INVESTIGATE THE RELATIONSHIP BETWEEN PERSONALITY TRAITS, STRESS AND JOB BURNOUT AMONG NURSES

Somayeh Modaresi[1] and Mohammad Saeid Ahmadi[2]
[1]*Department of Psychology, Science and Research Branch,*
Islamic Azad University, Zanjan, Iran
[2]*Department of Psychology, Payam Noor University, I.R. of Iran*
*Author for Correspondence

ABSTRACT
The present study aimed to investigate the relationship between personality traits, stress and job burnout among nurses. The descriptive survey has been used as the research method in this study. The statistical population consists of all the nurses serving in hospitals-district 3 of Tehran in 2014. The sample (300 nurses) was selected using random cluster sampling. Data collection instruments include Maslach burnout inventory (MBI) (1986), NEO Personality Inventory short form NEO-FFI by Mac Carey and Costa (1992), Job Stress Questionnaire of the Britain's. Health and Safety Institute (HSE) (1990). Findings: there is a positive significant relationship between job stress and the personality traits including neuroticism (0.63), conscientiousness (0.89), yet there is a negative significant relationship between job stress and the personality traits including agreeableness (-0.79), openness to experience (-0.6), extraversion (-0.69). Further, there is a positive significant relationship between job burnout and the personality traits including neuroticism (0.48), conscientiousness (0.78), yet there is a negative significant relationship between job burnout and the personality traits including agreeableness (-0.65), openness to experience (-0.55), extraversion (-0.66). It should be noted that all the relationships obtained at 0.001 levels have been significant. Furthermore, findings indicated that all the big five personality traits are good predictor for stress and job burnout among nurses at 0.001 levels. Conclusion: in general, it can say that there is a mutual relationship between personality traits and "stress and job burnout" among nurses, which play a major role in coping with job stresses and job burnout.

Keywords: Personality Traits; Job Stress; Job Burnout; Nurses

INTRODUCTION
Nursing is a profession in which the individuals experience high levels of stress (Deary *et al.,* 1996). A variety of factors such as low professional efficiency, poor educational status, young age, double burden of work, lack of competence and responsibility can raise abundant job stress for the nurses (WU *et al.,* 2006). Stresses associated with the job and work environment are the agents which raise job burnout in individuals. Job stress is defined as harmful physical and emotional responses, emerging when there is no relevance between job requirements and employees' needs. Further, job stress is assumed as the interaction between work conditions and personality traits and pressures pertaining to it (Khaje and Kial, 2006). Job stress can have a negative impact on nurses' health, welfare and well-being, and further it can be followed by physical problems such as high blood pressure, depression, sleep disorders and alcohol and drug abuse among nurses(Letvak and Buck, 2008; Epstein, 2010). In addition, job stress can raise disorders in nurses' mental health (Oginska-bulik, 2006). On the other hand, social supports pertaining to the work environment and the positive feedback that the nurses receive at their work environment can be followed by reduction of job stresses among the nurses (Eastburg *et al.,* 1994). Job stress has had negative outcomes for staffs, organizations and patients (Epstein, 2010), and the studies have shown that job stress in nurses result in job burnout, job dissatisfaction and changing the job (McGrath *et al.,* 2003). According to Karasek's Job Demand-Control model (1979), the jobs with high job stress and low control cause emerging psychological distress and physical disability. In such work environments, ultimately individuals' emotional and psychological sources will deplete, and the starting point for job burnout might emerge (Tummers *et al.,* 2002). Today, it has been specified that the mental status of care providers

Research Article

might have a substantial effect on patient's health and care provider (Escot *et al.,* 2001). Recent studies indicate increasing growth of job burnout and mental illnesses especially depression and anxiety among health practitioners including nurses (Soleimani *et al.,* 2008). Job burnout is a psychological syndrome comprised of the three dimensions of emotional exhaustion, depersonalization, and reduced personal accomplishment, so that emotional exhaustion which is a general reaction to stress manifests itself as depletion of emotional resources; further, feeling a lack of personal accomplishment is a negative evaluation of oneself in doing a task which affects personal, job and organizational relations (Saberi *et al.,* 2008). Personality traits consistently exist in the person and affect the person's behavior. Mac Carey and Costa (1992) have introduced 5 major personality traits in their theory including extraversion, conscientiousness, agreeableness, openness to experience and neuroticism (Robbins and Stephen, 1996; quoted from Parsaeian and Erabi, 2007).

