	
TLI	≥0.90	0.933	Excellent	
IFI	≥0.90	0.937	Excellent	
NFI	≥0.90	0.887	Good	

In the next step, we assessed the structural model. The model consisted of three exogenous variables, “Machiavellianism,” “narcissism,” and “psychopathy,” with nine indicators each, and one endogenous variable, “innovative work behavior,” with six indicators. As seen in **Figure 2**, all indicators loaded on their specified constructs and exhibited statistically significant standardized estimates.

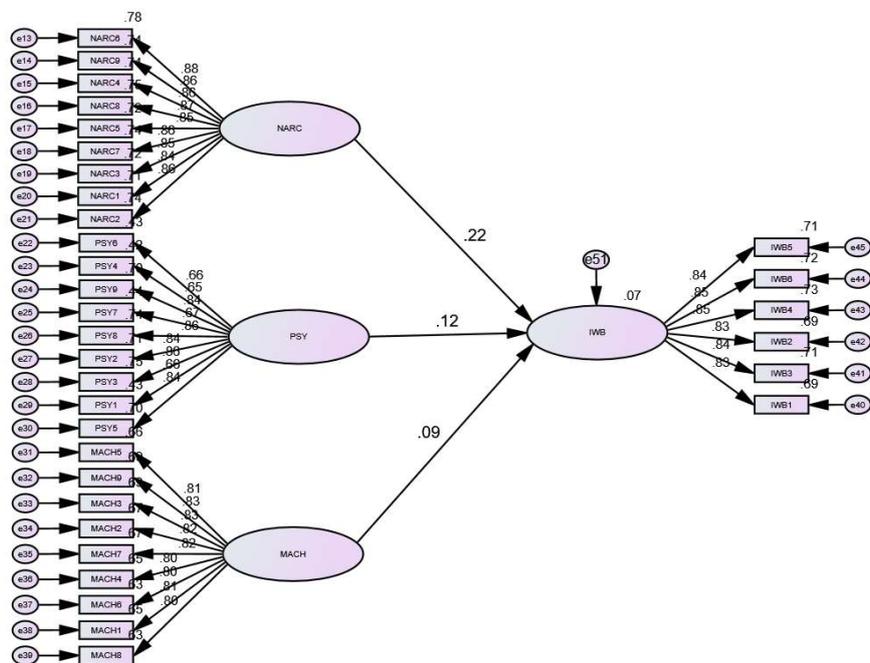


Figure 2. Structural model of Machiavellianism, narcissism, psychopathy, and innovative work behavior.

Moreover, model fitness estimates revealed that the proposed structural model, consisting of 32 observed variables, satisfactorily fit the data. The goodness of fit indices showed excellent values ($\chi^2 = 1731.674$, TLI = 0.905, CFI = 0.911, IFI = 0.912). The results of this structural model can be seen in **Table 4**.

Table 4. Goodness-of-fit for the structural model of Machiavellianism, narcissism, psychopathy, and innovative work behavior.

Fit statistics of the structural model				Remarks
Index	Acceptable level	Estimated measures	Status	
χ^2	Smaller value	1731.674	Excellent	
df	Should be positive	492.000	-	

Table 4. (Continued).

Fit statistics of the structural model				Remarks
Index	Acceptable level	Estimated measures	Status	
χ^2/df	≤ 3.0	3.250	Acceptable	
CFI	> 0.95	0.911	Good	
RMSEA	< 0.06 (good) < 0.08 (acceptable)	0.072	Acceptable	Accepted
TLI	≥ 0.90	0.905	Excellent	
IFI	≥ 0.90	0.912	Excellent	
NFI	≥ 0.90	0.891	Good	

