

Effects of Job Stress on Health of Saudi Nurses Working in Ministry of Health Hospitals in Qassim Region in KSA

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Abstract: Background: Work-related stress is a current and future issue for health and safety. Nurses are particularly at risk from stress-related problems, with high rates of turnover, absenteeism, and burnout. **Aim of the Study:** The study aims to explore the effects of job stress on physical and mental health of Saudi nurses working in ministry of health hospitals in Qassim region in KSA. **Subjects and methods:** Descriptive explorative study was used for conducting the study, a purposive sample has been used, 152 Saudi nurses were included and working in the 4 hospitals affiliated to ministry of health in Qassim region. Data collected through; nurses' socio-demographic characteristic, work characteristics, occupational stress scale and work Stress Symptom Scale. **Results:** Study results have shown that the most common type of work-related stress for Saudi nurses was due to job pressure followed by poor rapport with managers. Nearly half of nurses were suffering from physical and mental illnesses. Our study proved a highly statistically significant relation between mental problems and working stress and statistically significant relation between working stress, physical problems and marital status. **Conclusion and recommendation:** Work stress affect physical and mental health of Saudi nurses, so they need to provide continued administrative support, appropriate training programs to deal with potentially stressful conditions in the health facility.

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1. Introduction

Nursing is a highly stressful occupation (Kawano, 2008). Nurses are particularly at risk from stress-related problems, with high rates of turnover, absenteeism, and burnout (Antigoni et al, 2011) and (Mark and Smith, 2011).

Saudi Arabia has been dependent on a non-Saudi female-majority nursing workforce. Moreover, the annual supply of Saudi nursing graduates has been insufficient in meeting the demands of the expanding healthcare services. Indeed, Saudi nurses make less than 30% of the total nursing workforce Kingdom wide (Gazzaz, 2009).

The total nursing workforce of expatriates and Saudi nurses in all health sectors is 129792 and Saudi nurses represent 31.8 percent of the total workforce (Ministry of Health, 2010).

According to the U.S. National Institute of Occupational Safety and Health, job stress is a harmful response physically and emotionally when the employee's skills, resources, and needs could not fulfill the requirement of the job (Welker-Hood, 2006). Nurse stress is defined as the emotional and physical reactions resulting from the interactions

between the nurse and her/his work environment where the demands of the job exceed capabilities and resources. (Nedd, 2006)

There is a growing understanding that job-related stress negatively affects the health of workers. Of particular concern are the effects of stress on health care professionals, especially nurses (Lambert et al., 2004). Numerous studies have focused on work stress in nurses because they work in high-stress environment, which has detrimental effects both on their mental and physical health, productivity and efficacy at work, absenteeism, as well as on patients' outcomes such as increased mortality and patient dissatisfaction (Vahey et al., 2004).

Job-related stress detracts from the quality of nurses' working lives, contributes to some forms of physical illness, and may increase minor psychiatric morbidity (Golbasi et al 2008). Also heightened stress or prolonged stress elicits physiologic changes that may lead to morbidity or mortality over time. Stress has been associated with hypertension, cardiovascular disease, immune disorders, obesity, depression, musculoskeletal conditions, and all-cause mortality (McNeely, 2005 and Channuwong and

Kantatian, 2012). Those manifestations can be clearly observed in hospital nursing staff, which may have negative effects on their health, personal and work behaviors (**Kamla-Raj, 2008**).

Occupational stress and its consequences on nurses' behavior can create mental problems (**Lambert et al., 2007**) such as anxiety, depression, insomnia and feelings of inadequacy. Stress-related physical illnesses include heart disease, migraines, hypertension, irritable bowel syndrome, muscle, back and joint pain, and duodenal ulcer (**Wong et al., 2001 and Siu et al., 2002**).

Some factors of the occupational stress include; working conditions, relationships at work, role conflict and ambiguity, organization structure and climate, work-home interface, career development and nature of the job (**Chen-chung et al., 2003 and Wu 2007**). Research concluded that the major sources of stress for nurses entail dealing with death and dying, conflict with colleagues, inadequate preparation to deal with the emotional needs of patients and their families, lack of staff support, workload, and uncertainty concerning treatment plans (**Nedd, 2006 and Ekedahl and Wengstrom, 2007**).

Few researches have been conducted to investigate the relationship between job stress and physical and mental health among nurses in Kingdom of Saudi Arabia especially in Qassim region. Such a research is needed to improve Saudi nurses' health, and to alleviate level of stress among them and its consequences on quality of patients care.

