

# Work Related Stress and job Performance of Scrub Nurses in the Operating Room of Selected Governmental Hospitals in Saudi Arabia

<sup>1</sup>Jamilah Saad Alqahtani, <sup>2</sup>Ruqayyah Sayed Zeilani

<sup>1</sup>Nurse Lecturer, MSN in Medical & Surgical Nursing *OR specialist, RN, BSN, in AFHSR*

<sup>2</sup>PhD, MSc, RN, Faculty of Nursing/ Clinical department, The University of Jordan Department

---

**Abstract:** Work stress, which is common in the nursing profession, has been associated with negative outcomes for both nurses and patients. Moreover, limited studies have focused on work stress and job performance among scrub nurses in the operating room (OR).

**Aim:** The aim of this study was to assess levels of work stress and job performance of OR nurses.

**Methods:** A descriptive correlational design was used to examine the association between work stress and demographic characteristics and their effect on job performance. A convenience sample of 124 scrub nurses recruited from two governmental hospitals completed three questionnaires that measured sociodemographic variables, work stress, and job performance.

**Result:** High levels of stress among OR nurses, good levels of job performance, and a negative correlation ( $r = -.23$ ,  $p = .05$ ) between work stress levels and job performance were found. The result of this study also indicated strong relationships between work stress and nurse's age, years of experience, and nationality.

**Conclusion:** Work stress is high among OR nurses and may adversely affect their job performance. Moreover, demographic variables were found to be strongly related to work stress, which need to be considered when evaluating quality of nursing care.

**Keywords:** Work stress, scrub nurses, operating room, job performance.

---

## I. INTRODUCTION

Every year, there are many nurses leaving their work because of work-related stress. Work-related stress is highly associated with many psychological and mental health disturbances among nurses such as anxiety and depression(1). The level of support provided by the institution and the work environment can help alleviate such stress (2-4). Studies show that when nurses are satisfied with their work in the hospital, they feel productive and provide better care for their patients (5) (6) (7, 8). Globally, there is lack of evidence showing the relationship between work-related stress and job performance in the operating room (OR). A scrub nurse experiences a great amount of stress and pressure during as well as after the operation. The multi-responsibilities the nurses are given in the OR become an additional burden that increases the level of their stress. This could affect the nurses' quality of care and performance in the OR and, therefore, the level of care provided to the patients. Unfortunately, there were very limited studies on specific scrub nurses' experiences in Arab countries as the search for previous studies indicated. In addition, none of the studies examined the topic of work-related stress among scrub nurses in hospitals. Therefore, it is necessary for nurses and the health care team to understand work-related stress and its connection to quality of job performance with the purpose to improve the quality of nursing care provided to patients in the OR(9) (10).

## II. BODY OF ARTICLE

### **Background:**

Nurses often describe experiencing a lack of balance between their work and life outside of work. Yet, if a sense of balance between work and lifestyle demands could be achieved, fewer nurses would report stress and more would be living healthier lives at home and in the workplace. More than 2.5 million nurses practice in the United States. Of those, more than 62% are employed by hospitals (11). Hospitals deliver acute health care to patients and are known to be both rewarding and stressful work environments. The American Nurses Association(12) reports that the three most frequent concerns of hospital nurses are related to staffing, mandatory overtime, and workplace safety (12).

Stress has become an important topic for research in all settings. The latest estimates from the Labour Force Survey (LFS) show: The total number of cases of work related stress, depression or anxiety in 2015/16 was 488,000 cases, a prevalence rate of 1510 per 100,000 workers. The number of new cases was 224,000, an incidence rate of 690 per 100,000 workers. The estimated number and rate have remained broadly flat for more than a decade(13).

Work-related stress in nursing has been associated with negative and poor outcomes for the nurses and the recipients of care: the patients. Stress experiences were highly found in critical areas such as intensive care units, emergency departments, and operating rooms. Specifically, this research focused on the stress-related experience and the performance in the work of scrub nurses in the operating room (OR). The operating room suite was a section in the hospital where surgeons, nurses, and other allied healthcare practitioners collaborate for the care of the patient before, during, and after the surgery(14).