4.1. Testing direct hypothesis

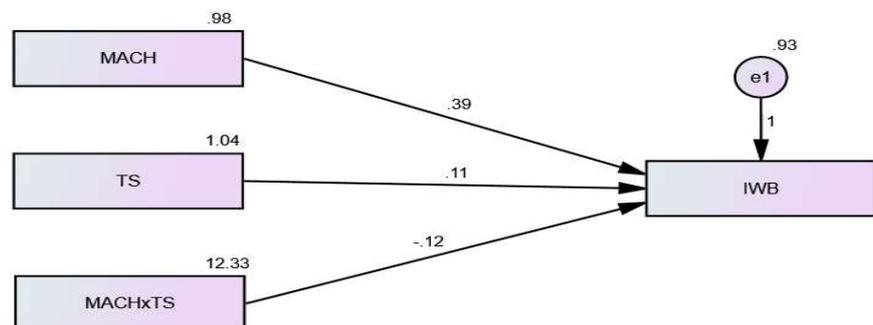
The t -values for each direct hypothesis (H_1 to H_3) are shown in **Table 5**. The results indicated that all t -values (C.R) are greater than the critical value of 1.96, implying the statistical significance of the hypothesized relationships at a 5 percent level of significance.

Table 5. Regression weights: (group number 1—default model).

Hypotheses	Relationship Direction	Estimate	S. E.	C. R.	Sig.	Results
H1	+	0.090	0.040	2.25	0.050	Supported
H2	+	0.223	0.046	4.84	0.000	Supported
H3	+	0.118	0.059	2.09	0.013	Supported

4.2. Moderation analysis

Hypothesis H_{4a} sought to ascertain the moderating effect of training satisfaction on Machiavellianism and innovative work behavior. The overall regression model for this hypothesis was significant ($F(3486) = 17.401, p < 0.001, R\text{-squared} = 0.097$). The R -squared value signifies that 9.7% of the total variance is due to the predictors of this model. The model with path estimates can be seen in **Figure 3**.

**Figure 3.** Moderation model of Machiavellianism, innovative work behavior, and training satisfaction.

The results indicated that TS moderated the relationship between MACH and IWB since the interaction coefficient of training satisfaction and Machiavellianism was significant ($\beta = -0.115, t = -2.97, p < 0.01$) (**Table 6**). However, the negative beta

value revealed that TS limits the predictor effect of MACH on IWB, which is opposite to what the hypothesis proposed.

Table 6. The moderating effect of training satisfaction on Machiavellianism and innovative work behavior.

Predictor	Outcome	Std Beta	S.E	C.R	Sig	R-Square
MACH	IWB	0.394***	0.112	3.510	0.000	
TS	IWB	0.110	0.126	0.868	0.386	0.097***
MACH x TS	IWB	-0.115**	0.039	-2.970	0.003	(Change in $R^2 = 0.016^{**}$ due to moderation)

Significance level: * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

To understand the conditional effects, an interaction was plotted via simple slopes based on one standard deviation above and below the mean value of the moderator (see **Figure 4**). The slopes did not support the direction of the moderated relationship. At higher levels of training satisfaction (one SD above mean), Machiavellianism was found to have a weaker predicting impact on innovative work behavior, whereas a lower level of training satisfaction (one SD below mean) strengthened the predicting effect of Machiavellianism on innovative work behavior. As training satisfaction increased, innovative work behavior caused by Machiavellianism decreased. The interaction effect reversed the direction of the main effect. We proposed that high training satisfaction could increase innovative work behavior in managers with Machiavellian personalities, but our findings revealed that high training satisfaction in managers with Machiavellianism caused a decline in innovative work behavior. Thus, despite a significant beta, due to reverse moderation ($\beta = -0.115$), hypothesis H_{4a} is not supported.

