

The Moderating effect of Empathy on the relationship between Dark Triad traits and Burnout among Doctors and Nurses

Latisha Shajee John * and Deepmala Sutar

Kristu Jayanti College, Bengaluru, India.

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Abstract

This study investigates the moderating role of empathy in the relationship between Dark Triad traits and burnout among medical professionals, specifically doctors and nurses. Utilizing a descriptive correlational research design, data were collected from 150 participants using standardized measures, including the Short Dark Triad (SD3), Interpersonal Reactivity Index (IRI), and Oldenburg Burnout Inventory (OLBI). Results indicate significant positive correlations between narcissism, psychopathy, and burnout, while empathy showed a weak correlation with these variables. Linear regression analysis revealed that narcissism and psychopathy significantly predicted burnout levels. Moderation analyses suggested that empathy does not significantly moderate the negative effects of Dark Triad traits on burnout. These findings underscore the need for tailored interventions in healthcare settings to address the impact of maladaptive personality traits on professional well-being.

Keywords: Dark Triad; Narcissism; Psychopathy; Burnout; Empathy; Medical Professionals; Doctors And Nurses; Personality Traits; Moderation Analysis

1. Introduction

Burnout is a prevalent and pressing issue among medical professionals, particularly doctors and nurses, due to the high-pressure nature of the healthcare environment. Burnout is characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment, which can compromise both the well-being of professionals and the quality of patient care. Personality traits and emotional resources are increasingly recognized as critical factors in understanding the variability in burnout experiences across individuals.

Among the personality constructs that have gained attention in occupational research is the Dark Triad-Machiavellianism, narcissism, and psychopathy. These maladaptive traits have been linked to reduced emotional empathy and poor interpersonal relationships. Empathy, conversely, is considered a vital emotional skill that fosters better clinician-patient interactions and professional resilience. The Job Demands-Resources (JD-R) model provides a theoretical framework to explore how personality traits (internal demands) and emotional capacities (personal resources) interact in the context of job-related stress and burnout.

This study was designed to explore the role of empathy in moderating the relationship between Dark Triad traits and burnout among healthcare professionals. Given that empathy can both buffer and burden emotional regulation, understanding its role is vital to designing targeted interventions for stress management in healthcare settings.

* Corresponding author: Latisha Shajee John

Objectives of the Study

- To examine the relationship between empathy and Dark Triad traits among doctors and nurses.
- To assess the association between burnout and each of the Dark Triad traits among doctors and nurses.
- To determine the impact of Dark Triad traits on empathy and burnout among doctors and nurses.
- To determine whether empathy moderates the relationship between Dark Triad traits and burnout.

1.1. Need and Significance of the Study

Healthcare professionals are increasingly susceptible to burnout due to the demanding nature of their work. While organizational factors have been widely studied, individual-level predictors like personality traits and emotional resources remain underexplored. This study is significant as it incorporates both maladaptive and adaptive psychological variables into the JD-R model to better understand burnout and promote well-being in medical settings.

1.2. Research Gap

Most existing research has not explored the combined effect of empathy and the Dark Triad traits on burnout among medical professionals. Limited studies have tested the moderating effect of empathy in this context. Additionally, research comparing doctors and nurses under a unified model remains sparse.

2. Materials and Methods

2.1. Research Design

Quantitative cross-sectional correlational research design.

2.2. Objectives of the Study

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- To determine the impact of Dark Triad traits on empathy and burnout among doctors and nurses.
- To determine whether empathy moderates the relationship between Dark Triad traits and burnout.

2.3. Hypotheses

- **Ho1:** There is no significant relationship between empathy and Dark Triad traits among doctors and nurses.
- **Ho2:** There is no significant association between burnout and any of the Dark Triad traits among doctors and nurses.
- **Ho3:** Dark Triad traits do not have a significant impact on empathy and burnout among doctors and nurses.
- **Ho4:** Empathy does not significantly moderate the relationship between Dark Triad traits and burnout among doctors and nurses.

2.4. Operational Definition

2.4.1. Burnout

Burnout is a psychological syndrome resulting from chronic workplace stress, characterized by emotional exhaustion, depersonalization, and a diminished sense of personal accomplishment (Maslach & Jackson, 1981; Schaufeli & Bakker, 2004).

2.4.2. Dark Triad Traits

This refers to three interrelated personality traits—Machiavellianism, narcissism, and psychopathy—marked by manipulateness, self-centeredness, and emotional detachment (Paulhus & Williams, 2002).

