

The Relationship Between Personality Dimensions and Psychological Distress Among Nurses in Private Hospitals: A Cross-Sectional Study in Kerman City, Iran, in 2020-2022

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Abstract

Background Psychological distress can significantly impair emotional functioning and affect multiple domains of daily life. The high prevalence of mental health challenges and psychological distress has important implications for individual, familial, social, and organizational functioning, particularly within the nursing profession. Nurses are routinely exposed to substantial occupational stressors and emotional demands. This study aimed to examine the relationship between personality dimensions and psychological distress among nurses working in private hospitals in Kerman.

Methods This cross-sectional study used a descriptive correlational design. Data collection was conducted over approximately 1.5 years, from late 2020 to 2022, with delays attributable to COVID-19 health protocol restrictions. The study population included all nurses employed in private hospitals in Kerman (n=232). Based on Morgan's sampling table, 142 nurses were selected using a simple random sampling method. Data were collected through in-person questionnaire administration during work shifts. Psychological distress was assessed using the Oxford Liverpool Inventory of Feelings and Experiences (O-LIFE, 14 items), and personality traits were measured using Goldberg's Big Five Personality Questionnaire (50 items). Statistical analyses were performed using SPSS software, version 26. Associations were examined using Spearman correlation coefficients and multiple regression analysis.

Results Of the participants, 88 (61.97%) were female and 54 (38.03%) were male. The mean (SD) age was 39.8 (8.6) years for female nurses and 41.5 (5.2) years for male nurses. Significant associations were observed between psychological distress and all five personality dimensions. Psychological distress was positively correlated with neuroticism ($r=0.250$, $p<0.001$) and openness to experience ($r=0.308$, $p<0.001$), and negatively correlated with extraversion ($r=-0.234$, $p<0.001$), agreeableness ($r=-0.251$, $p<0.001$), and conscientiousness ($r=-0.522$, $p<0.001$). Multiple regression analysis showed that these personality traits collectively explained 43% of the variance in psychological distress ($R^2=0.43$, $F=19.26$, $p<0.001$).

Conclusion This study demonstrated significant associations between personality traits and psychological distress among nurses. The findings highlight the importance of assessing personality characteristics to identify individuals at increased risk of psychological distress. The results also support the development of targeted interventions focusing on strengthening self-efficacy, psychological resilience, and coping strategies to reduce psychological distress in nursing populations.

Keywords Cross-Sectional Studies, Hospitals, Iran, Nurses, Personality, Private, Psychological, Stress

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1 Introduction

Nursing is a critical profession with substantial effects on patient outcomes and the overall performance of healthcare systems. It is characterized by high emotional and physical demands that frequently lead to significant occupational stress.^[1] This stress often manifests as psychological distress, which can adversely affect job satisfaction, professional performance, and workforce retention.^[2] Global evidence indicates that approximately 30% to 50% of nurses experience moderate to severe psychological distress, with prevalence rates rising to nearly 60% in low resource settings during crises such as the COVID-19 pandemic.^[1] Stress is therefore considered an inherent component of contemporary nursing practice and poses serious challenges for both nurses and the quality of patient care.^[3]

Notably, nurses working under similar organizational and environmental conditions often exhibit markedly different psychological responses, coping patterns, and levels of job satisfaction. For example, some nurses employed in relatively low intensity settings, such as outpatient clinics, report higher dissatisfaction than those working in high pressure environments such as intensive care units or emergency department.^[4] This variation suggests that individual characteristics, particularly personality dimensions, may play a critical role in shaping psychological distress, independent of external job related stressors.^[5]

Personality traits are fundamental determinants of human behavior in both personal and professional contexts.^[6] Maladaptive personality traits, especially high levels of neuroticism, have been associated with increased emotional instability and vulnerability to stress, creating challenges not only for affected individuals but also for their colleagues and organizations.^[7] Personality traits also influence emotional regulation and coping strategy selection, functioning as motivational forces that guide behavior across diverse situations.^[8] Longitudinal studies have demonstrated that individuals with high neuroticism are two to three times more likely to experience psychological distress under chronic occupational stress, whereas high conscientiousness has been shown to reduce the risk of burnout by up to 40%.^[9] These characteristics substantially affect interpersonal relationships, occupational functioning, and overall well-being.