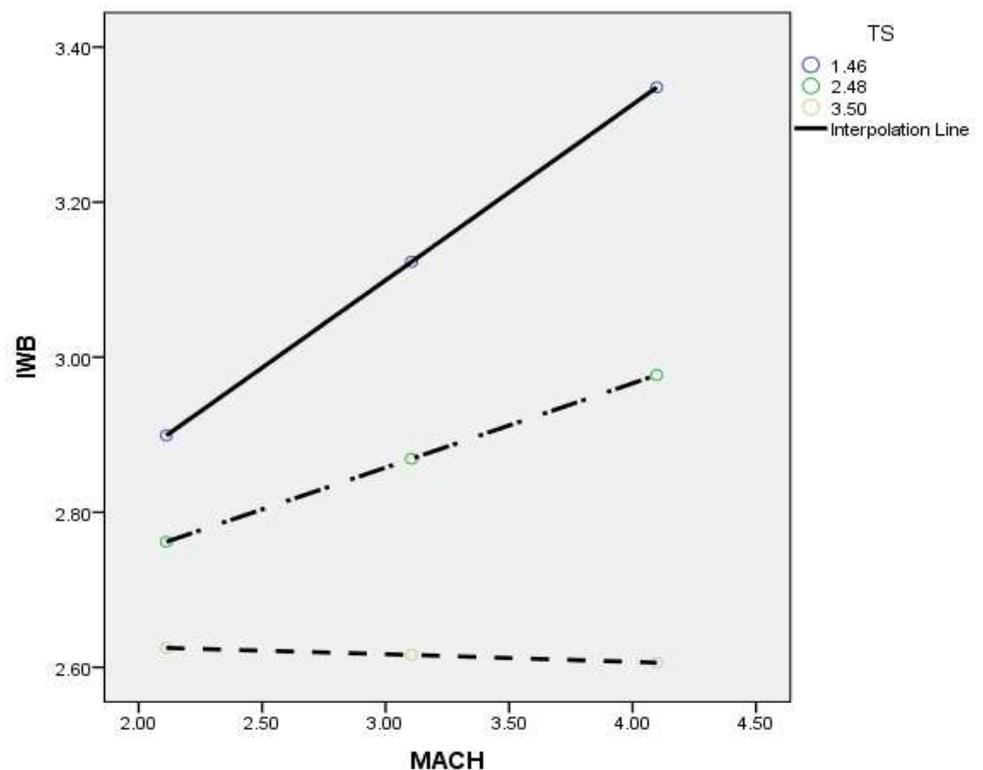


Figure 4. Conditional effect of Machiavellianism on innovative work behavior at different levels of training satisfaction.

Hypothesis H_{4b} proposes a moderating effect of training satisfaction on narcissism and innovative work behavior. The overall regression model for this hypothesis was significant ($F(3486) = 24.629, p < 0.001, R\text{-squared} = 0.132$). The *R*-squared value signifies that 13.2% of the total variance is due to the predictors of this model. The model with path estimates can be seen in **Figure 5**.

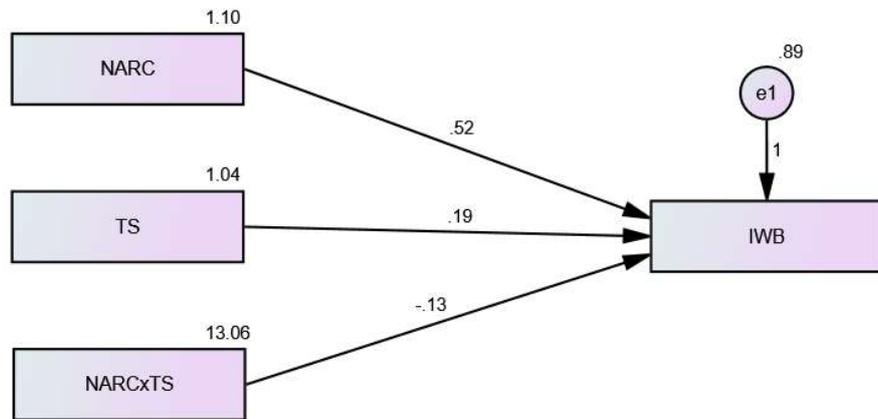


Figure 5. Moderating model of narcissism, innovative work behavior, and training satisfaction.

