

## Personality Traits and the Clinical Environment's Stress Resources in Nursing Students

### Abstract

**Background:** The clinical environment always has been the most stressful course of nursing education. Personality traits can be influential factors in stress resources and responding to stress. The present study investigates the correlation between personality traits and nursing students' stress resources in the clinical environment. **Material and Methods:** This descriptive correlational study was planned and performed on Zanjan University of Medical Sciences nursing students. The research population was 215 students selected by stratified random sampling method from all nursing students in the third to eighth semesters. We used an electronic questionnaire for data gathering, including three sections: demographic characteristics, NEO personality traits, and stress resources in the clinical environment. The data were analyzed using descriptive and inferential statistics. **Results:** The most and least stressful resources were related to the score of unpleasant emotions and interpersonal relationships. We found a significant positive correlation between neuroticism personality traits and all four stress resources ( $p < 0.05$ ). The results also showed a significant correlation between all scores of personality traits and perceived stress from unpleasant emotions except the openness to experience trait ( $p < 0.05$ ). Furthermore, the relationship between age, gender, semester, interest, and stress resources in the clinical environment was statistically significant ( $p < 0.05$ ). **Conclusions:** Paying attention to the nursing student's clinical performance to maintain the patient's health is vital and unavoidable. Therefore, more than ever in the preclinical course of nursing education, improving the psychological readiness and simulation training method can reduce the harmful effects of the clinical environment's stress resources on their clinical performance.

**Keywords:** Students, nursing, personality assessment, stress disorders

### Introduction

Stress is the most critical factor with different psychological effects on internal stability. Every person should identify stress resources and manage them to reduce harmful results.<sup>[1]</sup> Learning a new skill is always a stressful and challenging experience. It is more evident in learning about healthcare-related professions such as nursing. Clinical performance in nursing is more crucial and stressful than in other health professions. In addition to theoretical learning stresses, nursing students are also affected by various and more intense clinical education stresses. The effect of nursing students' clinical performance on the patient's health has caused them to name the clinical nursing education courses as the most stressful study period.<sup>[2,3]</sup> Lack of sufficient professional knowledge and clinical skills, the distance

between theoretical and practical learning, observation of death and suffering of patients, and lack of communication skills in dealing with patients and medical staff increased these stresses.<sup>[4]</sup> In recent years, due to the importance of nursing performance and the harmful effects of stress in the clinical environment, nursing students' perceived stress has been considered by education researchers with more precision.<sup>[5]</sup> Most previous studies showed moderate to high levels of perceived stress by nursing students in educational environments. In Iran, Raji *et al.* (2015)<sup>[6]</sup> found that the mean score of perceived stress among nursing students in the Operation room is moderate. According to a study conducted in Brazil in 2019, 59.3% of nursing students declare a moderate and high level of perceived stress during their education.<sup>[7]</sup> A review of the previous studies' results shows that there

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are four essential stress resources for nursing students: academic stress resources, including fear of final evaluation or homework overload; clinical stress resources, including fear of error or lack of skills to work with patients and advanced equipment, personal stress resources, including psychological or financial problems and social stress resources, including cultural differences or worry about career future.<sup>[8-11]</sup>

Stress resources in the clinical environment are different and varied and can have internal or external sources. Academic stress due to intrapersonal factors such as personality traits is among the essential stress resources for nursing students.<sup>[12]</sup> Personality traits are a set of behavioral and emotional patterns and ways of thinking, one of the most crucial factors that play a significant role in responding to stress and is a strong predictor of each person's coping skills.<sup>[13,14]</sup> So far, several theories about personality traits and their relationship with each person's behaviors have been presented. Among these theories, one of the most common and widely used theories about personality traits is the five great personality traits. According to this theory, personality comprises five big traits: neuroticism, extraversion, openness to experience, agreeability, and conscientiousness.<sup>[15]</sup> Neuroticism persons have lower stress tolerance and emotional stability and are very vulnerable to all stressful situations. They are worried, anxious, frustrated, shy, and hurried persons who usually react differently in stressful environments.<sup>[16]</sup> Behavioral features such as being active, courageous, a searcher, and sociable can be seen in persons with the extraversion personality trait. Extroverts feel better and more satisfied with their job and job environment. Openness to experience personality traits is related to high imagination and creativity about the surrounding. They also have ideation power, are curious about other people's comments, and are suitable for jobs requiring innovation and entrepreneurship and with a lot of change and transformation. Persons with this personality trait are successful in theorizing, architecture, and the visual arts.<sup>[17]</sup> Agreeableness includes traits that make people pleasant and desirable for interpersonal relationships. Also, persons who seek to adapt and get along well with people and their colleagues generally have this personality trait. They are the trustworthy, honest, altruistic, kind, and self-sacrificing character.<sup>[18]</sup> Commitment to organizational goals is the main feature and characteristic of persons with the conscientiousness personality trait. These persons are regular, punctual, and reliable in performing crucial activities.<sup>[19]</sup> According to various research studies, it can be claimed that the sources of stress and the stress experience are related to every person's personality traits. In other words, personality traits can underlie, perpetuate, or modify the effect of stressors on each person's performance. Due to the nurses' clinical function's importance as their primary task in the health care system, understanding the relationship between personality traits and stress