Some studies have shown that nurses' personality traits associate to the job burnout and job stress in them, e.g. Yao *et al.,* (2013) pointed out the dimension of agreeableness with job burnout among this class of people, or Kim *et al.,* (2005) have perceived a positive relationship between job burnout and two personality traits including agreeableness and neuroticism. The studies have shown that the job stress among nurses is a reliable predictor in the context of outbreak of job burnout in future (Garcia *et al.,* 2005), mentioned that there is a close relationship between job stresses and job burnout among nurses. In general, there is a significant relationship between negative experiences and job burnout among nurses, and further personality traits can predict job burnout in this group (Chang, 2011). Further, individuals' personality traits together with job stressors can give a good explanation for job burnout (Watson *et al.,* 2008). Investigations have shown that nurses' personality traits have played a major role in formation of job burnout (Oginska-bulik, 2006), thereby it can deduce that there is significant relationship between nurses' personality traits and job burnout (Kim *et al.,* 2005). On the other hand, personality traits can protect the individuals against job burnout and relatively predict rise of job burnout (Bakker *et al.,* 2006). With regard to high prevalence of job stress and job burnout among nurses as well as the interaction between individuals' personality traits and the agents at their work environment, the present study aimed to investigate the relationship between personality traits, stress and job burnout among nurses.

MATERIALS AND METHODS
Research Method
The descriptive survey has been used as the research method in this study, through which the relationship between prediction of stress and job burnout among nurses using their personality traits was examined. The statistical population consists of all the nurses serving in hospitals-district 3 of Tehran in 2014. On the whole about 1400 nurses were working in these three hospitals, that 300 individuals using Morgan table were selected as the sample group. Since the nurses were working in certain working shifts in the hospital and access to them was not possible at all hours, 300 individuals were selected among the nurses who were working in the hospitals when referred to the hospitals and announced their readiness to participate in the research. After selecting the sample group, the participants were asked to give a response to the research instruments as much as they can. Then, the obtained data were analyzed using software SPSS 16.
Research Instruments
Maslach burnout inventory (MBI): burnout inventory (MBI) consisting of 22 items that Maslach (1986) has provided from The Mental Research Institute of Palo Alto, California, measures job burnout in human services, and response to it has been based on Likret scale, measuring emotional exhaustion, depersonalization, and reduced personal accomplishment in the framework of professional activities. With regard to three dimensions of job burnout, 9, 5 and 8 items have been allocated to sub-scales emotional exhaustion, depersonalization, and reduced personal accomplishment, respectively. This test measures frequency and intensity of variables, being used to measure and prevent job burnt out in the professional groups such as nurses, teachers and etc. how the respondents give a response to each item of questionnaire follows two instructions of frequency and intensity. This inventory has been organized in

Research Article

the framework of Likret scale, that the range of response to the questions about each item has been considered based on the frequency. About the reliability of this test, Maslach and Jackson (1981) have calculated the internal reliability for each of sub-scales, and obtained Cronbach's alpha equal to 90%, 79% and 71% for emotional exhaustion, depersonalization, and reduced personal accomplishment, respectively. Further, Maslach and Jackson have later evaluated the validity of this test in a high level during various investigations (Maslach and Jackson, 1981; quoted from Najafi *et al.,* 1998). In this study, internal consistency for the variables emotional exhaustion, depersonalization, and reduced personal accomplishment has been in turn obtained 0.79, 0.75 and 0.73 using software SPSS. Furthermore, the reliability of this questionnaire was calculated equal to 0.76.

NEO Personality Inventory short form NEO-FFI by Mac Carey and Costa (1992): to measure big five personality factors, NEO Personality Inventory short form NEO-FFI by Mac Carey and Costa was used. This inventory is a short version of the inventory with 240 questions which has been developed by Mac Carey and Costa to measure five personality factors including extraversion, conscientiousness, agreeableness, openness to experience and neuroticism. This test has been developed from 5 series consisting of 12 sentences pertaining to each of indicators (Hagh, 2006). The coefficients of validity and retest of scales have been obtained ranging from 75% to 83% (Mac Carey and Costa, 1992). In a study, the coefficients of internal consistency for each of neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness have been reported equal to 86%, 73%, 56%, 68% and 87%, respectively (Hagh, 2006). The coefficients of reliability for each of personality traits including neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness have been reported equal to 0.81, 0.75, 0.71, 0.79 and 0.72, respectively. Furthermore, Cronbach's alpha obtained for this scale was calculated equal to 0.75 in this study.