The results indicated that TS moderated the relationship between NARC and IWB since the interaction coefficient of training satisfaction and Narcissism was significant ($\beta = -0.125, t = -3.468, p < 0.01$) (**Table 7**). However, the negative beta value revealed that TS limits the predictor effect of NARC on IWB.

Table 7. The moderating effect of training satisfaction on narcissism and innovative work behavior.

Predictor	Outcome	Std Beta	S.E	C.R	Sig	R-Square
NARC	IWB	0.529***	0.103	5.063	0.000	
TS	IWB	0.187	0.121	1.547	0.123	0.132***
NARC x TS	IWB	-0.125**	0.036	-3.468	0.001	(Change in $R^2 = 0.021$ ** due to moderation)

Significance level: * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

The conditional effects were analyzed (see **Figure 6**). The slopes did not support the direction of the moderated relationship. At higher levels of training satisfaction (one SD above mean), Narcissism was found to have a weaker predicting impact on innovative work behavior, whereas a lower level of training satisfaction (one SD below mean) predicted more innovative work behavior. As training satisfaction increased, innovative work behavior caused by narcissism decreased. The interaction effect reversed the direction of the main effect. We proposed that high training satisfaction could increase innovative work behavior in managers with narcissistic personalities, but the findings revealed that high training satisfaction in managers with narcissism caused a decline in innovative work behavior. Thus, despite a significant beta, due to the reverse moderation effect ($\beta = -0.125$), hypothesis H_{4b} is also not supported.

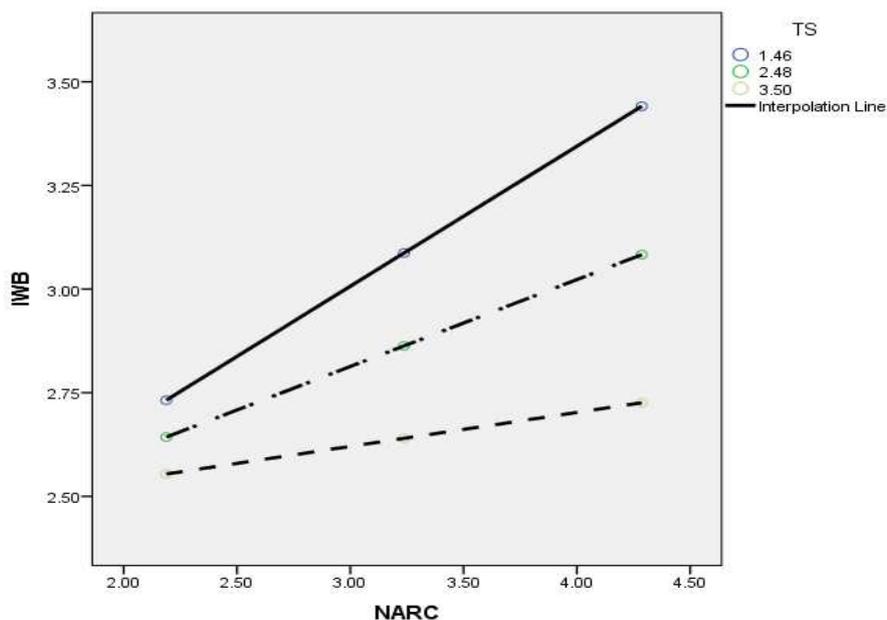


Figure 6. Conditional effect of narcissism on innovative work behavior at different levels of training satisfaction.

Hypothesis H_{4c} proposes a moderating effect of training satisfaction on psychopathy and innovative work behavior. The overall regression model for this hypothesis was also significant ($F(3486) = 15.63, p < 0.001, R\text{-squared} = 0.088$). The $R\text{-squared}$ value signifies that 8.8% of the total variance is due to the predictors of this model. The model with path estimates can be seen in **Figure 7**.