resources in the clinical environments is influential in future educational planning. Therefore, this study planned to investigate the correlation between personality traits and nursing students' stress resources in the clinical environment.

## Material and Methods

We investigated the correlation between personality traits and nursing students' stress resources in the clinical environment during this quantitative, and cross-sectional descriptive correlational study in October 2020. The current study's population was all three to eight semesters of nursing students studying in two nursing schools affiliated with Zanzan University of Medical Sciences. Based on Cochran's formula (Confidence level = 95%,  $\alpha = 0.05$ ,  $z = 1.96$ ,  $d = 0.05$ ,  $\beta = 0.2$ , Power of a test = 80%), the sample size was calculated at 235, counting 10% more due to possible sample loss, and sampling was done by stratified random method. The number of samples in each semester was determined evenly due to the almost equal number of nursing students. Then 40 samples per semester were obtained for final data gathering. Afterward, each semester's samples were determined by the simple random (lottery) sampling method. This study's inclusion criterion includes a full-time study, absence of mental illness, drug abuse, any stressful events in the past six months, and passing at least one internship in the hospital, based on the self-report method. Exclusion criteria were also considered reluctance to participate in the study or withdrawal from continuing cooperation. The research tools were three questionnaires that included demographic characteristics, NEO-FFI (Neuroticism, Extraversion, Openness Personality Inventory, Five-factor Inventory) personality traits (short form), and stress resources in the clinical environment. The demographic questionnaire included age, gender, marital status, nursing school name, semester, total Grade Point Average (GPA), and level of interest in the study field. The NEO personality traits questionnaire was developed in 1985 by McCrae and Costa. This questionnaire's short-form has 60 items and is used to assess the five main personality traits, including neuroticism, extroversion, openness to experience, agreeableness, and conscientiousness. A nursing student participating in this study had to answer its questions based on a Likert-type scale from zero (Strongly disagree) to four (strongly agree). The number of questions for each personality trait was 12, and the minimum and maximum scores were 0 and 48. The results of McCrae and Costa's study showed that the mean of this questionnaire's Cronbach's alpha was calculated at 0.81.

Moreover, the subscales' internal consistency of this questionnaire was calculated in the range of 0.68 to 0.86.<sup>[20]</sup> The standardization of this questionnaire's short form in Iranian society was approved during Roshan *et al.*'s study in 2006.<sup>[21]</sup> To measure the clinical environment's

stress resources, we used a questionnaire designed and implemented in the study of Nazari *et al.*<sup>[22]</sup> conducted in 2007. This questionnaire consists of 29 questions based on a Likert-type scale from one (not at all) to four (high) that assess stress resources of the clinical environment from the student's viewpoint in four areas: interpersonal relationships, clinical works, unpleasant emotions, and humiliating experiences. The validity of this questionnaire was confirmed by the content validity method. Its reliability using Cronbach's alpha was obtained in the range of 0.85 to 0.94 by the retest method in previous studies.<sup>[22-24]</sup> The researchers designed an electronic questionnaire according to students' convenience and to increase focus in responding. In other words, we converted the printed version of these questionnaires to an electronic form and made it available through the website (<https://survey.porsline.ir/s/xB2500T>). Then, after obtaining permission from schools' managers, we extracted the phone number of selected students and sent this electronic questionnaire's internet link to these phone numbers. Before answering the electronic questionnaire, the informed consent form had to be completed by the participants.

Furthermore, the required explanations were given to participants with the questionnaire link about the research aims, methods, and confidentiality of the information. On the other hand, a specific phone number was attached to this electronic questionnaire to resolve the students' uncertainties about research and questionnaires. The data were analyzed using descriptive and inferential statistics by version 26 of SPSS software (Manufactured by IBM: International Business Machines Corporation).