Significance of the study

Work-related stress is a current and future issue for health and safety. (**Greenberg & Baron, 2009**). A study conducted on nurses in Saudi Arabia revealed that stressful nurses were more likely to leave their hospitals than those with less work-stress were (**Bin Saeed, 1995**). Knowing the significant positive correlation between work-stress level and costly negative outcome such as quitting the practice or changing the hospital or the job must ring a bell to all decision makers, especially that Saudi Arabia faces very serious problems in health-related manpower (**Al-Omar, 2003**).

The problem affects not only the quality of services offered but also the psychology of the staff, driving employees to depression, absenteeism, or job resignations causing increased staff turnover with serious financial implications for an organization (**Antigoni et al., 2011**).

Aim of the study

The study aims to explore the effects of job stress on physical and mental health of Saudi nurses working in ministry of health hospitals in Qassim region in KSA through the following:

- Assess of stress level of Saudi nurses working in ministry of health hospitals in Qassim region.
- Explore effect of stress on physical and mental health of Saudi nurses working in ministry of health hospitals in Qassim region.

Research questions:

Are Saudi nurses working in ministry of health hospitals in Qassim region suffering from job stress?

Is there a relation among job stress, physical and mental health of nurses?

2. Subjects and Methods

Study design

Descriptive explorative study was used for conducting the study

Study Setting

The data has been collected from 4 hospitals affiliated to ministry of health in Burida city at Qassim region, first; King Fahd Hospital, Second Maternity and Child Hospital, third; Psychiatric and mental health hospital, forth; Central Burida hospital.

Study Sample

The sample consisted from 152 Saudi nurses from total 310 Saudi nurses, working in the previously mentioned settings.

A purposive sampling method has been used to reach the sample participants; however, researchers acknowledge that this type of non-probability sampling method will provide little opportunity to control for biases. The inclusion criteria set for sample selection were as follows: Saudi nurses and working in the previously mentioned settings for at least one year continuously with full time employment.

Tools of data collection:

For data collection a self-administrative questionnaire were used to assess:

- a) Nurses' socio-demographic characteristic as regards their age, marital status, family income, and educational level.
- b) Work characteristics as regards working hours, past experience, previous training, and work place.
- c) Occupational stress scale was used. Self-assessment of work stress were adopted from (**Mersal, 2002**). It include 4 items, each item represented one type of stress (conflict and uncertainty, job pressure, job scope, and rapport with management) each item contain 3 sentences to be answered. The questions used the 5-point Likert scale from strongly agree to strongly disagree. The scores were then calculated for the mean scores which were then categorized as follows: mean scores < 2.5 = low level of stress, mean scores = 2.5 - 3.5 = moderate level of stress and mean scores > 3.5 = high level of stress.

d) Work Stress Symptom Scale was used. Work Stress Symptom Scale were adopted from **Elkin (1999)** modified and translated by the researchers. It include 10 items, each items represented one type of stress symptom, the questions used the 5-point Likert scale from strongly agree to strongly disagree. The scores were then calculated for the mean scores which were then categorized as follows: mean scores < 2.5 = low suffering, mean scores = 2.5 - 3.5 = moderate suffering and mean scores > 3.5 = high suffering.

The questionnaire was revised and validated by committee of 10 experts; also pilot study was carried out on 10 nurses, whom were not included later in the study sample to test clarity, simplicity and applicability of the study tool.

Data collection and analysis

A self-administered questionnaire was used to collect data from Saudi nurses. The study was conducted between April 2012 and July 2012. Data were analyzed using the Statistical Package for Social Sciences (SPSS) windows version 16. A *P* value of 0.05 or less was considered as statistically significant.

Ethical consideration

Approval from Regional Research Ethics Committee of Qassim University intended hospitals, and nurses were obtained. Several strategies were utilized to protect the nurse's rights who agreed to participate in this study. First, oral verbal consent of the nurses was obtained prior to the administration of the questionnaire. The nurses were informed of the purpose of the study, and that they had the right to refuse to participate. Also the voluntary nature of participation was stressed as well as confidentiality. Furthermore, the nurses were told that they can refrain from answering any questions and they can terminate at any time. Anonymity of the nurses was maintained at all times.