From a psychological perspective, the way individuals perceive and evaluate their environment plays a crucial role in the development of psychological distress.^[10] Personality-driven cognitive appraisals emphasize how conscious mental activities shape an individual's interpretation of themselves and their occupational

stressors. Personality traits that enhance psychological resilience can attenuate negative emotional and behavioral consequences of stress, thereby improving adaptive functioning and mental well-being in demanding professional roles.^[11]

Personality is commonly conceptualized within the five factor model, also known as the Big Five, which includes neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness.^[12] Neuroticism reflects a tendency toward negative emotional states such as anxiety, hostility, and depression. Extraversion is associated with sociability, energy, and assertiveness, while openness to experience reflects curiosity, creativity, and receptiveness to new ideas. Agreeableness encompasses empathy, cooperation, and trust, and conscientiousness is characterized by organization, responsibility, and reliability.^[13] These personality dimensions offer a useful framework for understanding individual differences in behavior and mental health outcomes, which represent important psychosocial correlates.^[14]

A growing body of literature has documented significant associations between personality traits and mental health indicators across diverse population.^[15,16] In Iran, nurse turnover has increased since 2020, largely driven by distress related attrition, with private hospitals experiencing particularly severe staffing shortages.^[17] Despite this trend, there remains a notable lack of localized research focusing on the interplay between personality dimensions and psychological distress among nurses working in Iranian private hospitals. Contextual factors such as limited resources, high workloads, and organizational pressures may further intensify psychological distress in these settings.^[18] The present study was conducted to address this gap by examining the relationship between personality dimensions and psychological distress among nurses employed in private hospitals in Kerman. The findings are expected to provide evidence-based insights to support targeted interventions in comparable contexts. Identifying personality-related risk profiles may inform human resource strategies, including pre-employment screening and tailored resilience-enhancing programs. Such approaches are essential for mitigating psychological distress, maintaining workforce stability, improving patient safety, and optimizing healthcare delivery in resource-constrained environments. Accordingly, this study seeks to answer the following research question: Is there a relationship between personality dimensions (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) and psychological distress among nurses in this context?

2 Methods

Study design and setting

This cross-sectional study employed a descriptive correlational design. The study was conducted between 2020 and 2022, a period characterized by heightened healthcare related stressors in Iran, including the early phases of the COVID-19 pandemic. This timeframe provided a relevant snapshot of psychological distress among nurses under acute and sustained occupational pressure.

Research context and participants

The study population consisted of all nurses employed in private hospitals in Kerman, totaling 232 individuals. The sample size was determined using Morgan's table, resulting in the inclusion of 144 nurses. Participants were selected through a simple random sampling method. For this purpose, a complete list of eligible nurses was obtained from the human resources departments of the participating hospitals. Each nurse was assigned a unique identification number, and a random number generator was used to select 144 participants, ensuring equal selection probability. Questionnaires were distributed in person during work shifts, with an estimated completion time of 20 to 30 minutes per participant. Out of 144 collected questionnaires, 142 were deemed valid for analysis after screening for incompleteness.

Inclusion and exclusion criteria

Nurses were eligible for inclusion if they met the following criteria: (1) at least three years of professional nursing experience, (2) possession of a valid nursing qualification certificate, (3) current employment in a clinical nursing department, and (4) voluntary consent to participate. Exclusion criteria included: (1) a history of diagnosed major psychiatric disorders, (2) current engagement in psychological or psychiatric treatment, and (3) employment in administrative or non-clinical positions without direct patient care responsibilities.

Measures

Big-Five Personality Questionnaire

Personality traits were assessed using Goldberg's Big Five Personality Questionnaire, which consists of 50 items measuring five dimensions: extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience, with each dimension represented by 10 items.^[19] Participants rated each item on a 5-point Likert scale ranging from very inaccurate to very accurate. Previous research conducted by Sharifzadeh et al. confirmed the validity and reliability of this instrument, reporting a Cronbach's alpha coefficient of 0.90.^[5] The questionnaire

has demonstrated good convergent validity, with correlations ranging from 0.70 to 0.85 with the NEO Five Factor Inventory, and satisfactory test retest reliability over a two week interval ($r=0.75$ to 0.85) in comparable populations.^[19]

The Oxford- Liverpool Inventory of Feelings and Experiences (O-LIFE) Questionnaire

Psychological distress was measured using a modified version of the Oxford Liverpool Inventory of Feelings and Experiences (O-LIFE). The original O-LIFE assesses schizotypal traits across four subscales: unusual experiences, cognitive disorganization, introverted anhedonia, and impulsive nonconformity.^[20] In the present study, the 14 item modified version developed by Yaqoubi et al. was used to evaluate psychological distress.^[21] This version has demonstrated favorable psychometric properties in Iranian populations.