Job Stress Questionnaire of the Britain's Health and Safety Institute (HSE) (1990): in this study, to determine job stress, Job Stress Questionnaire of the Britain's Health and Safety Institute (HSE) (1990) was used. This inventory was developed by Britain's Health and Safety Institute (HSE) to measure job stress among English workers and staffs at seven areas at the late of 1990s; this inventory consists of 35 questions with 7 sub-scales including demand, control, support by authorities, support by colleagues, the relationship between colleagues, role and change (Cousins *et al.,* 2004). In Iran, validity and reliability of this test were examined on 749 individuals by Azad and Gholami (2010) that the results indicated a strong correlation between the factors extracted from factor analysis and the items in HSE questionnaire. Further, the validity of questionnaire was obtained by means of Cronbach's alpha and split method equal to 0.78 and 0.65 by the researchers, that the results indicated levels of validity and reliability of these instruments for measuring the job stress in individuals. Internal consistency for each of job stress sub-scales including demand, control, support by authorities, support by colleagues, the relationship between colleagues, role and change was obtained equal to 0.69, 0.74, 0.79, 0.76, 0.81, 0.72 and 0.68. The Cronbach's alpha was obtained equal to 0.74.

RESULTS AND DISCUSSION
Findings

Table 1: Mean and standard deviation of nurses' scores concerning the personality traits, job stress and job burnout

Variables		Mean	Standard deviation	Variance	Sum
job burnout		70.12	15.71	246.88	300
job stress		87.09	20.11	404.46	
neuroticism		26.59	5.66	32.13	
extraversion		18.48	6.77	45.86	
openness	to	22.66	6.84	46.8	
experience					
agreeableness		21.55	6.90	47.66	
conscientiousness		27.92	6.15	37.85	

Research Article

In this study, to examine the relationship between personality traits, stress and job burnout among nurses, descriptive tests including mean and standard deviation and inferential tests including Pearson correlation coefficient and multivariable regression were used, that the obtained results have been represented in tables.

Table 1 represents the descriptive data including mean, standard deviation and variance of the scores obtained from the individuals under the study in this research.

Table 2: Correlation coefficient of job stress concerning the personality traits (P≤0.001***), (P≤0.01**)

Personality traits Job stress		Neuroticism	Extraversion	Openness to experience	Agreeableness	Conscientiousness
	Correlation coefficient	0.637***	-0.692***	-0.607***	-0.769***	0.897***
	Significance level	0.000	0.000	0.000	0.000	0.000
	No	300	300	300	300	300

Table 2 represents the relationship between each of personality traits of individuals under study and job stress, that the obtained results indicate a positive significant relationship between job stress and components of neuroticism and conscientiousness at level P ≤0.001. Further, the results indicate that there is a negative relationship between job stress and components of extraversion, openness to experience, and agreeableness among the individuals under study at level P≤0.001, i.e. the increase in the indicators pertaining to these three components associates to the decrease in the extent of job stress in the individuals.

Table 3: Correlation coefficient of job burnout concerning the personality traits (P≤0.001***) , (P≤0.01**)

job burnou t		Neuroticis m	Extraversio n	Openness to experienc e	Agreeablenes s	Personality traits Conscientiousnes s
	Correlation coefficient	0.486***	-0.666***	-0.552***	-0.655***	0.786***
	Significance level	0.000	0.000	0.000	0.000	0.000

Table 3 represents the relationship between each of personality traits of individuals under study and job burnout, that the obtained results indicate a positive significant relationship between job burnout and components of neuroticism and conscientiousness at level P ≤0.001.

Table 4: Prediction of job stress by means of personality traits (P≤0.001***), (P≤0.01**)

Model	Sum of squares	Freedom degree	Mean of squares	F	Significance	R	R^2	Adjusted R^2
Regression	102807.69	5	20541.74	331.34	0.000	0.922	0.849	0.847
Residual	18226.69	294	61.996					
Sum	120935.9	299						

Research Article

Predictor variables	Non-standarized coefficients(Beta)	Standard error	standarized coefficients(Beta)	t	Significance level
Fixed value	46.52	6.76		6.87	0.000
neuroticism	0.41	0.1	0.11	3.89	0.000
extraversion	-0.25	0.09	-0.08	-2.61	0.009
openness to experience	-0.26	0.08	-0.09	-3.16	0.002
agreeableness	-0.54	0.1	-0.18	-5.42	0.000
conscientiousness	1.85	0.14	0.57	13.16	0.000