3.Results

Table 1: Assessment the base line characteristics of the studied sample

Parameter	No = 152	%
<u>Mean of Age (years):</u>	27.06±3.79	
<u>Marital status</u>		
Single	85	55.9
Married	62	40.8
Widow	5	3.3
<u>Gender</u>		
Female	108	71.1
Male	44	28.9
<u>Educational level</u>		
Diploma nurse	149	98
Bachelor degree	3	2
<u>Daily working hours</u>		

6- >8	79 73	52 48
<u>Past Experience</u>		
<5	100	65.8
5-10	32	21.1
11-20	18	11.8
>20	2	1.3
<u>Previous training</u>		
Yes	96	63.2
No	56	36.8
<u>Work place</u>		
King Fahd Hospital	53	34.9
Maternity and child hospital	41	27
Central Burida Hospital	29	19.1
Psychiatric and Mental Hospital	29	19.1

Table (1) showed that the mean age of the studied sample was 27.06±3.79 years, more than half of the studied sample (55.9%) were single, less than three quarters (71.1%) of nurses were females, and in relation to the educational level, it was found that the majority (98%) of them had nursing diploma.

Regarding working hours it was found that nearly half (52%) of the nurses were working 6 hours daily, nearly two thirds (65.8%) of the nurses had an experience less than 5 years. This table illustrated that in relation to previous training less than two thirds (63.2%) of nurses attended training program, nearly one third (34.9%) working in King Fahd Hospital.

Table (2): Number & percent distribution of nurses' physical health problem (during work experience)

Parameter	No =152	%
skin allergy	29	19.1
Pneumonia	5	3.3
Bronchial asthma	35	23
Myopia	38	25
Varicose vein	7	4.6
Hypertension	4	2.6
Fatigue	72	47.4
Headache	65	42.8
Fainting	9	5.9
Cramps	24	15.8
Peptic ulcer	11	7.2
Acidity	51	33.6
Peptic pain (stomachache)	47	30.9
Constipation	24	15.8
Decrease in hearing adequacy	18	11.8
Dysmenorrhea (108)	22	20.4
Neck and shoulder pain	69	45.4
Knee and Thigh pain	44	28.9
Back pain	56	36.8

****Items not mutually exclusive

Table (2) elaborated that nearly half (47.4 %, 42.8% and 45.4%) of nurses were suffering from fatigue, headache and neck and shoulder pain respectively and nearly one third (36.8 %, 30.9% and 33.6 %) of nurses were suffering from back pain, stomachache and acidity respectively. Also it was found that nearly one quarter (28.9 %, 25% and 23%) of nurses were suffering from knee and thigh pain, myopia and bronchial asthma respectively.

Table (3) illustrated that (21.7% and 36.2%) of nurses were suffering from severe stress and moderate stress respectively regarding job pressure, and (13.8% and 35.5%) of nurses were suffering from severe stress and moderate stress respectively regarding rapport with managers. Regarding job scope, it was found that (11.2% and 28.3%) of nurses were suffering from severe stress and moderate stress respectively also it was found that (4.6% and 29.6%) of nurses were suffering from severe stress and moderate stress respectively regarding conflict and uncertainty.

Table (3): Number and percent distribution of nurses according to their exposure to work stressors

Parameter	NO=152	%
Conflict and uncertainty		
Low stress	100	65.8
Moderate stress	45	29.6
Sever stress	7	4.6
JOB pressure		
Low stress	64	42.1
Moderate stress	55	36.2
Sever stress	33	21.7
Job scope		
JOB scope		
Low stress	92	60.5
Moderate stress	43	28.3
Sever stress	17	11.2
Rapport with managers		
Low stress	77	50.7
Moderate stress	54	35.5
Sever stress	21	13.8
Total stress level		
Low stress	84	55.3
Moderate stress	63	41.4
Sever stress	5	3.3

Table (4) showed that nearly half (49.3%) of nurses were suffering from severe exhaustion and more than one quarter (27.6% and 27%) of nurses were suffering from severe insomnia and weariness and febleness respectively. Regarding nervousness, it was found that more than one third (38.8%) of nurses were suffering from severe nervousness. Also it was found that more than one tenth (13.2%, 13.1% and 11.8%) of nurses were suffering from severe

indifference towards everything, depression and reduced work performance respectively.