### Ethical consideration

After obtaining permission from Zanjan University of medical sciences' research assistant and ethics committee (IR.ZUMS.REC.1399.206) and coordinating with nursing schools, the students' list from each semester was extracted and then specified the samples based on the lottery. All students completed the informed consent form and were assured that the information would remain confidential.

### Results

From 235 questionnaires link sent to selected students, 215 completed questionnaires entered the SPSS software and were analyzed. Twelve students did not participate in the study, eight questionnaires were excluded due to incomplete answers, a history of stressful events in the past six months, and drug abuse. According to the results, the students' mean age was 20.73 years, and 58.60% were female. Most participants were single (85.10%) and studied in the fifth semester (20%). 61.90% had a Grade Point Average (GPA) between 16 to 18, and 35.40% had a high interest in nursing. Demographic information of the present study's participants is listed in Table 1. The NEO personality traits questionnaire analysis showed that the

highest and lowest scores were related to the agreeableness and extroversion personality traits. Furthermore, the stress resources results showed that all four scores were above the moderate level. Also, we found that the stress resource of unpleasant emotions in the clinical environment had the highest score. It means that the most stressful resource for nursing students' viewpoint who participated in this study is their unpleasant emotions. After that, the least stressful resource was obtained in interpersonal relationships in the clinical environment. Mean, standard deviation, minimum and maximum scores, number of questions, and score ranges of stress resources in the clinical environment are shown in Table 2.

In line with the present study's primary purpose, the correlation between stress resources in the clinical environment and students' personality traits showed a significant positive correlation between the score of neuroticism personality trait and all four stress resources. According to these results, the clinical environment's unpleasant emotions had a high correlation coefficient with the neuroticism personality trait ( $r = 0.78, p < 0.05$ ). A significant correlation was found between all scores of

**Table 1: Frequency and percent of demographic characteristics variables**

Variable	n (%)
Age	
<22	146 (67.90%)
22-26	56 (26.10%)
>26	13 (60%)
Gender	
Male	89 (41.40%)
Female	126 (58.60%)
Marital status	
Single	183 (85.10%)
Married	32 (14.90%)
College	
Abhar	108 (50.30%)
Zanjan	107 (49.70%)
Semester	
Third	37 (17.20%)
Fourth	24 (11.20%)
Fifth	43 (20%)
Sixth	35 (16.30%)
Seventh	39 (18.10%)
Eighth	37 (17.20%)
Total grade point average	
<16	47 (21.80%)
16-18	133 (61.90%)
>18	35 (16.30%)
Interest	
Uninterested	19 (8.80%)
Low	56 (26%)
Moderate	64 (29.80%)
High	76 (35.40%)

personality traits and perceived stress from unpleasant emotions except the openness to experience trait. In addition to the unpleasant emotions, the score of humiliating experiences also had a significant positive correlation with the extraversion trait ( $r = 0.20$ ,  $r = 0.19$ ,  $p < 0.05$ ). Moreover, the openness to experience trait negatively correlated with clinical work stress ( $r = -0.28$ ,  $p < 0.05$ ). In other words, increasing the score of openness to experience trait cause reduces the score of perceived stress from the clinical works and is statistically significant. On the other hand, we found a significant positive correlation between the scores of agreeableness personality traits and the score of perceived stress from unpleasant emotions in the clinical environment ( $r = 0.27$ ,  $p < 0.05$ ). A significant positive correlation between unpleasant emotions and interpersonal relationships stress resources with the conscientiousness personality trait ( $r = 0.32$ ,  $r = 0.27$ ,  $p < 0.05$ ). Correlation coefficients and  $p$  value between stress resources in the clinical environment and students' personality traits are visible in Table 3.

Moreover, regarding the relationship between the score of stress resources and participants' personality traits with demographic information, our findings showed a significant relationship between age, gender, semester, and interest of students with stress resources. Also, only participants' gender significantly correlated with the neuroticism personality trait. The mean score of neuroticism personality trait in female students is more than in males, and this difference is significant statistically ( $p < 0.05$ ). The obtained  $p$  value between the score of stress resources in