Further, the results indicate that there is a negative relationship between job burnout and components of extraversion, openness to experience, and agreeableness among the individuals under study at level P≤0.001, i.e. the increase in the indicators pertaining to these three components associates to the decrease in the extent of job burnout in the individuals. Table 4 represents the information on the predictor role of each of personality traits in the extent of job stress among nurses under study, that the significance of f-value at level(P≤0.001) represents the predictor role of personality traits in the extent of job stress among the nurses under study. The results of the table above indicate that the components including neuroticism, agreeableness and conscientiousness at (P≤0.001) and the components including extraversion and openness to experience at (P≤0.01) can predict job stress among nurses.

Table 5: Prediction of job burnout by means of personality traits(P≤0.001*), (P≤0.01**)**

Model	Sum of squares	Freedom degree	Mean of squares	F	Significance	R	R^2	Adjusted R^2
Regression	49504.79	5	9900.958	331.34	0.000	0.819	0.671	0.664
Residual	24314.39	294	82.702					
Sum	73819.18	299						

Predictor variables	Non-standarized coefficients (Bet)	Standard error	standarized coefficients(Beta)	t	Significance level
Fixed value	B	7.81		7.89	0.000
neuroticism	61.67	0.12	-0.1	-2.23	0.026
extraversion	-0.27	0.11	-0.22	-4.75	0.009
openness to experience	-0.52	0.09	-0.14	-3.31	0.001
agreeableness	-0.32	0.11	-0.10	-2.04	0.042
conscientiousness	-0.23	0.16	0.53	8.35	0.000

Table 5 represents the information on the predictor role of each of personality traits in the extent of job burnout among nurses under study, that the significance of f-value at level (P≤0.001) represents the predictor role of personality traits in the extent of job burnout among the nurses under study. The results of the table above indicate that the components including conscientiousness and openness to experience at (P≤0.001), neuroticism and agreeableness at (P≤0.005) and extraversion at (P≤0.01) can predict job stress among nurses.

Discussion and Conclusion
The results from an investigation into the relationship between each of big five personality traits and job stress indicated that there is a positive relationship between job stress and personality traits including neuroticism and conscientiousness, and there is a negative relationship between job stress and personality traits including extraversion, agreeableness and openness to experience. A meta-analysis by Hartz and Dhanu (2009) indicated a significant relationship between personality traits and job stress among nurses. In this regard, Watson *et al.,* (2008) deduced that the individuals' personality traits describe higher levels of job burnout and job stress in them. It is obvious that positive personality traits such as openness to

Research Article

experience, extraversion and agreeableness play a major role in coping with the stresses in everyone's life and work environment, so that tendency to experience new situations can protect the person against stress in exposure with the ambiguous situations, or help the person to increase the supports and reduce the stresses. Besharat (2007) in his study perceived that personality traits can affect coping stresses. Further, Bosworth *et al.,* (2001) reported that there exists a positive relationship between neuroticism and an inefficient coping style with stress; on the other hand, there exists a negative relationship between extraversion and an inefficient coping style with stress. To describe this finding, it can state that any person, based on his personal experiences and personality traits, adopts an approach different from others in exposure with various situations at daily life. Personality traits have associated to the levels of job stress, that the basis for this idea can be grounded on this fact that high levels of neuroticism in the individuals cause inefficiency and weakness in adoption of proper and efficient approaches for coping with stress arisen form job situations, and this finding is consistent with the results of study by Deary *et al.,* (1996) based on this idea that personality traits affect use of coping styles by individuals.

According to the previous studies concerning the obtained results, it can say that the hypothesis on the relationship between nurses' personality traits and job stress has been confirmed in this study. Another finding of this study includes the positive significant relationship between job burnout and the components of personality traits including neuroticism and conscientiousness, and the negative significant relationship between job burnout and components of personality traits including agreeableness, openness to experience and extraversion. According to the findings of studies in the past, it can perceive that there is a significant relationship between personality traits and job burnout in the individuals, where it can refer to the study by Kim *et al.,* (2008) who examined the relationship between personality traits and job burnout, and concluded that there is a positive significant relationship between job burnout and the components of personality traits including neuroticism and conscientiousness.

