

## Well-Being of Emergency Room Nurses: Role of Neuroticism, Extraversion and Job Stress

Tayebe Rahimpordanjani<sup>1</sup>, Davide Giusino<sup>2\*</sup>, Ali Mohammadzadeh Ebrahimi<sup>3</sup>, Hamidreza Mokarami<sup>4</sup>, Sakineh Varmazyar<sup>5</sup>, Rezvan Nourozi Jahed<sup>6</sup>

### Abstract

**Objective:** To investigate whether neuroticism and extraversion predicted job-related affective wellbeing of people working under stressful conditions, notably emergency room nurses. Also, to investigate whether perceived job stress mediated the relationship between neuroticism, extraversion, and job-related affective well-being.

**Method:** A cross-sectional survey design was administered to 242 nurses working at an emergency room in Tehran, Iran, recruited through available sampling, including two sub-scales of the NEO Five-Factor Inventory, the Job-Related Affective Well-Being Scale, and the Job Stress Questionnaire. Structural Equation Modelling was deployed for data analysis using SPSS Amos v22.0 and PROCESS macro for SPSS, setting significance threshold at  $p < .05$ .

**Result:** Direct and statistically significant effects of neuroticism ( $\beta = -.17, p < .005$ ) and extraversion ( $\beta = .41, p < .001$ ) on perceived job stress were found, as well as a negative effect of extraversion on job-related affective well-being ( $\beta = -.27, p < .001$ ). Perceived job stress was found to negatively predict job-related affective well-being ( $\beta = -.60, p < .001$ ). There was no significant relationship between neuroticism and job-related affective well-being. The mediating effect of perceived job stress was supported ( $p < .001$ ).

**Conclusion:** Results have theoretical implications for research about the relationship between personality traits and job-related well-being of employees working under stressful conditions. As for practical implications, hospital managers might implement workplace interventions to enhance nurses' job-related affective well-being and reduce nurses' job stress. In this context, extraversion and job stress should be understood as psychosocial risk factors, whereas neuroticism should be conceived as a protective factor against job stress.

**Keywords:** Neuroticism, Extraversion, Job Stress, Job-Related Well-Being, Nurses.

### Introduction

Recently, the well-being of employees working in demanding occupations, such as healthcare and emergency, has received increasing interest in

literature because of their exposure to chronic and acute stress-related risks for mental health (Soh et al., 2016). Job-related well-being is predictive of a range of relevant work life outcomes, such as work success (Gale et al., 2013), organizational performance (Wright et al., 2007), turnover and absenteeism rates, and lower performance deficiency (Cropanzano & Wright, 2001; Peiró, et al., 2019).

From a hedonic perspective on well-being (Lorente et al., 2019), scholars have focused the concept of *subjective well-being*, defined as the way an individual evaluates his or her own life (Diener

1. Department of Psychology, Faculty of Humanities, University of Bojnord, North Khorasan Province, Bojnord, Iran
2. Department of Psychology, Alma Mater Studiorum – University of Bologna, Italy
3. Department of Psychology, Faculty of Humanities, University of Bojnord, North Khorasan Province, Bojnord, Iran
4. Department of Ergonomics, School of Health, Shiraz University of Medical Sciences, Shiraz, Iran
5. Department of Occupational Health Engineering, Faculty of Health, Qazvin University of Medical Science, Qazvin, Iran
6. Department of Psychology, Faculty of Humanities, University of Bojnord, North Khorasan Province, Bojnord, Iran

\*Corresponding Author: Davide Giusino, Email: [davide.giusino2@unibo.it](mailto:davide.giusino2@unibo.it)

et al., 2002), encompassing affective reactions to events, individual moods, and judgements about life satisfaction. Occupational subjective well-being has been described as a four-dimensional construct (Van Horn et al., 2004), composed of: i) *affective well-being*, such as feelings about life or affect about a specific domain, for instance one's job; ii) *social well-being*, based on the evaluation of one's environmental mastery and quality of social performance; iii) *cognitive well-being*, such as cognitive weariness; and iv) *psychosomatic well-being*, corresponding to lack of physical distress symptoms.