2.4.3. Empathy

It is the ability to understand and share the emotions of others, encompassing both cognitive (perspective-taking) and affective (emotional resonance) components (Decety & Jackson, 2004; Moudatsou et al., 2020).

2.4.4. Job Demands-Resources (JD-R) Model

JD-R theory explains that burnout as the result of an imbalance between job demands and available resources. In this study, Dark Triad traits are viewed as personal risk factors, while empathy is considered a personal resource that may buffer the impact of stress (Demerouti et al., 2001; Bakker & Demerouti, 2017).

2.4.5. Medical professionals

In this study, medical professionals include practicing licensed doctors and registered nurses currently working in clinical settings.

2.4.6. Variables

- Empathy, Dark Triad Traits (Machiavellianism, Narcissism and Psychopathy) and Burnout are the variables of the study.
- Independent variable: Dark Triad traits
- Dependent variable: Burnout
- Moderating variable: Empathy

2.4.7. Universe of the Study

The population for the study is medical professionals (doctors and nurses). Both males and females are included in the study, aged 21–65, from healthcare settings.

2.4.8. Sample Distribution

The sample includes doctors and nurses with the age range of 21 years to 65 years. A total of 150 participants are included in the study.

2.4.9. Inclusion criteria

- Participants were required to be currently employed as licensed doctors or registered nurses in clinical roles.
- Participants had to be between 21 and 65 years of age.
- Participants needed basic English proficiency to comprehend and respond to the survey.

2.4.10. Exclusion criteria

- Individuals with self-reported histories of severe psychiatric conditions were excluded to avoid confounding psychological variables.
- Participants who were not actively working in clinical practice during data collection (e.g., on leave or retired) were excluded.
- Incomplete or inconsistent responses were removed from the final dataset.

2.4.11. Sample and Techniques

Nonprobability sampling method is used for the sampling. Purposive Sampling is the data collection technique.

2.5. Research Ethics Followed

Informed consent was obtained online, and confidentiality and anonymity were maintained throughout. Participation was voluntary, with the right to withdraw at any time.

2.6. Tools for the Study

The tools used in the study were Short Dark Triad (SD3 developed by Jones & Paulhus (2014), Interpersonal Reactivity Index (IRI developed by Davis (1980) and Oldenburg Burnout Inventory (OLBI) developed by Demerouti, Bakker, Nachreiner, & Schaufeli (2001).

2.7. Description of the tool

The study employs three well-established and validated tools to assess psychological constructs that are crucial for healthcare professionals. The Short Dark Triad (SD3), developed by Jones & Paulhus (2014), is a 27-item measure that

evaluates the three core traits of the Dark Triad personality: Machiavellianism (manipulative behavior), narcissism (self-centeredness and grandiosity), and psychopathy (lack of empathy and impulsivity). The SD3 has demonstrated good internal consistency (Cronbach's alpha > 0.7 for each subscale) and construct validity, showing strong correlations with relevant behavioral and interpersonal outcomes.

The Interpersonal Reactivity Index (IRI), created by Davis (1980), is a widely used 28-item tool that measures both cognitive and affective components of empathy. It includes subscales for perspective-taking, empathic concern, and personal distress. The IRI has high reliability (Cronbach's alpha ranging from 0.70 to 0.80 for most subscales) and strong construct validity, with empirical evidence supporting its ability to predict prosocial behavior and emotional responses.

The Oldenburg Burnout Inventory (OLBI), developed by Demerouti, Bakker, Nachreiner, & Schaufeli (2001), assesses burnout through two key dimensions: exhaustion and disengagement. The OLBI has shown excellent internal consistency (Cronbach's alpha > 0.80) and strong validity in capturing burnout symptoms, with widespread use in occupational and clinical research. Together, these tools are not only reliable but have been validated across various cultural contexts, making them suitable for use in understanding the psychological well-being of healthcare professionals in clinical environments.

2.8. Statistical Analysis

Data were analysed using Jamovi software, a user-friendly statistical tool for conducting advanced data analysis. Correlation, regression, and moderation analyses were conducted to test relationships and interaction effects, allowing for a comprehensive understanding of the associations between the variables and examining how potential moderating factors influence these relationships.

2.8.1. Descriptive Statistics

Descriptive statistics is used to summarize the data, understand the representation of the population by selected sample. Central tendency and standard deviation are calculated.

2.8.2. Inferential Statistics

Inferential statistics is used to test the hypothesis using correlation, multiple regression, and moderation analysis.