the clinical environment with demographic information and their statistical tests are observable in Table 4. Based on Table 4, we understood that there is a significant negative correlation between age and the score of interpersonal relationships ( $r = -0.28$ ,  $p < 0.05$ ), and a positive correlation between age and humiliating experiences ( $r = 0.22$ ,  $p < 0.05$ ), in the clinical environment. Due to these findings, we can claim that older participants perceived less stress from interpersonal relationships and more stress from humiliating experiences. The independent sample t-test about the relationship between gender and stress resources showed that the mean score of the perceived stress from unpleasant emotions and humiliating experiences among females is more than among males, and these differences were statistically significant ( $p < 0.05$ ). Furthermore, according to ANOVA and post hoc tests, students in the seventh and eighth semesters had a lower mean perceived stress score in interpersonal relationships than other students. Also, participants in eight semesters had a low mean perceived stress score in clinical work compared with other students, except for students in the seventh semester. Another finding was related to the relationship between nursing students' interests and the clinical environment's stress resources. The results showed that students with high interest had low perceived stress from clinical work than students with uninterruptedness.

## Discussion

According to the present study results, the agreeableness and extroversion traits were the highest and lowest mean

**Table 2: Mean, standard deviation, minimum and maximum scores, number of questions, and score ranges of stress resources in the clinical environment**

Stress resources	Mean (SD)	Minimum score	Maximum score	Number of questions	Score range
Interpersonal relationships	2.57 (0.38)	13	29	8	8-32
Clinical works	2.82 (0.66)	12	31	8	8-32
Unpleasant emotions	3.43 (0.51)	15	28	7	7-28
Humiliating experiences	2.79 (0.27)	9	22	6	6-24

**Table 3: Correlation coefficients between stress resources in the clinical environment and student's personality traits**

Variables	Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
Interpersonal relationships					
Pearson correlation coefficient	0.42	- 0.17	0.03	- 0.13	0.27
<p><math>p</math></p>	$p < 0.001$	0.061	0.429	0.113	0.023
Clinical works					
Pearson correlation coefficient	0.69	0.05	- 0.28	0.00	0.06
<p><math>p</math></p>	$p < 0.001$	0.219	0.016	0.913	0.644
Unpleasant emotions					
Pearson correlation coefficient	0.78	0.20	0.18	0.27	0.32
<p><math>p</math></p>	$p < 0.001$	0.039	0.052	0.009	0.001
Humiliating experiences					
Pearson correlation coefficient	0.43	0.19	0.06	- 0.05	0.07
<p><math>p</math></p>	$p < 0.001$	0.024	0.307	0.276	0.210

**Table 4: Relationship between demographic variables and stress resources in the clinical environment**

Demographic characteristics	Test	Interpersonal relationships	Clinical works	Unpleasant feelings	Humiliating experiences
Age	Pearson correlation	$r=0.28$ 0.03	$r=-0.06$ 0.274	$r=0.07$ 0.191	$r=0.22$ 0.04
Gender	T-independent	0.31	0.10	0.01	0.03
Marital status	T-independent	0.21	0.10	0.34	0.31
College	T-independent	0.35	0.40	0.29	0.11
Semester	ANOVA	0.03	0.00	0.11	0.22
Interest	ANOVA	0.18	0.01	0.10	0.09
Address	ANOVA	0.23	0.21	0.20	0.36
Total grade point average	Pearson correlation	$r=0.01$ 0.322	$r=0.05$ 0.21	$r=-0.03$ 0.40	$r=0.09$ 0.22

score of nursing students' personality traits. Shanesazzadeh and Mohammadali in 2018<sup>[25]</sup> found a similar finding related to the personality traits of nursing students. Another study in Iran also showed that the highest mean score of nursing students' personality traits was agreeableness.<sup>[26]</sup> Furthermore, due to nursing students' stress resources in the clinical environment, all four stress resources scores were above the moderate level. In line with our study, the results of Rezaei *et al.*<sup>[23,24]</sup> studies' showed that nursing and midwifery students' perceived stress from resources of the clinical work, unpleasant emotions, and humiliating experiences were above the moderate level. Other findings of the present study were the highest and lowest scores of the clinical environment's stress resources. We found that the stress resource of unpleasant emotions was the highest score, and the interpersonal relationship was the lowest stressful resource in the clinical environment. In the present study line, Raji *et al.*<sup>[6]</sup> in Iran found that the most stressful area in male and female students was related to unpleasant emotions, and the lowest was related to interpersonal communication. Two other studies conducted in Iran have obtained similar results in their studies.<sup>[23,24]</sup> Contrary to the results of this study, Bahadır-Yılmaz in Turkey found that among the clinical stressors, the highest score (56.0%) was obtained in clinical relationships with teachers (being criticized by teachers in clinical environments).<sup>[12]</sup> Al-Zayyat and Al-Gamal in 2014<sup>[27]</sup> understood that the most important sources of stress for students in the clinical environment were patient care and, in the next stage, stress about the relationship with the teacher and medical staff. Another study showed that nursing students' most common stressors were lack of professional knowledge, skill, and patient care.<sup>[28]</sup> It seems that the reasons for some similarities and differences in our findings and other studies are the influence of social and cultural differences and maybe the clinical environment-related factors on perceived stress in nursing students.