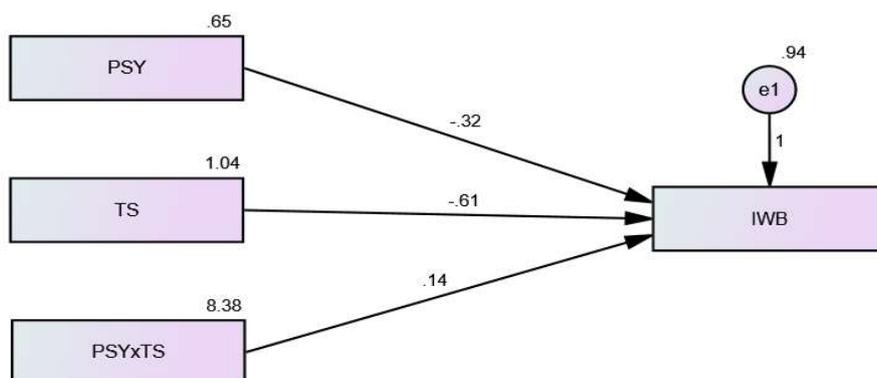


Figure 7. Moderating model of psychopathy, innovative work behavior, and training satisfaction.

Results indicate that TS moderated the relationship between PSY and IWB since the interaction coefficient of training satisfaction and psychopathy was significant ($\beta = 0.142, t = 2.415, p < 0.05$) (**Table 8**). However, the positive beta value revealed that TS enhances the predictor effect of PSY on IWB, which is in agreement with what we proposed in the hypothesis.

Table 8. The moderating effect of training satisfaction on psychopathy and innovative work behavior.

Predictor	Outcome	Std Beta	S.E	C.R	Sig	R-Square
PSY	IWB	-0.316	-0.174	-1.816	0.070	
TS	IWB	-0.613***	0.158	-3.873	0.000	0.088***
PSY x TS	IWB	0.142*	0.058	2.415	0.016	(Change in $R^2 = 0.011^*$ due to moderation)

Significance level: * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

To understand the conditional effects, the interaction was again plotted (see **Figure 8**). The slopes provided further support for the direction of the moderated relationship. At higher levels of training satisfaction (one SD above the mean), psychopathy was found to have a strong predicting impact on innovative work behavior, whereas at lower levels of training satisfaction (one SD below the mean), the relationship was weakened. As training satisfaction increased, innovative work behavior caused by psychopathy increased. Thus, hypothesis H_{4c} was supported, establishing that high training satisfaction levels in managers with subclinical psychopathy can lead to an increase in their innovative work behavior.