Affective well-being has been recognized as the major contributing factor to occupational subjective well-being, that is, mental health in the workplace (Mäkikangas et al., 2016). Therefore, the present study focuses on affective well-being only. Relevance of affective aspects of work has been shown by other Occupational Health Psychology studies. Forgas and George (2001) showed that individual emotions in the workplace have significant effects, either positive or negative, on individual thoughts, functions, and behaviors.

Particularly, in the present study, the concept of *job-related affective well-being* was adopted from Warr (1990). In this theoretical model, four affective well-being states can be distinguished based on different levels of pleasure and arousal (Mäkikangas et al., 2007), such as: i) *enthusiasm*, i.e. high pleasure and high arousal; ii) *comfort*, i.e. high pleasure and low arousal; iii) *anxiety*, i.e. low pleasure and high arousal; and iv) *depression*, i.e. low pleasure and low arousal.

Subjective well-being has been shown to be associated with personality traits (DeNeve & Cooper, 1998). Especially *neuroticism* and *extraversion* have been suggested as the most powerful predictors of subjective well-being among adults (Steel et al., 2008). A meta-analysis by Steel et al. (2008) found that neuroticism was the most significant negative predictor of subjective

well-being, and that extraversion was a positive predictor. Neuroticism was found to negatively predict well-being, whereas extraversion was found to be a positive predictor.

However, several work life events can impact subjective well-being beyond personality traits. Among, emergency medical personnel, neuroticism has been found to positively predict perceived job stress, whereas extraversion has been found to be a negative predictor (Ebstrup et al., 2011; Mirhaghi & Sarabian, 2016). *Perceived job stress* is a major concern among health care workers, and particularly among nurses (Cocchiara et al., 2019; Montgomery & Maslach, 2019). Also, perceived job stress has been linked to negative outcomes in term of well-being at work (Van Katwyk et al., 2000), such as behavioural (i.e., absenteeism), physical (i.e., psychosomatic symptoms), and psychological (i.e., job dissatisfaction).

Since nurses play an important role as the key component in health systems in maintaining and improving the quality of patients' clinical care and health, so, affective well-being of this group, particularly nurses in emergency and critical care units, is very important given their job tasks and specific conditions of their workplace. Furthermore, since no study has been conducted to investigate the causal relationship between the variables of this study, so, the present study investigated the mediating role played by perceived job stress within the relationship between neuroticism, extraversion and job-related affective well-being. Specifically, the following seven hypotheses were tested:

*H1: Neuroticism negatively and statistically significantly predicts job-related affective well-being.*

*H2: Extraversion positively and statistically significantly predicts job-related affective well-being.*

*H3: Neuroticism positively and statistically significantly predicts perceived job stress.*

*H4: Extraversion negatively and statistically*

*significantly predicts perceived jobstress.*

*H5: Perceived job stress negatively and statistically significantly predicts job-related affective well-being.*

*H6: Perceived job stress mediates the negative relationship between neuroticism and job-related affective well-being.*

*H7: Perceived job stress mediates the positive relationship between extraversion and job-related affective well-being.*

#### Materials and Methods

The present quantitative and cross-sectional survey study aimed to investigate whether neuroticism and extraversion, conceived as independent variables, predicted job-related affective wellbeing, conceived as dependent variable, among nurses working at emergency rooms in Tehran, Iran. Also, it was investigated whether perceived job stress mediated the relationship between neuroticism, extraversion and job-related affective well-being.

Ethical Review Committee of the University of Bojnord.

#### Participants and Procedure

Nurses working at the Emergency Centre of Tehran, Iran, were recruited in 2018, based on available sampling (Krejcie & Morgan, 1970) and the following inclusion criteria: i) holding a bachelors' degree at least; ii) having one year of work experience at least. Out of the originally 300 distributed questionnaires, corresponding to the entire statistical population, a sample of 250 were returned (response rate = 84%). Eight outliers were removed based on MahalanobisD<sup>2</sup>, thus leaving a final N = 242. Participants were aged 24-50 (M = 27.83, SD = 3.78), and had a job experience of 1 to 20 years (M = 4.11, SD = 2.72). Other demographics characteristics are shown in Table 1.