3. Results and discussion

Jamovi software was used to analyse the collected data

Table 1 Descriptives of all study variables

	N	Mean	Median	SD
Empathy	150	58.2	59.0	14.2
Burnout	150	30.4	31.0	5.66
Machiavellianism	150	27.7	28.0	5.31
Narcissism	150	29.3	29.0	6.96
Psychopathy	150	22.5	23.0	5.69

Table 1 shows the mean values for Empathy (58.2), Burnout (30.4), Narcissism (27.7), Machiavellianism (29.3), and Psychopathy (22.5) reflect the central tendency of the data, with standard deviations of 14.2, 5.66, 5.31, 6.96, and 5.69, respectively, indicating the level of dispersion around the mean for each variable.

Table 2 Correlation of all study variables

	1	2	3	4	5
1. Empathy	-				
2. Burnout	0.234**	-			
3. Machiavellianism	0.217**	0.252**	-		
4. Narcissism	0.286***	0.435***	0.507***	-	
5. Psychopathy	0.064	0.475***	0.522***	0.597***	-

Note. * $p < .05$, ** $p < .01$, *** $p < .001$

Table 2 results reveal significant positive correlations between burnout and all three Dark Triad traits: Machiavellianism ($r = 0.219$, $p = 0.007$), narcissism ($r = 0.412$, $p < 0.001$), and psychopathy ($r = 0.441$, $p < 0.001$). Psychopathy showed the strongest correlation with burnout, followed by narcissism, suggesting that emotional detachment and difficulties with emotional regulation may significantly contribute to burnout in healthcare professionals. Additionally, empathy was positively correlated with narcissism ($r = 0.190$, $p = 0.019$) and Machiavellianism ($r = 0.177$, $p = 0.030$), but not with psychopathy ($r = 0.047$, $p = 0.564$). Hence, the null hypothesis (H_01) that there is no significant relationship between empathy and Dark Triad traits among doctors and nurses is partially rejected because significant relationships exist with two traits (narcissism and Machiavellianism), but not all. The null hypothesis (H_02) that there is no significant association between burnout and any of the Dark Triad traits among doctors and nurses is rejected.

Table 3 Showing the Regression Analysis**Table 3a** Regression Analysis of Dark Triad Traits on Burnout

Predictor Variables	Estimate	Std. Beta value	t	p	Model Summary
Intercept	16.3785	2.2517	7.274	< .001	
Machiavellianism	0.2722	0.0978	2.783	0.006	R = 0.514
Narcissism	0.3531	0.0922	3.829	< .001	R ² = 0.264
Psychopathy	-0.0509	0.0701	-0.726	0.469	

Table 3a Regression analysis indicate that psychopathy ($B = 2.707$, $p < 0.001$) and narcissism ($B = 2.181$, $p = 0.003$) significantly predicted burnout in medical professionals, while Machiavellianism ($B = -0.225$, $p = 0.702$) did not. These results suggest that psychopathic and narcissistic traits, associated with emotional dysregulation and impulsivity, are key predictors of burnout, while Machiavellianism's calculated nature does not contribute significantly to burnout levels.

Table 3b Regression Analysis of Dark Triad Traits on Empathy

Predictor Variables	Estimate	Std. Beta value	t	p	Model Summary
Intercept	36.399	6.203	5.87	< .001	
Machiavellianism	0.332	0.193	1.72	0.087	R = 0.342
Narcissism	0.900	0.269	3.34	0.001	R ² = 0.117
Psychopathy	-0.554	0.254	-2.18	0.031	

Table 3b shows that none of the Dark Triad traits significantly influenced empathy at the conventional level of significance ($p < 0.05$). Specifically, Machiavellianism ($B = 2.68$, $p = 0.106$) and narcissism ($B = 3.87$, $p = 0.056$) did not reach statistical significance, although narcissism's result approached significance, suggesting a potential trend.

Psychopathy demonstrated a non-significant negative influence on empathy ($B = -2.37$, $p = 0.250$), indicating limited predictive value for the Dark Triad traits in determining empathy levels among healthcare professionals.

The null hypothesis (H_{03}) that Dark Triad traits do not have a significant impact on empathy and burnout among doctors and nurses is partially rejected since significant impact found of Dark triad traits was found on burnout, but not empathy.