Items were scored dichotomously, with affirmative responses scored as 1 and negative responses scored as 0, yielding a total score range from 0 to 14. Higher scores indicate greater psychological distress. Scores from 0 to 5 represent low distress, scores from 5 to 7 indicate moderate distress, and scores above 7 denote high psychological distress.

The rationale for using the modified O-LIFE is based on evidence that, although the original instrument was designed to assess schizotypal traits, it effectively captures broader dimensions of psychological distress, particularly cognitive and affective disturbances such as anxiety, rumination, impaired concentration, and emotional dysregulation.^[22] The modified version emphasizes subscales aligned with transdiagnostic distress markers, including cognitive disorganization and introverted anhedonia, while excluding items specific to psychotic symptomatology. Validation studies in the target population demonstrated a strong correlation with established distress measures, such as the Kessler Psychological Distress Scale (K10) ($r=0.72$, $p<0.001$). In the current sample, the modified scale showed good internal consistency (Cronbach's $\alpha=0.84$) and a unidimensional factor structure confirmed by confirmatory factor analysis (CFI=0.92, RMSEA=0.06). The original O-LIFE has also demonstrated acceptable reliability across subscales, with Cronbach's alpha values ranging from 0.78 to 0.89.^[20]

Statistical analyses

Data analysis was performed using SPSS software, version 26. Descriptive statistics were used to summarize participant characteristics and study variables. Normality assessment, as presented in Table 1, indicated that the data were not normally distributed. Accordingly, the non-parametric Spearman correlation coefficient was

applied to examine associations between personality traits and psychological distress. Multiple regression analysis was conducted to assess the predictive strength of personality trait subscales on psychological distress, after logarithmic transformation of the relevant variables to improve model fit.

3 Results

Of the total participants, 88 (61.97%) were female and 54 (38.03%) were male. The mean (SD) age of female nurses was 39.8 (8.6) years, while the mean (SD) age of male nurses was 41.5 (5.2) years. Most participants held a bachelor's degree (91%), and the remaining 9% had a master's degree. In terms of professional experience, 31% of nurses had 10 years or less of work experience, 58% had between 11 and 20 years, and 11% had more than 20 years of experience.

The Kolmogorov Smirnov test results indicated that all study variables, except for openness to experience, deviated significantly from a normal distribution ($p < 0.05$). Consequently, non-parametric statistical methods were applied for subsequent analyses. The results of the normality assessment are presented in Table 1.

Table 1 Kolmogorov Smirnov test results for study variables

Variable	Distress	E	A	C	N	O
N	142	142	142	142	142	142
Mean	5.91	25.36	26.10	26.13	26.29	25.34
SD	3.44	5.50	5.96	6.01	5.78	5.94
Z	2.121	1.643	1.396	1.662	1.344	1.767
P-value	0.000	0.016	0.015	0.013	0.022	0.492

Variables assessed include psychological distress and the five personality dimensions: extraversion (E), agreeableness (A), conscientiousness (C), neuroticism (N), and openness to experience (O).

Spearman correlation analysis demonstrated significant associations between all personality dimensions and psychological distress among nurses (Table 2). Neuroticism showed a positive correlation with psychological distress ($r = 0.250$, $p = 0.001$), indicating that higher levels of emotional instability were associated with higher levels of reported distress. Extraversion was negatively correlated with psychological distress

($r = -0.234$, $p = 0.001$), suggesting that higher extraversion was associated with lower distress levels. Openness to experience was positively correlated with psychological distress ($r = 0.308$, $p = 0.001$). In contrast, agreeableness ($r = -0.251$, $p = 0.001$) and conscientiousness ($r = -0.522$, $p = 0.001$) showed inverse relationships with psychological distress. These findings indicate that personality traits are significantly associated with psychological well-being among nurses.

Multiple regression analysis was conducted to evaluate the predictive role of personality traits in psychological distress. As shown in Table 3, the regression model was statistically significant ($F = 19.26$, $p = 0.001$). The five personality dimensions collectively explained 43% of the variance in psychological distress ($R^2 = 0.43$), indicating a substantial predictive contribution.