On the other hand, the correlation between stress resources in the clinical environment and students' personality traits showed a significant positive correlation

between the neuroticism personality trait score and all four stress resources. Shokri *et al.*<sup>[29]</sup> in Iran showed similar results that students with neuroticism personality traits suffer more stress in the academic environment. In 2015, another study found that perceived stress is higher in nurses with neuroticism than in other personality traits.<sup>[30]</sup> The present study's results and comparison with other studies reveal the fact that there is a direct relationship between neuroticism personality traits and nursing students' perceived stress in academic environments. Another exciting result of the present study was the correlation between all personality traits and perceived stress from unpleasant emotions and stress resources except the openness to experience trait. Like our study, another survey showed that seeing the patients' suffering or death was a clinical stressor for nursing students, indicating the need to empower them before entering the clinical environment and strengthening coping skills in dealing with stress.<sup>[5]</sup> Another interesting study showed that incompatibility with disease or death of patients and the atmosphere created by hospital staff were among the stress resources evaluated above a moderate level by the participants.<sup>[31]</sup> The results also showed that nursing students with extraversion suffered more stress from unpleasant emotions and humiliating experiences in the clinical environment. A significant positive correlation was found between the scores of agreeableness and conscientiousness personality traits and the score of perceived stress from unpleasant emotions in the clinical environment. Due to another study, unpleasant emotions and humiliating experiences are the most stressful resources than other clinical environment stress resources.<sup>[6]</sup> Based on these findings, it can be said that unpleasant emotions and humiliating experiences were always among the most stressful resources for nursing students, and our results confirmed this fact and showed it could be seen in most nursing students' personality traits. Also, there is a significant positive correlation between interpersonal relationships and stress resources with the score of conscientiousness

personality trait. Nazari *et al.*<sup>[22]</sup> understood that the lowest perceived stress in the clinical environment is related to interpersonal relationships.

Moreover, we found that the openness to experience trait negatively correlated with clinical work stress resources. According to a study conducted in 2017, clinical works were the second stress resource from participants' viewpoints after unpleasant emotions.<sup>[23]</sup> In this regard, we can say that why the persons with openness to experience trait have more desire to acquire new skills, their perceived stress from clinical work is lower than other persons. We found a significant negative correlation between age and the interpersonal relationship score and a positive correlation between age and humiliating experiences. Another study reported similar results and stated that interpersonal relationships' stress decreases with age.<sup>[32]</sup> Chan *et al.*<sup>[33]</sup> reported differences in academic and clinical practice stress levels between male and female nursing students. They found that nursing students' stress levels of females were higher than those of males. Nazari *et al.*<sup>[22]</sup> reported a positive correlation between semester and humiliating experiences and a negative correlation between semester and clinical work. Due to Rezaei *et al.*,<sup>[23]</sup> students' interests had no significant relationship with stress resources in the clinical environment. In the results of a similar study conducted by Rafati *et al.*,<sup>[11]</sup> dishonesty behaviors in the clinical environment in interested students and somewhat interested were less than in those uninterested. We can say that interested nursing students are better adapted to the clinical environment's conditions and tasks. About the limitations of this study, it can be mentioned that answering the numerous items of the questionnaires, participants' psychological status and social problems at the time of the study might have affected their responses to the study instruments. The small sample size can overshadow the generalizability of the results.

## Conclusion

According to the present studies' findings, we can claim that, as in previous studies, the high stress of the clinical environment is continued in nursing students. Furthermore, in most personality traits, nursing students are emotionally affected by the hospital environment more than anything else. Also, students with neuroticism experience many stresses during their clinical education. Nevertheless, it can be said that nursing students still need more time to adapt to the clinical environment, and recognizing their personality traits can improve their compatibility in these stressful atmospheres. Due to the importance of clinical performance in nursing, trainers should pay more attention to students with neurotic personalities. Moreover, improving the simulation training method in the preclinical nursing education course can reduce the harmful effects of the clinical environment's stress resources on nursing students' performance. Moreover, nursing students' psychological

readiness should develop more than ever before entering the clinical environment.

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## Conflicts of interest

Nothing to declare.

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