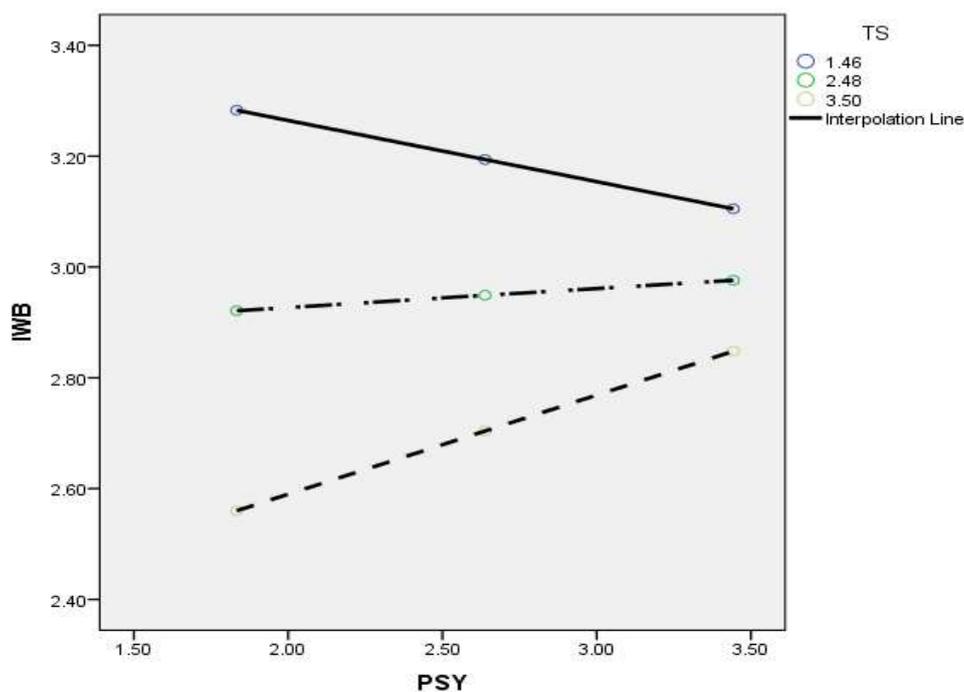


Figure 8. Conditional effect of psychopathy on innovative work behavior at different levels of training satisfaction.

5. Discussion

Psychological researchers have argued that the dark triad is not always negative and dark; instead, there are a few positive outcomes of such personalities as well (Jonason, Abboud, et al., 2017; Volmer et al., 2016). To study a positive outcome of the dark triad, the study proposed that Machiavellianism is positively associated with innovative work behavior. This posits that as Machiavellianism increases, an individual's predisposition to behave innovatively at work also increases. The SEM analysis of this study supported this hypothesis ($\beta_4 = 0.086$, $p < 0.050$). The β

coefficient demonstrates that innovative work behavior is affected by 8.6 units when there is a 1-unit change in Machiavellianism. Some past studies have established that Machiavellian individuals are more creative due to their innate desire to succeed, for which they figure out innovative ideas even at the cost of harming others (Hutter et al., 2015; Jonason et al., 2017; Świeca, 2020). The present research findings were therefore consistent with the literature in establishing a positive relationship between Machiavellianism and innovative work behavior. Thus, organizations should focus on facilitating the innovative capabilities of Machiavellian employees rather than their negative behavior.

Similarly, for the second trait of the triad, the study proposed that narcissism is positively associated with innovative work behavior. The SEM analysis of this study supported this hypothesis ($\beta_5 = 0.223, p < 0.001$). The β coefficient demonstrates that innovative work behavior is affected by 22.3 units when there is a 1-unit change in narcissism. Past studies have established that narcissistic individuals are not only more creative but vigorously involved in overall innovation in an organization. This is because they primarily have an inflated sense of self and a desire to be the best at any cost. This characteristic makes them explore and implement novel ideas at work. Thus, the findings of this study have replicated outcomes of past studies in the context of Pakistan's telecommunication sector, a context that has not been studied to test a similar model before. The results of this hypothesis are in conformance with studies like Wisse et al. (2015), Kusumawardani and Wulansari (2018), Smith and Webster (2018), and Yang et al. (2020). Empirical evidence of this study, past literature, and theory, therefore, suggests that organizations can reap benefits from narcissistic employees in the form of enhanced innovative work behavior.

Psychopathy, being the third trait of the dark triad, is also proposed to be positively associated with innovative work behavior. The SEM analysis of this study supported this hypothesis ($\beta_6 = 0.118, p < 0.001$). The β coefficient demonstrates that innovative work behavior is affected by 11.8 units when there is a 1-unit change in psychopathy. The reason behind this positive outcome of an otherwise negative personality trait is rooted in its basic feature of achieving even impossible goals. This characteristic makes them explore and implement novel ideas at work. Thus, the results of this study supported the findings of Jonason, Abboud, et al. (2017), who found that psychopathy is positively correlated to harm-based creativity and innovation. Empirical evidence of this study, past literature, and theory, therefore, suggest that organizations can benefit from the increased tendency of managers with subclinical psychopathy to behave innovatively at work. This innovative work behavior, coupled with their abnormal drive to achieve, can lead to higher productivity.