Table (4): Number and percent distribution of nurses according to their mental illness to work stressors

Parameter	NO=152	%
Exhaustion		
Low	19	12.5
Moderate	58	38.2
Sever	75	49.3
Difficulties to concentrate		
Low	84	55.3
Moderate	39	25.7
Sever	29	19.1
Weariness and febleness		
Low	55	36.2
Moderate	56	36.8
Sever	41	27
Insomnia		
Low	59	38.8
Moderate	51	33.6
Sever	42	27.6
Nervousness		
Low	55	36.2
Moderate	38	25
Sever	59	38.8

Table (4): Number and percent distribution of nurses according to their mental illness to stressors (continuous)

Parameter	NO=152	%
Irritation		
Low	85	55.9
Moderate	33	21.7
Sever	34	22.4
Depression		
Low	103	67.8
Moderate	29	19.1
Sever	20	13.1
Indifference towards everything		
Low	102	67.1
Moderate	30	19.7
Sever	20	13.2
Reduced work performance		
Low	81	53.3
Moderate	53	34.9
Sever	18	11.8
Reduced self-confidence		
Low	103	67.8
Moderate	35	23
Sever	14	9.2

Table (5) revealed that a highly statistically significant relation between mental problems and total mean of working stress ($p>0.000$) and statistically significant relation among total mean of working stress, physical problems and marital status (p value 0.024 and 0.04) respectively. Also it was

revealed that no statistical significant relation among total mean of working stress, years of past experience, gender and educational level.

Table (6) revealed that a highly statistically significant relation between physical problems and total mean of mental problems ($p=0.002$).

Table (5): relation between mean of total stress level and mental problems, physical problems, past experience, work place, gender

Items	Mean of stress	N	%	Std. Deviation	F	Sig
<u>Mental problems</u>						
Low	1.7583	64	41.3	.58285	36.17	0.000
Moderate	2.5814	66	42.6	.70486		
Severe	2.9773	22	14.2	.88674		
<u>Physical. problems</u>						
No and low	2.1665	100	65.8	.77499	3.822	.024
moderate	2.4414	27	17.8	.82748		
severe	2.6333	25	16.4	.95622		
<u>Past Experience</u>						
<5	2.2686	100	65.8	.82537	0.121	0.94
5-10	2.3113	32	21.1	.94833		
11-20	2.3935	18	11.8	.70699		
>20	2.2500	2	1.3	.47140		
<u>Work place</u>						
King Fahd Hospital	2.4248	53	34.9	.77888	2.61	0.053
Maternity and child hospital	2.2846	41	27	.92157		
Central Burida Hospital	1.9292	29	19.1	.77318		
Psychiatric and Mental Hospital	2.4232	29	19.1	.77430		
<u>Gender</u>						
Female	2.3277	108	71.1	.85132	0.68	0.41
Male	2.2049	44	28.9	.78173		
<u>Marital status</u>						
Single	2.4142	85	55.9	.73904	3.128	0.04
Married	2.0973	62	40.8	.93455		
Widow	2.6333	5	3.3	.48448		
<u>Educational level</u>						
Diploma nurse	2.3036	149	98	.83359	1.443	0.232
Bachelor degree	1.7222	3	2	.48113		

Table (6) relation between mean of mental problems and levels of physical problems

Items	Mean of mental problems	N	%	Std. Deviation	F	Sig.
<u>physical problems</u>						
No and low	2.1665	100	65.8	0.80621	6.34	0.002
Moderate	2.4414	27	17.8	1.15879		
Severe	2.6333	25	16.4	1.02417		

4. Discussion

The purpose of this study was to explore the effects of job stress on physical and mental health of Saudi nurses working in ministry of health hospitals in Qassim region in Kingdom of Saudi Arabia. Study results have shown that the most common type of work-related stress for Saudi nurses was due to job pressure followed by poor rapport with managers.

These results were in accordance with **Lee and Wang (2002)** and **Yau et al. (2012)** a high level of occupational stress is related to workload, responsibility and time. **Wang et al. (2011)** added that workload, lack of support, inadequate preparation, and conflict with other nurses were the most frequent stressors experienced by Hong Kong surgical nurses.

In one Chinese study done by **Li & Lambert (2008)** on workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses, indicated that workload was the most frequent workplace stressor among intensive care nurses.

In Taif Governmental Hospital a study conducted by **Kamal et al. (2012)** found that staff nurses in KSA were exposed to many kinds of job related stressors and from the most stressful categories for staff nurses in Taif governmental hospitals were patient's demands, their families' complaints and nurse's workload.

Also on the study conducted on Occupational stress among Icelandic nurses by **Sveinsdottir et al. (2006)** emphasized that work relationships are potential stressors. Their assessment showed that lack of social support from colleagues and superiors and less satisfaction with the head nurses contributed significantly to the appearance of stress. While the Health and Safety Executive identify the negative effect of lack of understanding and support from their managers, on workers' stress. **World health Organization (2007)** added that numerous writers have suggested that manager behaviors can have a significant impact on health outcomes for subordinates.