The survey was administered during lunch break at nurses' workplace. Nurses were encouraged to answer all items. Participation was reinforced by stressing that nurses were contributing to

**Table 1.** Sample demographics

Variable	Level	n	%
Sex	Male	36	14.9
	Female	206	85.14
Marital status	Married	112	46.3
	Single	130	53.7
Children	> 3	233	96.3
	≤ 3	9	3.7
Education	Bachelor's degree	224	92.6
	Master's degree	18	7.4
Working schedule	Permanent	202	83.5
	Rotating	40	16.5

Note. N = 242.

#### Ethical Statement

Each participant was provided written instructions about study purpose and way of completing the survey. Voluntary participation and anonymity were emphasized. No identifying information was requested. Informed consent was obtained from the nurses. The present study was approved by the

progress of job stress research and improvement of their working conditions. Doubts about survey completion could be resolved by the researchers, who were present during the administration to provide help, clarify the meaning of items and the manner of completing the questionnaire.

#### Measures

The Persian adaptation (Azkhosh & Asgari, 2014) of neuroticism (12 items) and extraversion (12 items) sub-scales of the *NEO Five-Factor Inventory* (NEO-FI) was deployed. Participants answered on a 5-point Likert-type scale from 0 (“totally disagree”) to 4 (“totally agree”). Cronbach’s alpha for neuroticism was  $\alpha=.69$ , while it was  $\alpha= .73$  for extraversion.

such as sex, age, marital status, number of children, level of education, and working schedule.

## Results

Table 2 shows the Pearson correlation matrix, descriptive statistics and Cronbach’s alpha of the study variables. Neuroticism ( $r = -.39, p < .001$ ) and extraversion ( $r = -.49, p < .001$ ) were negatively

**Table 2.** Pearson correlation matrix, descriptive statistics and Cronbach’s alpha

	1	2	3	4
1. Extraversion	1	-	-	-
2. Neuroticism	.451**	1	-	-
3. Job stress	.490**	.414**	1	-
4. Job-related affective well-being	-.494**	-.399**	-.735**	1
Mean	24.75	24.02	173.95	34
SD	2.82	3.04	17.08	6.82
Alpha	.73	.69	.87	.90

Note. \* =  $p \leq .05$ . \*\* =  $p \leq .001$ .

*Job-Related Affective Well-Being Scale* (12 items) with 6-point Likert-type scale from 1 (“never”) to 6 (“all the time”), was designed by Warr (1990) and is used to measure the positive or negative emotions experienced in response to various job components. Cronbach’s alpha was  $\alpha=.90$  for job-related affective well-being,  $\alpha = .71$  for anxiety,  $\alpha = .77$  for comfort,  $\alpha = .71$  for depression, and  $\alpha = .68$  for enthusiasm. The Iranian version (Hatami, 1998) of the three-factor *Job Stress Questionnaire* was deployed (57 items), entailing interpersonal relationships (items 1-26), physical conditions (items 27-48) and job interests (items 49-57), with 5-point Likert-type scale from 1 (“never”) to 6 (“most times”). Job stress is scored according to three cut-off points, such as: i) low, i.e.  $<116$ ; ii) medium, i.e. from 117 to 140; and iii) high, i.e.  $>140$ . Cronbach’s alpha was  $\alpha= .87$  for job stress,  $\alpha = .73$  for interpersonal relationships,  $\alpha = .94$  for physical conditions, and  $\alpha = .80$  for job interests. Multiple-choice response format was used to collect socio-demographic data,

and significantly correlated to job-related affective well-being. Neuroticism ( $r = .41, p < .001$ ) and extraversion ( $r = .49, p < .001$ ) were positively and significantly correlated to perceived job stress. Job-related affective well-being and perceived job stress were negatively and significantly correlated ( $r = -.73, p < .001$ ).

Table 3 shows Structural Equation Modelling results. The model hypothesized according to previous literature showed a good fit ( $\chi^2 = 110.59, p < .001$ , AGFI = .75, NFI = .88, CFI = .89, RMSEA = .18). Post-hoc modifications were performed to achieve a better model fit ( $\chi^2 = 111.87, p < .001$ , AGFI = .77, NFI = .88, CFI = .89, RMSEA = .17) by excluding the non-significant path from neuroticism to job-related affective well-being. Best model fit ( $\chi^2 = 27.04, p < .001$ , AGFI = .92, NFI = .97, CFI = .98, RMSEA = .07) was achieved according to fitness indices.