Hypothesis H₄ has three parts: a, b, and c, each representing one member of the dark triad. All three hypotheses H_{4a}, H_{4b}, and H_{4c} proposed that training satisfaction can act as a trait activator and moderate the relationship between the dark triad (Machiavellianism, narcissism, and psychopathy, respectively) and innovative work behavior in such a way that in the presence of training satisfaction, dark triad managers become more involved in innovative behavior. The results revealed varied findings. The study was unable to find support for two of the hypotheses, H_{4a} and H_{4b}, mainly due to the reverse moderation effect. Although their interaction was found to be significant ($\beta = -0.115, p < 0.01$ and $\beta = -0.125, p < 0.01$ respectively), the conditional

effects revealed findings opposite to what was proposed in the hypotheses. At high levels of training satisfaction, Machiavellianism and narcissism were found to have negative relationships with innovative work behavior, whereas, at lower levels of training satisfaction, they caused a steady increase in innovative work behavior. These results were surprising because the interaction effect reversed the main effects, and the predicting effect of Machiavellianism and narcissism on innovative work behavior was considerably diminished with increasing levels of training satisfaction. There is some, if not a lot, support from the literature to justify these findings. Leonelli et al. (2019) found negative relationships between entrepreneurs' narcissism and startup innovation, Yang et al. (2020) established a negative impact of leader narcissism on innovation with the moderation of environmental uncertainty. Similarly, Kashmiri et al. (2017) determined an indirect relationship between CEO narcissism and firm innovation. Thus, our study has replicated these findings in an entirely new and different context. Our findings follow the same trends as the research of Wu et al. (2019) and Smith and Webster (2019), who also explored moderating mechanisms in the dark triad and innovation relationship. These studies also obtained mixed results while moderating the impact of all three traits of the dark triad on innovation, creativity, and entrepreneurship, respectively. Our study, however, is the first to explore training satisfaction as a moderator.

On the contrary, the SEM analysis yielded support for the third hypothesis, H_{4c} ($\beta = 0.142$, $t = 2.415$, $p < 0.05$). For this hypothesis, not only was the interaction significant, but the conditional effects also supported the proposed hypothesis. These findings of the moderating role of training satisfaction in the relationship between psychopathy and innovative work behavior are in coherence with the Trait Activation Theory (Tett and Guterman, 2000). This theory purports that strong situational factors activate personality traits that lead individuals with similar traits to perform accordingly. Therefore, according to our results, it is likely that a manager's disposition to be a psychopath and ultimately its effect on his innovative work behavior can be triggered or enhanced through training satisfaction. Another justification for such results is the relevant context of Pakistan's telecommunication sector. It is widely determined that organizational politics limit innovative behaviors (Ferris and Hochwarter, 2011). This implies that politics can potentially play a bigger part in the failed implementation of novel ideas. This gives an advantage to those who are cunning and maleficent, such as corporate psychopaths, because they can easily maneuver and handle such politics, whereas people with other traits like Machiavellianism and narcissism might not be adept at handling such politics. Pakistan's industry has been found to have a prevalence of unjust organizational politics (Rathore et al., 2017). Thus, it can be perceived why the psychopathy trait of managers showed innovative work behavior, whereas Machiavellianism and narcissism did not.

Although here Machiavellianism and narcissism responded to moderation effects differently than psychopathy, since one of the most deviant members of the triad (psychopathy) can be controlled and directed towards an organization's betterment, enhancing training programs and growth opportunities is a key measure in increasing productivity through innovation and creativity. Moreover, it is advised that researchers should return to theory when interpreting the results and explain them from a

theoretical viewpoint. This implies that emphasis should always be placed more on the substantial meaning of results in terms of the theoretical underpinnings rather than sole statistical significance. Thus, aligning the theory and literature with the results of the present study, it is established that organizations can adopt a managerial perspective that channels the opportunistic and functional side of dark triad employees in driving innovative behavior by satisfying their training needs with relevant growth and development opportunities.