Stress was evident in the OR suite where nurses can experience exacerbations to use the complex equipment and technology that are one of the great features of contemporary operating departments. Nurses, similar to doctors and other practitioners, were required to have a very high skill of performance and knowledge of the surgery and the environment, aside from the nursing care they provide to the patients. The OR surgical team consisted of surgeons, anesthetists, technicians, and a nursing staff that included scrub nurses, circulating nurses and recovery room nurses. A comparison of the level of stress experienced between the nurses, as the researcher observed in the hospital, found that scrub nurses faced the highest stress and pressure because of the precise responsibility that can affect their job performance. Unfortunately, there were very limited studies on specific scrub nurses' experiences in the Arab countries as found when searched for such related literature (15).

The OR as a place has restrictions and policies in wearing the scrub uniforms, the sterilizations and the number of scrub nurses in each operation room. This mandate a strict rules and the nurses have to follow all of these instructions. The invasion of any policy or rules in the OR might lead to penalty or termination, this added a new pressure on the nurses in addition to the OR nursing care (Association of Operating Room Nurses [AORN] 1997) (16).

Therefore, the motivation of the researcher who worked as a head of the OR department for more than 5 years to delve into a study exploring the work-related stress and performance of scrub nurses in the operating room of a selected government hospital in the Southern region of Saudi Arabia. Furthermore, the researcher has also examined relationships and differences between the aforementioned variables of the study.

### **Aim of the Study:**

The aim of this study was to investigate the work-related stress and performance of scrub nurses in the Operating Room (OR) in governmental hospitals in the Southern Region of Saudi Arabia.

### **Purpose of the study:**

In order to fulfill the study aim, the following objectives were to be obtained:

1. To identify the scrub nurses' work related stress in the OR.
2. To describe the scrub nurses' performance in the OR.
3. To identify the relationship between work related stress and job performance in OR.

## International Journal of Novel Research in Healthcare and Nursing

Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

4. To find the associate between the work-related stress and socio-demographic variables: Age, gender, maertial status, level of education, years of experience in OR; specialty in OR, working hours, workload, relevant special training or courses.

### Research Design

Quantitative, correlational design was used in order to examine the association between work-related stress and the scrub nurses' demographic characteristics and their effect on the nurses' job performance.

### Setting

The study was conducted in a government tertiary hospital in the Southern Region of KSA. The researcher decided to include the Armed Forces Hospitals, Southern Region (AFHSR) that are located in Khamis Mushayt city, Southern Region of Saudi Arabia.

### The target population

The target population in this study is all scrub nurses working in ORs in the Kingdom of Saudi Arabia. The accessible population is scrub nurses who work in the Southern region of Saudi Arabia, specifically, Khamis Mushayt southern region

The researcher used non-probability convenience sampling technique.

### The sample subjects

One sample size that includes a larger convenience quantitative sample of scrub nurses used.

Sample size was calculated using (G) power computer software program. The researcher assumes the level of significance ( $\alpha$ ) = 0.05 to reduce the risk for making a type 1 error, power  $(1-\beta)$  =80% to reduce the risk of a type II error and moderate effect size of 0.50 (2 tailed & medium effect size for Pearson correlation coefficient analysis test) .The yielded sample size is 124 participants. The researcher added of the 10% to over unreturned or uncomplete questionnaire and missing questionnaire.

### Response Rate

The data was collected from both hospital king Fahad and king Fasial. Total of 124 out of 150 questionnaires were received which equal to 82% from both hospitals.

### The inclusion criteria:

A set of criteria was done for the selection of the sample. In this study, the scrub nurses, recruited as part of the sample, possessed the following inclusion criteria: 1) above 23 years' old, 2) can read and comprehend English; 3)are employed in the participating hospitals; and 4)Agreed to participate in the study voluntarily.