In similar study by **Al-Aameri, 2003** aimed at assessing the most and least perceived sources of stress for nurses in Saudi public hospitals. The results show that organizational structure and climate, job itself, and managerial role are the most stressors for nurses in Saudi public hospitals.

There are some explanations for the high stress level of participants: most of participants in this study were women. Generally, women are found to have more psychological strains and depression (**Liu et al, 2008**) and to experience greater sadness and anxiety (**Chaplin, et al., 2008**), and women might be more vulnerable to repeated stress exposures (**Schmaus et al., 2008**). Also it could be due to lack of knowledge, lack of experience and lack of a higher level of education.

Also **Gazzaz (2009)** added that; in Saudi Arabia, recruitment and retention of nurses appear to be faced with challenges; it has been reported that the majority of young women do not view nursing as socially-appropriate career choice. Most Saudi families do not consider nursing as an honorable occupational choice for their own children. So, prevailing negative images and perceived low status of nursing have contributed to the high stress level of participants.

In the same line **Al Hosis, (2009)** confirmed that Saudis of both genders will not choose the nursing profession as an ideal future career because of long working hours; night shifts; negative perceptions of community and family members; working with the opposite gender especially for female nurses and concerns about not getting married as some men may not like their wives working as nurses.

Our findings elaborated that nearly half of nurses were suffering from fatigue, headache and neck and shoulder pain and nearly one third of nurses were suffering from back pain, stomachache and acidity. Also it was found that nearly one quarter of nurses were suffering from knee and thigh pain, myopia and bronchial asthma.

In relation to physical problems **Kane (2009)** who conduct a study on nurses in India to identify the major sources of stress, and finding the incidence of psychosomatic illness related to stress. It revealed that; 60% of the nurses complaining of headache, Acidity affect 62% of the nurses and nearly half of nurses were suffering from back pain, stiffness of shoulder, neck and stomachache.

Also this result was in congruence with the study done by **Channuwong and Kantatian (2012)** who found that stress may lead to physical symptoms such as headaches, neck pain, backaches, dizziness, chest pain, heart palpitations, and intestinal problems. Stress alters the heart rhythms and poses a risk for serious arrhythmia with heart rhythm disturbances in people. Also, in women, chronic stress may reduce estrogen levels, which are important for cardiac health.

A recent study on professional stress and health among critical care nurses in Serbia conducted by **Milutinovic et al. (2012)** found that a close connection between work-related stress factors and psychosomatic health. The most commonly reported psychological and somatic symptoms were: headache, lower back pain, fatigue, mood swings and insomnia.

Lin et al. (2007) added that headache is one of the symptoms of professional stress and is usually associated with general fatigue and sleep disturbance.

While **Yip (2002)** and **Milutinovic et al. (2012)** stated that lower back pain is the most reported somatic problem in nurses participating in their study. The high frequency of lower back pain can be explained not only by physical factors at work, but with psychosocial

factors too. In which working in a team with poor relations was associated with an increased risk of lower back pain. Also several studies conducted by **Byrns et al. (2004)**; **Karahan and Bayraktar, (2004)**; **Hyung-Joon et al. (2004)**; **Smith et al. (2004), (2005)**; **Shields and Wilkins, (2006)** found that the prevalence of physical pain among nurse participants has ranged from 18.6% (arm pain) to 87.5% (back pain).

Our findings showed that nearly half of nurses were suffering from severe exhaustion and more than one quarter of nurses were suffering from severe insomnia and weariness and feebleness. Regarding nervousness, it was found that more than one third of nurses were suffering from severe nervousness. Also it was found that more than one tenth of nurses were suffering from severe indifference towards everything, depression and reduced work performance.

In accordance with **Godin et al. (2005)** employees with continuous job stress over a one year observation period and those with recently evolving job stress were at higher risk of developing poor mental health.

Recent studies conducted by **Gao et al. (2012)** on anxiety symptoms among Chinese nurses have shown that 43.4% of Chinese nurses working in public city hospitals had anxiety symptoms.

In another study done by **Moustaka and Constantinidis (2010)** on sources and effects of work-related stress in nursing confirmed that occupational stress and its consequences on nurses' behavior can create mental problems such as anxiety, depression, insomnia and feelings of inadequacy. In this respect, **Kawano (2008)** confirmed that less job control most obviously affected lack of vigor, fatigue, anxiety and depression, in hospital nurses.

As mentioned, mental ill-health is one possible outcome of severe occupational stress. Also, **Chen et al. (2009)** in a longitudinal survey (1996-2001) in the UK has reported that an estimated annual average of 3642 new cases of work-related mental illness were diagnosed, which most of them were caused by work-related stress.