This findings can be described in this way that neuroticism refers to a trait which causes rise of emotional problems such as anxiety and depression in individuals, where this causes cognitive rumination and distortion in the person, and also causes changing the person's attitude and changing the way to cope with the stressful problems from active form to passive way, that all these factors can play a majored role in the acceleration of job burnout. To date, a variety of studies have been conducted in the context of the relationship between neuroticism and job burnout, indicating a direct significant relationship between job burnout and the personality trait of neuroticism (Buhler and his colleague, 2003; Garcia *et al.,* 2005; Swider, 2010). The personality trait of conscientiousness obliges the person to do his responsibility with utmost accuracy under a huge pressure, that this burden, sense of responsibility and stress at work will be followed by job burnout.

Wu *et al.,* (2006) in their study deduced that additional pressure and sense of responsibility result in job burnout among nurses.

Swider (2010) has also stated that the individuals with lower scores in components of personality traits including agreeableness, openness to experience and extraversion are more likely subjected to job burnout in figure. In general, with regard to the previous studies and the results obtained from the present study, it can say that there is a significant relationship between personality traits of individuals and job burnout among them and the considered research hypothesis has been confirmed. Findings of Job Stress Questionnaire of the Britain's. Health and Safety Institute (HSE) by means of personality traits indicated that all dimensions of personality can predict job stress among the nurses.

Consistent with this finding, the results of study " the relationship between personality traits and job stress among nurses" by Ghanei *et al.,* (2013), indicated the personality trait "neuroticism" as a good predictor for job stress among nurses.

The individuals who enjoy higher neuroticism traits rather than other big five personality traits definitely face more problems at emotional and cognitive areas, for this they face numerous stresses in their inter-personal, social and work environment relationships. In other words, the more the personality trait "neuroticism" increases, individuals' interaction with environment decreases, and the person loses some his proectective sources by others. On the other hand, the person's inclination to gain new experiences

Research Article

and expose to new situations reduces, where this causes rise of a situational stress arisen from dissatisfaction with the current status and lack of change in the current situation, whereby this causes strengthening the personality trait "neuroticism" in the person. In this regard, Yoon and colleagues (2007) in their study perceived the strong relationship between high level of job stress and the personality trait "neuroticism". Furthermore, in a meta-analysis by Hartz and Dhanu (2009), it was indicated that there is a significant relationship between personality traits including agreeableness, neuroticism, openness to experience, and extraversion and job performance among nurses.

Hence, it can say that predictability of job stress among stresses by means of personality traits has not been far from expectations, and thereby this research hypothesis is confirmed. Overview of the obtained results indicates that all personality traits at different levels can predict job burnout among the nurses. In a study by Bakker *et al.,* (2010), the similar results were obtained, indicating that the individuals' personality can protect the person against job burnout, and the personality traits can predict job burnout in the individuals. According to the results of study by Eastburg *et al.,* (1994), it can perceive that the personality traits can predict the job burnout among individuals. Other studies which have obtained the similar results indicate the importance of individuals' personality traits in predicting job burnout, e.g. the study by Goddard *et al.,* (2010) refers to the importance of personality trait "neuroticism" in prediction of job burnout. Further, the studies by Green (2002) and Bakker *et al.,* (2006) refer to the high power for prediction of the personality trait "neuroticism" in prediction of job burnout. According to these studies and the results from this study, this hypothesis that the nurses' personality traits predict job burnout among them can be confirmed. To sum up, based on all what mentioned above, it can deduce that the personality traits, job stressors and the process of job burnout in nurses associate together as a continuous chain. It can more likely prevent the job stresses and the process of job burnout in individuals by strengthening the strengths and removing the weaknesses. However further studies are required in this context so as to confirm such findings and generalize them to other studies.

REFERENCES

Altmayer E and Randall R (2004). *Job Stress,* translated by Khajehpour Khaje poor Gh and Kial A (2006) (Baztab Publication) Tehran.

Bakker AB, Van dear zee KI, Lewig KA and Dollard MF (2006). The relationship between the big five personality factors and burnout: A study among volunteer counselor. *Journal of Social Psychology* **1** 31-50.

Beshart MA (2007). Relationship between personality traits and of coping strategies with stress in sample student of University. *Section scientific – research psychology Tabriz University* **2**(7) 30-54 [Persian].