### Sampling Technique:

A convenience sample, based on the selection criteria set by the researcher, was targeted all (n=124) the scrub nurses who are working in the OR during the data collection period. They answered self-reported questionnaire. The scrub nurses were asked to respond to the 3 parts of the questionnaire: part#1 socio-demographic, part#2 work-related stress questionnaire, also to evaluate themselves for their job performance as part#3.

### Measurement:

There is three instruments that were used in this study 1. Socio-Demographic , 2. DASS21 &3. Performance Evaluation. In the following is detailed description of each instrument. Socio demographic tool included characteristics of the respondents (age, gender, years of experience in OR, specialty in OR , and level of education, nationality and work load shifts and hours of duty). DASS21 scale pertained to the work-related stress of the scrub nurses adopted from the tool of Depression Anxiety Stress Scales. DASS21 stress scales from 0-1 and interpreted from mild stress to high stress (17). The DASS21 tool is used to measure the severity of the range of symptoms common to anxiety, stress and depression over a week of their work. Each item is scored from (0 to 3). The tool has 21 items asking about the symptoms of the nurses' experiences they have during the last week. The total score of all items will give the severity of the stress. The tool

language is English because all of the nurses can speak and write in English. Permission from the author and institution were secured in the utilization of the instrument. Pilot study, Reliability and validity were performed for DASS21 instrument. The pilot study was conducted for 10% of total sample size to assess the clarity, suitability, understanding of the selected instrument and expected participation rate. The results of the pilot study were acceptable and satisfied, the data was entered into the Statistical Package for Social Science SPSS computer system in order to test the internal consistency for each scale.

**Reliability**

This tool has a high internal consistency value with Cronbach’s Alpha of 0.88. The reliabilities of internal consistencies of the DASS-21 Anxiety, Depression, Stress, and total scales were estimated using Cronbach's Alpha was 0.88 (95% CI=.87-.89) for the Depression scale, 0.82 (95% CI=.80-.83) for the Anxiety scale, 0.90(95% CI=.89-.91) for the Stress scale, and 0.93 (95% CI=.93-.94) for the Total scale) (Henry and Crawford 2005). Reliability for DASS21 Scale in this study table (1) below shows the reliability scale and it was 0.95 (n=21) and its high reliability.

**Table (1) Reliability Statistics**

Cronbach's Alpha	N of Items
.95	21

**Validity**

The issue of validity of the DASS21 used for this study was ensured in two dimensions: content validity and construct validity. Content validity was confirmed, The DASS-21 subscales can validly be used to measure the dimensions of depression, anxiety, and stress. However, each of these subscales also taps a more general dimension of psychological distress or NA. The utility of the measure is enhanced by the provision of normative data based on a large sample (17).

**3. PERFORMANCE EVALUATION**

Performance Evaluation of the scrub nurses by which they were evaluate themselves for their job performance. Permission from the author and institution were secured in the utilization of the instrument. Pilot study, Reliability and validity were performed for performance evaluation instrument. The pilot study was conducted for 10% of total sample size to assess the clarity, suitability, understanding of the selected instrument and expected participation rate. It was also conducted to determine the required time to fill the questionnaire. The results of the pilot study were acceptable and satisfied, the data was entered the Statistical Package for Social Science SPSS computer system in order to test the internal consistency for each scale.

**Reliability:**

Reliability of a quantitative instrument was a major criterion for assessing its quality, ensuring that the instrument provides consistent, stable and repeatable results (18) (19). There were three key methods of testing the reliability of a quantitative instrument: checking for stability, equivalence and internal consistency (20). Brink and Wood (2001) defined stability as how stable the instrument was over time; equivalence as the "consistency of the results by different investigators or similar tests" (p. 184); and internal consistency as the extent to which an instrument’s items measure the concept consistently in all parts of the test. Brink and Wood (2001) maintained that researchers need to use only one or more of these tests to establish the level of reliability of the instrument(18). Internal consistency was the most widely used and most useful method for evaluating reliability (19). Cronbach's Alpha Coefficient was the most frequently used and most accurate and sophisticated statistical test to establish internal consistency (18). Performance evaluation Scale in this study table (2) below shows the reliability scale and Cronbach’s alpha 0.98(n=25) and its high reliability.