Kawano (2008) for assessing job-related stress factors with psychological and somatic symptoms among Japanese hospital nurses; confirmed that less job control most obviously affected lack of vigor, fatigue, anxiety and depression, in hospital nurses.

The results of this study proved a highly statistically significant relation between mental problems and total mean of working stress ($p > 0.000$) and statistically significant relation between total mean of working stress and physical problems (p value 0.024).

These findings were in congruence with the study done by **Kawano (2008)** who stated that hospital nurses with an excessive amount of work under the

pressure of deadlines and difficulties associated with caring for patients with various complications might be more likely to feel physically and mentally exhausted.

Also these findings were in consistent with a recent study conducted by **Humaida (2012)** on relationship between stress and psychosomatic complaints among nurses in Tabarjal hospital in KSA revealed that the stress was dominant among nurses in Tabarjal hospital, the prevalence of psychosomatic complaints was significantly higher in nurses, and there was significant correlation between stress and psychosomatic complaints among nurses.

In another study conducted by **Mojoyinola (2008)** on effects of job stress on health of nurses in public hospitals in Nigeria revealed that there was a significant effect of job stress on physical and mental health of nurses in public hospital.

Our findings revealed that no statistical significant relation among total mean of working stress, years of past experience, gender and educational level.

In the same line one Saudi study conducted by **Al-Omar (2003)** on sources of work stress among hospital-staff at the Saudi MOH, he found that work-stress was not influenced by the educational level, the gender, the marital status, the language of the employee.

While **Milutinovic et al. (2012)** who underlined that; Socio-demographic determinants of participants (age, marital status and education level) significantly affect perception of stress at work.

Conclusion:

Study results have shown that the most common type of work-related stress for Saudi nurses was due to job pressure followed by poor rapport with managers. Nearly half of nurses were suffering from physical and mental illnesses. Our study proved a highly statistically significant relation between mental problems and working stress and statistically significant relation between working stress, physical problems and marital status.

Recommendations:

The Saudi nurses need to provide continued administrative support, appropriate training programs to deal with potentially stressful conditions in the health facility, and a work environment that fosters open communication with the top management.

References

1. **Al-Aameri A. (2003)**: Source of job stress for nurses in public hospitals, Saudi Med J. Vol. 24 (11): 1183-1187
2. **Al Hosis K. (2009)**: Succession Planning For Nurse Managers in Saudi Arabia, Doctorate Thesis, Faculty of Medicine, Nursing and Health Sciences