6. Theoretical contributions

First, the findings of this study have significantly contributed to the validation of Trait activation theory. The buffering effect of trait activator (training satisfaction) on predicting IWB in psychopathic employees has further substantiated the theory's arguments and assumptions in a unique context. Second, the study extends the extant literature on personality-based antecedents of innovative work behavior. Dark personality characteristics, like normal personality traits, have an impact on employee behavior. However, to date, there have been very few attempts to study the impact of dark triad traits on work behavior (Forsyth et al., 2012). Our efforts have advanced the findings of studies like Wisse et al. (2015), Jonason et al. (2015), and Kapoor (2015) that have studied negative personality traits as predictors of innovative behavior. Lastly, our research has contributed to the overall literature on training and development by bringing training satisfaction into scholarly focus. Establishing its role in channeling the dark triad towards a productive outcome, i.e., innovative work behavior is a worthy contribution to theory.

7. Practical implications

This research provides imperative findings for practice. It has informed management of a practical way to handle their employees with Dark Triad traits. It has established means for organizations to increase their productivity by optimizing the so-called negative personality traits of their employees. Our research can be used by management to increase innovative work behavior among their workforce. They can identify Dark Triad personalities and train them in a fashion that their unique abilities can be put to use. The service industry management provides trainings relevant to the departmental mode of functioning. But deriving from the training satisfaction literature, the present study argues that the management must ensure the provision of trainings that employee desires. Trainings should be tailor-made and customized as per the requirements of Dark Triad employees. Only then such employees will be satisfied with trainings. Routine and duty-bound training cannot achieve training satisfaction in any employee. Therefore, a thorough investigation must be conducted to identify what training programs are actually appreciated by the top-level executive staff of organizations.

In light of the study's findings, it can be suggested that organizations imply screening mechanisms for Dark Triad personalities. Recruitment and selection decisions can also benefit from the use of such personality screening. This could be done through survey-based inventories and checklists or a more professional help can be hired. Several scholars have commented on the advantages related to using dark

personality traits in selection. However, the management must not tap into the clinical traits which could potentially have legal ramifications. It is only the subclinical levels that they need to measure. Through this identification of Dark Triad personalities, management will be able to provide targeted trainings.

8. Conclusion

For quite some time now, personality disorders among high-ranking decision-makers and the upper echelons of organizations have gained increased attention in theory as well as in practice. Therefore, our study proposed a holistic framework that integrated trait-relevant situational factors (training satisfaction), a negative personality model (dark triad), and behavior (innovative work behavior). This study is in complete conformance with the literature and theory. We have answered the call for research made by Smith and Webster (2019) to explore positive organizational outcomes of the dark triad. Through this examination, the study established a positive relationship between the Dark Triad and innovative work behavior. The study examined training satisfaction as a moderator and found mixed results. Training satisfaction moderated the psychopathy and innovative work behavior relationship but not Machiavellianism, narcissism, and innovative work behavior relationships. Thus, the study concludes that the dark triad can be of benefit to the management, but it depends on the intervening mechanisms employed by the management to steer such personalities from being harmful. Dark Triad personalities can have elevated tendencies to perform innovatively as compared to regular employees. All that management needs to do is cleverly utilize these personalities in the best of their interests.

We suggest future studies test more positive outcomes of Dark Triad personalities and discover other means to further bring out their positive sides. Our study has a few limitations which future studies can work on. First, our sample is restricted to an East Asian context where the working culture is different from the West. Perhaps our model should be replicated on other unique populations. Second, we did not control for any variables in our study. Other studies can include gender comparisons to reveal interesting findings.

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Additional information: This study has not been preregistered with any independent institutional registry. The data is not publicly shared due to privacy and ethical reasons. However, it can be provided upon reasonable request.

Conflict of interest: The authors declare no conflict of interest.

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