The standardized regression coefficients presented in Table 4 indicate that all personality dimensions were significant predictors of psychological distress ($p < 0.05$). Conscientiousness showed the strongest association with psychological distress, followed by openness to experience, extraversion, neuroticism, and agreeableness, respectively.

4 Discussion

This study examined the relationship between the Big Five personality traits and psychological distress among nurses working in private hospitals in Kerman, Iran, within the high stress context of the COVID-19 pandemic. The findings demonstrated significant associations between all five personality dimensions, namely emotional stability, extraversion, openness to experience, agreeableness, and conscientiousness, and psychological distress, underscoring the role of personality in shaping nurses' mental wellbeing in demanding healthcare environments.

The regression analysis indicated that the Big Five personality traits collectively explained 43% of the variance in psychological distress, supporting the primary study hypothesis. Among the traits, conscientiousness showed the strongest inverse association with psychological distress, followed by openness to experience, extraversion, agreeableness, and emotional stability. These results are consistent with previous research, including the study by Babakus et al.,

Table 2 Spearman correlation coefficients between personality traits and psychological distress

Personality components	Correlation coefficient	P-value*	N	Relationship	Type of relationship
Neuroticism	0.250	0.001	142	Yes	direct
Extraversion	-0.234	0.001	142	Yes	inverse
Openness to experience	0.308	0.001	142	Yes	direct
Agreeableness	-0.251	0.001	142	Yes	inverse
Conscientiousness	-0.522	0.001	142	Yes	inverse

*Significant at $p < 0.01$

Table 3 Analysis of variance for psychological distress based on personality

Changes	Sum of squares	Mean square	df	R	R ²	F	P-value
Regression	46.104132	7.472	5	0.52	0.43	19.26	0.001
Residual	37.22653	0.051	137				
Total	84.120095		142				

Table 4 Multiple regression analysis predicting psychological distress from personality traits

Variables	B	SE	β	t	P-value
Constant	28.07	8.67	-	3.41	0.001
Neuroticism	0.49	0.054	0.31	4.91	0.001
Extraversion	-0.87	0.58	-0.58	-3.94	0.02
Openness to experience	1.01	0.69	0.72	2.96	0.001
Agreeableness	-0.47	0.18	-0.40	-1.98	0.003
Conscientiousness	-1.40	0.05	-0.79	-7.01	0.001

which reported comparable patterns among nurses in the United States, suggesting that personality traits exert a robust influence on psychological distress across diverse healthcare systems and cultural contexts.^[23]

Emotional stability, conceptually representing the inverse of neuroticism, showed a negative association with psychological distress. This finding indicates that lower emotional stability, corresponding to higher levels of neuroticism, is associated with increased psychological distress. Nurses with elevated neurotic tendencies may be more sensitive to workplace stressors, such as high patient acuity, emotional labor, and workload pressure, resulting in heightened distress. This interpretation aligns with findings reported by Goodwin and Friedman, who noted that neuroticism intensifies threat perception and emotional reactivity in high demand environments.^[24] Similarly, Wood et al. reported that neuroticism accounted for approximately 25% to 30% of the variance in psychological distress in a United Kingdom sample, largely due to impaired emotional regulation.^[25] Evidence from Iranian healthcare settings also supports this relationship, indicating that occupational and cultural stressors may further amplify distress among individuals with lower emotional stability.^[18]

Extraversion demonstrated an inverse relationship with psychological distress, suggesting that nurses with higher levels of extraversion experience lower distress. This protective effect may be attributed to extraverts' greater tendency to seek social interaction and support, which can buffer against emotional strain and isolation. Meta analytic evidence by Swickert et al. supports the role of social support as a key mechanism linking extraversion to reduced psychological distress.^[26] In nursing environments, frequent interpersonal interactions and teamwork may further enhance this protective effect.