- School of Nursing and Midwifery, Monash University, 193
3. Al-Omar B.(2003): Sources of Work-Stress among Hospital-Staff at the Saudi MOH, JKAU: Econ. & Adm., Vol. 17, No. 1, pp. 3-16
 4. Antigoni F., Pediaditaki O., and Dimitrios T. (2011): Nursing staff under heavy stress: focus on Greece A critical review, *International Journal of Caring Sciences* , Vol 4 Issue 1, 11:12
 5. Bin Saeed, K. S. (1995): "Factors which influence nurses' intention to leave the Hospital, Riyadh City, Saudi Arabia." *Journal of King Saud University: Admin Sciences*, 7 (2): 85-105.
 6. Byrns, G., Reeder, G., Jin, G., Pachis, K., (2004): Risk factors for work-related low back pain in registered nurses, and potential obstacles in using mechanical lifting devices. *J. Occup. Environ. Hyg.* 1:11–21.
 7. Channuwong S. and Kantatian W.(2012): Stress Management Strategies for Managers: An Integration of Eastern and Western Approaches, *European Journal of Social Sciences* Vol.29 No.1:66-75
 8. Chaplin, T. M., Hong, K., Bergquist, K., & Sinha, R. (2008): Gender differences in response to emotional stress: An assessment across subjective, behavioral, and physiological domains and relations to alcohol craving. *Alcoholism: Clinical & Experimental Research* 32(7): 1242–1250.
 9. Chen, W. Q., Wong, T. W. and Yu, T. S. (2009): Mental health issues in Chinese offshore oil workers. *Occupational Medicine-Oxford* 59(8): 545-549.
 10. Chen-chung M., Michael S., Judith A.(2003): Factors that influence nurses' job satisfaction. *Journal of Nursing Administration*.33(5):293-9.
 11. Ekedahl M., Wengstrom Y. (2007):Nurses in cancer care-stress when encountering existential issues. *Eur J Oncol Nurs*. 11(3):228-37.
 12. Elkin, A. (1999). *Stress Management for Dummies*. New York, NY: Wiley Publishing, Inc.
 13. Gao Y., Pan B., Sun W., Wu H., Wang J.and Wang L.(2012): Anxiety symptoms among Chinese nurses and the associated factors: a cross sectional study, *BMC Psychiatry*, 12:141
 14. Gazzaz, L., (2009): Saudi Nurses' Perceptions of Nursing as an Occupational Choice: A Qualitative Interview Study, Doctorate thesis, Faculty of Medicine and Allied Health Science School of Nursing, University of Nottingham, 1-10
 15. Godin I., Kittel F., CoppietersY.and Siegrist J.(2005): A prospective study of cumulative job stress in relation to mental health, *BMC Public Health*, 5:67 <http://www.biomedcentral.com/1471-2458/5/67>
 16. Golbasi, Z., Kelleci, M., & Dogan, S. (2008): Relationships between coping strategies, individual characteristics and job satisfaction in a sample of hospital nurses: Cross-sectional questionnaire survey. *International Journal of Nursing Studies*, 45, 1800–1806.
 17. Greenberg, J., & Baron, R. (2009). *Behavior in organizations understanding and managing the human side of work*. New Jersey: Pearson Education. 125-132
 18. Humaida, I., (2012): Relationship between Stress and Psychosomatic Complaints among Nurses in Tabarjal Hospital, *Open Journal of Medical Psychology*, 1, 15-19 available at (<http://www.SciRP.org/journal/ojmp>)
 19. Hyung-Joon, J.H.U.N., Sung-II, C.H.O., Jong-Tae, P.A.R.K., (2004): Changes in job stress, musculoskeletal symptoms, and complaints of unfavorable working conditions among nurses after the adoption of a computerized order communication system. *Int. Arch. Occup. Environ. Health* 77, 363–367.
 20. Kamal S., Al-Dhshan M., Abu-Salameh K., Abuadas F., and Hassan M.(2012): The effect of nurses' Perceived Job Related Stressors on Job Satisfaction in Taif Governmental Hospitals in Kingdom of Saudi Arabia, *Journal of American Science*;8(3) 119-125
 21. Kamla-Raj (2008): Effects of Job Stress on Health, Personal and Work Behaviour of Nurses in Public Hospitals in Ibadan Metropolis, Nigeria, *Ethno-Med.*, 2(2): 143-148
 22. Kane P.(2009): Stress causing psychosomatic illness among nurses, *Indian J Occup Environ Med*; 13(1): 28–32.
 23. Karahan, A., Bayraktar, N. (2004): Determination of the usage of body mechanics in clinical settings and the occurrence of low back pain in nurses. *Int. J. Nurs. Stud.* 41, 67–75.
 24. Kawano Y., (2008): Association of Job-related Stress Factors with Psychological and Somatic Symptoms among Japanese Hospital Nurses: Effect of Departmental Environment in Acute Care Hospitals, *J Occup Health*;50: 79–85
 25. Lambert VA, CE. Lambert, M. Petrini, XMLi, YJ. Zhang (2007): Workplace and personal factors associated with physical and mental health in hospital nurses in China. *Nursing & Health Sciences* 9(2), 120-126.
 26. Lambert, V., Lambert, C., Ito, M., et al. (2004). Cross-cultural comparison of workplace stressors, ways of coping and demographic characteristics as predictors of physical and mental health among hospital nurses in Japan, Thailand, South Korea and the USA (Hawaii). *International Journal of Nursing Studies*, 41, 671–684.
 27. Lee I, Wang H.H.(2002): Perceived occupational stress and related factors in community nurses. *Journal of Nursing Research*;10(4):253-260.
 28. Li J. & Lambert V.A. (2008): Workplace stressors, coping, demographics and job satisfaction in Chinese intensive care nurses. *British Association of*