Bosworth HB, Feaganes JR, Vitaliano PP, Mark DB and Siegler IC (2001). Personality and Coping with a Common Stressor: Cardiac Catheterization. *Journal of Behavioral Medicine* **24**(1) 17-31.

Costa PT and McCrae RR (1989). The NEO PI/FFI: Manual supplement, Psychological Assessment Resources, Odessa, FL.

Cousins R, MacKay C, Clarke SD, Kelly C, Kelly PJ and McCaig RH (2004). Management standards and work-related stress in the UK: practical development. *Work Stress* **18** 113–136.

Deary I, Blenkin H, Agius R, Endler N, Zeally H and Wood R (1996). Models of job related stress and personal achievement among consultant doctors. *British Journal of Psychology* **87** 3-29.

Eastburg MC, Williamson M, Gorsuch R and Ridley C (1994). Social Support, Personality, and Burnout in Nurses. *Journal of Applied Social Psychology* **24** 14.

Epstein DG (2010). Extinguish workplace stress. Nurse Manage [serial online]. October; Available: http://ovidsp. tx.ovid.com.

Escot C, Artero S, Gandubert C, Boulenger JP and Ritchie K (2001). Stress levels in nursing staff working in oncology. *Stress and Health* **17** 273–279.

Garcia FJC, Munoz EMP and Ortiz MAC (2005). Personality and convariables in teacher burnout. *Personality and Individual Differences* **38** 929-940.

Research Article

Ghaneie R, Valiei S, Rezaei M and Rezaei K (2013). The relationship between personality traits and job stress among nurses, *Journal of Psychiatric Nursing* **I**(III) 34-27.

Goddard R, Patton W and Creed P (2010). The importance and place of neuroticism in

Kim HJ, Shin KH and Swanger N (2009). Burnout and engagement: A comparative analysis using the Big Five personality dimensions. *International Journal of Hospitality Management* **28** 96–104.

Letvak S and Buck R (2008). Factors Influencing Work Productivity and Intent to Stay in Nursing. *Eco-Nurse* **26**(3) 159-165.

McGrath A, Reid N and Boore J (2003). Occupational stress in nursing. *International Journal of Nursing Studies* **40** 555–565.

Oginska-bulik (2006). Occupational stress and its consequences in healthcare professionals: the role of type d personality. *International Journal of Occupational Medicine and Environmental Health* **19**(2) 113–122.

predicting burnout in employment service case managers. *Journal of Applied Social Psychology* **12** 4-22.

Saberi M, Sadr S, Ghadiani M, Yazdi S, Bahari F and Shahmorady H (2008). The relationship between job burnout and general health of the judges and prosecutors working in the judicial authorities in Tehran. *Journal of Forensic Medicine* **14**(2) 98-92.

Soleimani MA, Masoudi R, Sadeghi T, Bahrami N, Ghorbani M and Hassanpour A (2008). Public health and its relationship with quality of nurses' sleep and shifts of nurses working in teaching hospitals of Iran University of Medical Sciences. *Journal of Gorgan University of Medical Sciences* **1**(3) 75-70.

Stephen R (1996). *Principles of Organizational Behavior,* translated by Parsaeian and Erabi (2007) (Office of Cultural research) Tehran.

Swider BW and Zimmerman RD (2010). Born to burnout: A meta – analytic path model of personality, job burnout and work outcomes. *Journal of Vocational Behavior* **5** 1-20.

Tummers G, Landeweerd J and Van Merode G (2002). Scandinavial Organization, work and work reactions: a study of the relationship between organizational aspects of nursing and nurses' work characteristics and work reactions. *Scandinavian Journal of Caring Sciences* **16** 52-58.

Watson R, Deary I and Thompson DLG (2008). Study of stress and burnout in nursing students in Hong Kong: A questionnaire survey. *International Journal of Nursing Studies* **45** 1534-1542.

Wu S, Zhu W, Wang Z, Wang M and Lan Y (2007). Relationship between burnout and occupational stress among nurses in China. *Journal of Advanced Nursing* **59**(3) 233–239.

Xie Z, Wang A and Chen B (2011). Nurse burnout and its association with occupational stress in a cross-sectional study in Shanghai. *Journal of Advanced Nursing* **67**(7) 1537–1546.

Yao W, Wang W, Li H and Lan Y (2013). Investigation of risk factors of psychological acceptance and burnout syndrome among nurses in China. *International Journal of Nursing Practice* **19** 530–538.