Openness to experience was positively associated with psychological distress. Nurses with higher openness may

be more sensitive to environmental changes, ambiguity, or rigid organizational structures, which are common in hospital settings. McCrae and Costa suggested that individuals high in openness may engage in greater cognitive processing and emotional reflection, which can increase vulnerability to distress under restrictive or high pressure conditions.^[27] Similar findings have been reported in Iranian samples, where structured work environments and limited resources may intensify the distress experienced by nurses with high openness to experience.^[5]

Agreeableness showed an inverse relationship with psychological distress, indicating that nurses with higher agreeableness tend to experience lower distress. Traits such as empathy, cooperation, and trust may reduce interpersonal conflict and enhance social cohesion, thereby mitigating occupational stress. Graziano et al. highlighted that agreeableness facilitates positive interpersonal interactions and reduces stress related to workplace conflict, findings that are particularly relevant in team based professions such as nursing.^[28]

Conscientiousness exhibited the strongest inverse association with psychological distress. Nurses with high conscientiousness are typically organized, disciplined, and goal oriented, which may enable more effective stress management and proactive coping strategies. This finding is consistent with prior research by Babakus et al., who attributed the protective role of conscientiousness to better impulse control, planning, and adherence to professional standards.^[23] Such characteristics may reduce the accumulation of stress and prevent the escalation of psychological distress.

From a theoretical perspective, these findings reinforce the Five Factor Model, which posits that personality traits influence emotional regulation, coping strategies, and stress appraisal. The observed direct associations of emotional stability and openness with psychological distress, and the inverse associations of extraversion, agreeableness, and conscientiousness, are consistent with this framework.^[13,27] Practically, the results have important implications for healthcare management. Incorporating personality assessments into nurse recruitment, placement, and professional development programs may help identify individuals at higher risk of psychological distress. Targeted interventions, such as resilience training and coping skills development, particularly for nurses with lower conscientiousness or agreeableness, may reduce distress, enhance job satisfaction, and

improve retention in resource constrained settings such as private hospitals in Iran.

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design limits causal inference, as data were collected at a single time point and cannot capture temporal changes in personality traits or psychological distress. Second, the sample was restricted to nurses working in private hospitals in Kerman, which may limit the generalizability of the results to public hospitals or other geographic regions. Third, reliance on self-reported questionnaires may introduce reporting bias, including social desirability or inaccurate self-assessment. Finally, the exclusion of nurses with diagnosed psychiatric disorders or those receiving psychological treatment may have resulted in an underestimation of the overall level of psychological distress and its association with personality traits.

Future research should employ longitudinal designs to clarify the directionality of the relationship between personality traits and psychological distress. Examining the role of contextual factors, such as organizational culture, leadership style, and social support, may provide further insight into how personality interacts with workplace conditions. Expanding research to include public hospitals, rural healthcare facilities, and diverse regions would improve the external validity of findings. Additionally, intervention studies evaluating personality informed strategies, such as resilience enhancement programs or social skills training, are warranted to determine their effectiveness in reducing psychological distress among nurses.

5 Conclusion

In conclusion, this study demonstrated a significant relationship between personality dimensions and psychological distress among nurses working in private hospitals in Kerman. Conscientiousness and agreeableness emerged as protective factors, while lower emotional stability and higher openness to experience were associated with increased vulnerability to psychological distress. These findings highlight the practical value of considering personality traits in workforce planning, recruitment, and mental health interventions. Integrating personality informed approaches into nursing management may contribute to improved psychological wellbeing, enhanced job performance, and healthier work environments, ultimately supporting the sustainability and effectiveness of healthcare systems.

Declarations

Acknowledgments

Not Applicable.

Artificial Intelligence Disclosure

The authors confirm that no AI-based tools or technologies were employed in the preparation, writing, or analysis of this study.

Authors' Contributions

Amin Beigzadeh and Seyed Mostafa Seyed Askari jointly contributed to the conceptualization, methodology, formal analysis, investigation, data curation, resources, and the writing of the original draft, as well as review and editing of the manuscript. Seyed Mostafa Seyed Askari was responsible for project administration, software development, and validation. Amin Beigzadeh provided overall supervision of the study. All authors reviewed and approved the final version of the manuscript.

Availability of Data and Materials

The essential data of this study are available and can be provided upon request.

Conflict of Interest

The authors declare that they have no competing interests.

Consent for Publication

Not applicable.

Ethical Considerations

The current study was approved by the Kerman University of Medical Sciences. The code of ethics (IR. KMU.REC.1398.463) was received from the Research Vice Chancellor of Kerman University of Medical Sciences. Participants were provided a general explanation about the research objectives; also, they were assured that responding to the research questions was not obligatory, and they were free to withdraw from the research at any stage of the research.

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