Note.  $\chi^2$  = Chi-square. df = degrees of freedom.  $\chi^2/df$  = normed Chi-Square. GFI = Goodness of Fit

Index. AGFI = Adjusted Goodness of Fit Index. IFI = Incremental Fit Index. CFI = Comparative Fit Index. NFI = Normed Fit Index. RMSEA = Root Mean Square Error of Approximation.

Table 4 shows the results for the mediation path. Neuroticism ( $\beta = -.16, p < .001$ ) and extraversion ( $\beta = -.25, p < .001$ ) had a significant indirect effect on job-related affective well-being via job stress.

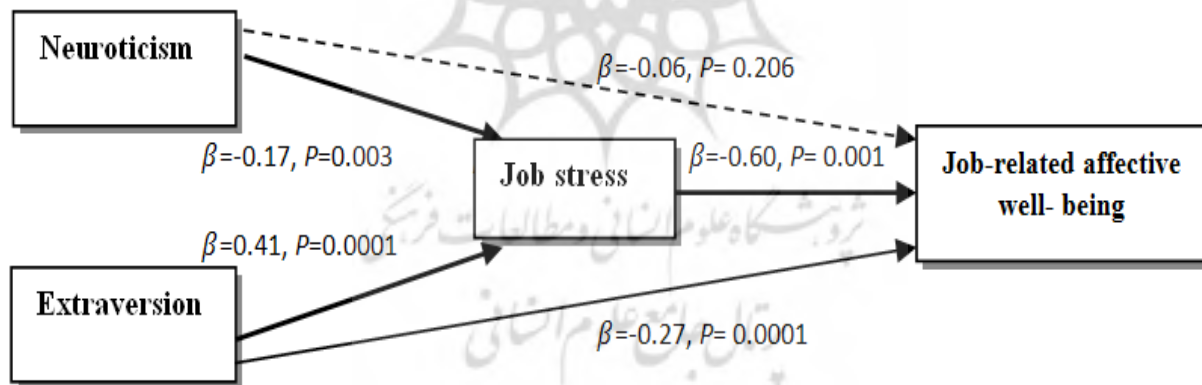
**Table 3.** Hypothesized, modified and final SEM models

Fit Values	$\chi^2$	df	$\chi^2/df$	GFI	AGFI	IFI	CFI	NFI	RMSEA
Hypothesized model	110.59	12	9.21	.89	.75	.89	.89	.88	.18
Modified model	111.87	13	8.60	.89	.77	.89	.89	.88	.18
Final model	27.04	11	2.45	.97	.92	.98	.98	.97	.07

Figure 1 shows the final model. Neuroticism negatively and significantly predicted job stress ( $\beta = -.17, p < .05$ ). Extraversion positively and significantly predicted job stress ( $\beta = .40, p < .001$ ), and negatively and significantly predicted job-related affective well-being ( $\beta = -.27, p < .001$ ). Job stress negatively and significantly predicted job-related affective well-being ( $\beta = -.60, p < .001$ ).

**Discussion**

Neuroticism did not statistically significantly predict job-related affective well-being and this results mostly in contrast with previous study (Steel et al., 2008). Thus, H1 was not supported. Neuroticism did not significantly predict job-related affective well-being. This result may be attributed to deploying different



**Figure 1.** Final SEM model. All values are standardised coefficients. Dotted lines represent excluded paths.

**Table 4.** Mediation paths

Path	Data	Boot	Bias	SE	CI	
					Lower	Upper
Extraversion - job stress - well-being	-.5425	-.6407	.0001	.1084	-.7701	-.3464
Neuroticism - job stress - well-being	-.6384	-.6407	-.0023	.1272	-.8905	.3979

Note. SE = standard error. CI = confidence interval.

measuring instruments than previous literature.