- Critical Care Nurses, *Nursing in Critical Care* 13 (1), 12–24.
29. Lin K-C, Huang C-C, Wu C-C.(2007): Association between stress at work and primary headache among nursing staff in Taiwan. *Headache*;47:576-84.
 30. Liu, C., Spector, P. E., & Shi, L. (2008): Use of both qualitative and quantitative approaches to study job stress in different gender and occupational groups. *Journal of Occupational Health Psychology* 13(4), 357–370.
 31. Mark G. and Smith A. P. (2011): Occupational stress, job characteristics, coping, and the mental health of nurses, *British Journal of Health Psychology*, DOI:10.1111/j.2044-8287.2011.02051.x,1:17,
 32. McNeely E.(2005): The consequences of job stress for nurses' health: Time for a check-up *Nurs Outlook* 2005;53 (6):291-299.
 33. Mersal F. (2002): occupational health hazards among nurses working in urban health centers, unpublished Master thesis, Faculty of Nursing, Ain Shams University.
 34. Milutinovic D., Golubovic B., Brkic N. and Prokes B. (2012): Professional Stress and Health among Critical Care Nurses in Serbia, *Arh Hig Rada Toksikol*:63:171-180
 35. Ministry of Health (MOH), Kingdom of Saudi Arabia, General Directorate of Statistics, (2012): <http://www.moh.gov.sa/Ministry/Statistics/Indicator/Pages/Indicator-2012-01-10-0001.aspx> [viewed on 02 January 2013].
 36. Mojinyinola J. K. (2008): Effects of Job Stress on Health, Personal and Work Behaviour of Nurses in Public Hospitals in Ibadan Metropolis, Nigeria, *Ethno-Med.*, 2(2): 143-148
 37. Moustaka E., Constantinidis T., (2010): Sources and effects of Work-related stress in nursing, *HEALTH SCIENCE JOURNAL*, VOLUME 4, ISSUE 4, 210-216
 38. Nedd N.(2006) Perception of empowerment and intent to stay. *Nurs Econ.* 24(1):13–18.
 39. Schmaus, B. J., Laubmeier, K. K., Boquiren, V. M., Herzer, M., & Zakowski, S. G. (2008). Gender and stress: Differential psychophysiological reactivity to stress reexposure in the laboratory. *International Journal of Psychophysiology* 69(2), 101–106.
 40. Shields, M., Wilkins, K., 2006. Findings from the 2005 National Survey of the Work and Health of Nurses. Canadian Institute for Health Information, Ontario.
 41. Siu O-L, PE. Spector, CL. Cooper, L Lu, S. Yu (2002): Managerial stress greater china: the direct moderator effects of coping strategies and working locus of control. *Applied Psychology: An International*, 51(4), 608-632.
 42. Smith, D.R., Choe, M.A., Jeon, M.Y., Chae, Y.R., An, G.J., Jeong, J.S., (2005): Epidemiology of musculoskeletal symptoms among Korean hospital nurses. *Int. J. Occup. Saf. Ergon.* 11 (4), 431– 440.
 43. Smith, D.R., Wei, N., Zhao, L., Wang, R.-S., (2004): Musculoskeletal complaints and psychosocial risk factors among Chinese hospital nurses. *Occup. Med.* 54 (8), 579–582.
 44. Sveinsdottir H, Biering P, Ramel A. (2006): Occupational stress, job satisfaction, and working environment among Icelandic nurses: A cross-sectional questionnaire survey *International Journal of Nursing Studies*;43(7):875-89.
 45. Vahey DC, Aiken LH, Sloane DM, Sochalski JA, Busse R, Clarke H, (2004); Nurse burnout and patient satisfaction. *Med Care.* 42 Suppl: II-57-66. Medline:14734943 doi:10.1097/01.mlr.0000109126.50398.5a
 46. Wang W., Kong A., and Chair S., (2011): Relationship between job stress level and coping strategies used by Hong Kong nurses working in an acute surgical unit, *Applied Nursing Research* 24: 238–243
 47. Welker-Hood, K. (2006): Does workplace stress lead to accident or error?: Many nurses feel the pressure. *American Journal of Nursing* 106(9), 104.
 48. Wong D, Leung S, So C, Lam D.(2001): Mental health of Chinese nurses in Hong Kong: The roles of nursing stresses and coping strategies. *Online Journal of Issues in Nursing*.2001;5(2), from http://www.nursingworld.org/ojin/topic12/tpc12_7.htm
 49. World Health Organization WHO.(2007): Stress at the work place. Some simple Questions and Answers, What is Work related Stress? Occupational Health. http://www.who.int/occupational_Health/Publications/Declarati on/en/index.html.
 50. Wu S, Zhu W, Wang Z, Wang M, Lan Y. (2007): Relationship between burnout and occupational stress among nurses in China. *J Adv Nurs*; 59(3):233-9.
 51. Yau S., Xiao X., Lee L., Tsang A., Wong S., Wong K., (2012): Job stress among nurses in China, *Applied Nursing Research* 25: 60–64
 52. Yip YB. (2002): The association between psychosocial work factors and future low back pain among nurses in Hong Kong: a prospective study. *Psychol Health Med*; 7:223-33.