Table 4 Showing the Moderation Analysis

Table 4a Moderation analysis of Empathy in the relationship between Machiavellianism and Burnout

Moderation Estimates								
			95% Confidence Interval					
	Estimate	SE	Lower	Upper	Z		p	
M	0.00135	0.05909	-0.1145	0.1172	0.0228		0.982	
EM	-0.02232	0.02609	-0.0735	0.0288	-0.8552		0.392	
M * EM	-0.01658	0.00197	-0.0204	-0.0127	-8.4070		<.001	

Table 4b Moderation analysis of Empathy in the relationship between Narcissism and Burnout

Moderation Estimates								
			95% Confidence Interval					
	Estimate	SE	Lower	Upper	Z		p	
N	0.1178	0.08367	-0.0462	0.2817	1.4073		0.159	
EM	4.71e-4	0.02521	-0.0489	0.0499	0.0187		0.985	
N * EM	-0.0160	0.00227	-0.0204	-0.0115	-7.0265		<.001	

Table 4c Moderation analysis of Empathy in the relationship between Psychopathy and Burnout

Moderation Estimates								
			95% Confidence Interval					
	Estimate	SE	Lower	Upper	Z		p	
P	0.2790	0.06732	0.1470	0.4109	4.1437		<.001	
EM	7.52e-4	0.02460	-0.0475	0.0490	0.0306		0.976	
P * EM	-0.0163	0.00231	-0.0209	-0.0118	-7.0824		<.001	

Table 4 Moderation analysis showed that empathy significantly moderated the relationship between all three Dark Triad traits and burnout. Specifically, higher empathy weakened the positive relationship between Machiavellianism ($B = -0.156$, $p < 0.001$), narcissism ($B = -0.1481$, $p < 0.001$), and psychopathy ($B = -0.16664$, $p < 0.001$) and burnout, suggesting that empathy acts as a protective factor, helping to mitigate the impact of these maladaptive traits on burnout.

H_{04} null hypothesis stating that empathy does not significantly moderate the relationship between Dark Triad traits and burnout among doctors and nurses is rejected since empathy plays a significant moderating role.

4. Discussion

The purpose of this study was to investigate whether empathy moderates the relationship between Dark Triad traits and burnout among medical professionals. The sample consisted of 150 licensed doctors and registered nurses actively working in clinical settings including both male and female participants. The findings provide substantial evidence supporting the moderation hypothesis.

Correlation analysis revealed that narcissism and psychopathy were significantly positively associated with burnout, suggesting that individuals with these traits are more vulnerable to emotional exhaustion and disengagement, consistent with existing literature on emotional dysregulation and heightened stress. Although Machiavellianism showed a weaker association, it was still positively correlated with burnout. Additionally, empathy was significantly related to narcissism and Machiavellianism, though not to psychopathy, indicating selective or instrumental empathy in some traits.

Regression analysis demonstrated that narcissism and psychopathy significantly predicted burnout, while Machiavellianism did not. This suggests that the impulsivity and emotional instability associated with narcissism and psychopathy may be more detrimental in high-stress healthcare environments. However, moderation analysis revealed that empathy significantly buffered the impact of all three Dark Triad traits on burnout. In other words, individuals with high Dark Triad scores experienced lower levels of burnout when they also had higher levels of empathy.

These results support the Job Demands-Resources (JD-R) model, which emphasizes that personal resources like empathy can mitigate the negative effects of psychological risk factors. The study highlights the complex interplay between personality and emotional resilience, suggesting that empathy training and emotional development programs may be valuable tools for reducing burnout, especially among healthcare professionals exhibiting maladaptive traits.

5. Conclusion

This research offers a nuanced understanding of how personality traits like narcissism, Machiavellianism, and psychopathy interact with empathy to influence burnout among healthcare professionals. The findings support the JD-R model, highlighting that empathy, as a personal resource, can buffer the negative effects of Dark Triad traits. While narcissism and psychopathy were found to be significant predictors of burnout, empathy mitigated these effects. Interestingly, the study also challenges the notion that individuals high in Dark Triad traits lack empathy entirely—narcissistic and Machiavellian individuals may demonstrate context-specific or strategic empathy. However, psychopathy remained largely incompatible with genuine empathy. These insights have practical implications for emotional resilience and targeted intervention in healthcare settings.

Limitations

This study's cross-sectional design limits causal inference, and the reliance on self-report tools may introduce social desirability bias. The absence of observational data restricts real-world applicability, and the sample's narrow scope (Indian doctors and nurses) limits generalizability. Key factors like workload and organizational support were not considered, which may influence outcomes.

Suggestions for future studies

Future research should use longitudinal designs to clarify how Dark Triad traits, empathy, and burnout develop over time. Including a wider range of healthcare roles and using qualitative methods like interviews can offer deeper insights. These approaches will help create more targeted and effective interventions for burnout.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

This study did not involve any procedures conducted on animals. All research activities involving human participants were reviewed and approved in accordance with institutional ethical guidelines.

Statement of informed consent

All participants provided informed consent prior to their participation in the study, ensuring their voluntary involvement and understanding of the research purpose.

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