Extraversion negatively rather than positively predicted job-related affective well-being, although still significantly. Therefore, H2 was supported. This may be due to the unique nature of emergency professions (Carrière & Bourque, 2009) where extraversion may predict workers' well-being differently than other professions. Working under stressful conditions in emergency services may lead extroverted nurses to develop a negative attitude towards their job instead of a positive feeling. For example, although extroverted people are generally happier than introverted people, extroverted prisoners, living under stressful conditions, have been found to be less happy than introverted prisoners (Diener et al., 2002). Also, the relationship between extraversion and job-related well-being may be affected by cultural norms and values (Vittersø, 2001) which were not investigated here. Pandhi et al. (2016) found that extraversion of health care employees prevented the provision and quality of emergency services, which may be expected to be associated with occupational subjective well-being.

Neuroticism negatively rather than positively predicted perceived job stress, although significantly. So, H3 was only partially supported. Low emotional stability has been found to relate with feelings of concern, irritability, and little ability in impulse control and stress management (Ebstrup et al., 2011; Mirhaghi & Sarabian, 2016). However, it may be that prolonged exposure of neurotic nurses to stressful working conditions leads them to develop resilience against job stress. Extraversion positively rather than negatively predicted perceived job stress, although significantly. Thus, H4 was only partially supported. This may be because emergency services workers have a peculiar appraisal of stressful working conditions. For instance, Chiorri et al. (2015) found a positive association between

extraversion and perceived workload among police officers, who work under stressful conditions. Also, extraversion has been associated with a tendency to positive assessment (Grant & Langan-Fox, 2007). Therefore, extraversion may act as buffer of how stressful working conditions are considered by emergency personnel.

Perceived job stress negatively and statistically significantly predicted job-related affective well-being, thus providing support to H5. The negative relationship between stress and well-being is not only intuitive, but also demonstrated by previous research (Bell et al., 2012).

Results suggested an indirect and statistically significant effect of both neuroticism and extraversion on job-related affective well-being through perceived job stress, thus achieving support to H6 and H7. Dynamic Equilibrium Model (Headey & Wearing, 1989) and Homeostasis Model (Cummins et al., 2002) can provide an explanatory framework for these findings. These models assume that individual predispositions and personality traits, such as neuroticism and extraversion, and environmental conditions, determine an individually unique level of subjective well-being, which is kept at optimal level by adaptive mechanisms. Since individuals experience both positive and negative events in their life, changes in life or working conditions can impact such balance. Particularly, when individuals experience negative events, such as stressful working conditions, then subjective well-being can move away from its optimal level. However, this will depend on the peculiar effect exerted by personality traits, such as neuroticism and extraversion, with particular regard to special appraisal of stressful condition by emergency personnel. Similarly, Grant et al. (2009) concluded that personality traits can facilitate or impair the process of mental and physical well-being adjustment through the influence of individual perceptions and interpretations of

environmental events.

### Conclusion

The study cross-sectional design limits the possibility to make strong causal inferences. Although advanced methods for statistical data analysis, such as SEM, can be used to test causal relationships even with cross-sectional data, controlled longitudinal studies would be preferred. Results are not necessarily generalizable to different industries or samples, such that future research should replicate the study in other settings. Central tendency bias (Douven, 2017) might have occurred due to using 5-point Likert-type scales. Self-reported survey data may be open to recall bias and reporting errors (Stone et al., 2002).

Nevertheless, the results have theoretical implications for research about the relationship between personality traits and job-related well-being of employees working under stressful conditions. As for practical implications, it should be noticed that nurses working at emergency rooms constitute a key component of the health care system in maintaining and improving patients' quality of life as well as the quality of provided clinical services. Therefore, well-being of nurses is particularly important to address given the stressful conditions they work in. Based on the results achieved, hospital managers might implement tailored workplace interventions aimed to enhance nurses' job-related affective well-being and reduce nurses' job stress. In this context, extraversion and job stress should be understood as risk factors threatening job-related affective well-being of emergency room personnel, whereas neuroticism should be understood as a protective factor against job stress.

The present study provides an innovative and counterintuitive contribution to the scientific literature by shedding light on unedited aspects of the relationships among the investigated variables. Furthermore, it is the first study that

has investigated the causal relationships occurring between neuroticism, extraversion, perceived job-stress and job-related affective well-being among Iranian workers, which not only enrich the current knowledge and state of the art relating to nurses' occupational well-being but can also be used to perform cross-cultural comparisons by future research.

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