**Table (2) Reliability Statistics**

Cronbach's Alpha	N of Items
.98	25

**Factor analysis for job performance scale:**

Table below shows factor analysis statistic for job performance scale. The Initial Eigenvalues - Eigenvalues are the variances of the factors. Because we conducted our factor analysis on the correlation matrix, the variables are standardized, which means that the each variable has a variance of 1, and the total variance is equal to the number of variables used in the analysis, Where Extraction Sums of Squared Loadings - The number of rows in this panel of the table correspond to the number of factors retained. % of Variance - This column contains the percent of total variance accounted for by each factor. Cumulative % - This column contains the cumulative percentage of variance accounted for by the current and all preceding factors. Total-this column contains the eigenvalues. The first factor will always account for the most variance (and hence have the highest eigenvalue), and the next factor will account for as much of the left over variance as it can, and so on. Hence, each successive factor will account for less .and less variance which shown in table (3) please see below table. Table (3) shows initial eigenvalues which include total present of both variance and cumulative for component one and two. Also it shows extraction sums of squared loadings which include total, present of both variance and cumulative for component one and two. The result was the same. The extraction method was principal component analysis.

**Table (3) factor analysis statistic**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	16.282	65.130	65.130	16.282	65.130	65.130
2	1.157	4.630	69.760	1.157	4.630	69.760

Extraction Method: Principal Component Analysis.

Table (4) show the performance scale has two components to know which items for component one and component two table (4) show that please see below table. This table (Table (4)) shows factors analysis items. Where it show the rotated component matrix for job performance scale items for components 1 and 2 from item JP1 up to JP25. The highest rate in component 1 was .805 JP23 and in component 2 was .790 JP12 in other hand the lowest in component 1 was 310 JP11and component 2 was 233 JP18.

**Table (4) factor analysis items**

Rotated Component Matrix		
Items	Component	
	1	2
JP1	.620	.310
JP2	.759	.311
JP3	.503	.617
JP4	.343	.812
JP5	.634	.587
JP6	.718	.500
JP7	.401	.777
JP8	.343	.766
JP9	.642	.567
JP10	.487	.716
JP11	<b>.310</b>	.786
JP12	.389	<b>.790</b>
JP13	.736	.431
JP14	.815	.358

JP15	.694	.471
JP16	.658	.420
JP17	.620	.442
JP18	.712	<b>.233</b>
JP19	.685	.422
JP20	.624	.455
JP21	.758	.454
JP22	.600	.612
JP23	<b>.805</b>	.380
JP24	.691	.556
JP25	.495	.607

Distinct procedures were undertaken to ensure the data quality of the study. These included determining the reliability and validity of the data, which will be discussed next.

### Validity

The issue of validity of the quantitative instruments used for this study was ensured in two dimensions: content validity and construct validity. Content validity was confirmed, then in this study had confirmed them which was referred to the degree to which the instrument's items sufficiently represent the concepts being studied (19). Researchers looked for evidence of content validity through experts to assess whether the items are representative of the concept being measured (21). Construct validity was the degree to which an instrument measures the theoretical construct under investigation (20).

Teddlie and Tashakkori, (2009) stated note that an indicator of construct validity is called a criterion. To assess the construct validity of an instrument researchers considered the total test score as a criterion for evaluating the degree of construct validity of each individual item (22).

### Pilot study

In order to determine the content validity of the job performance evaluation questionnaire for this study in the context of Saudi Arabia the questionnaires were reviewed with a panel of experts which consisted of 4 members (3Phillipines, and one Saudis), to obtain content validity and clarity. The experts were nurse academics, critical care nurses, nurse managers and OR nurses. They were asked to judge the degree to which the questionnaire items were suitable for the aims and questions of the study.

The experts were also asked to respond to the questionnaires and to write their comments. This was to determine whether the questions were accessible and measured what they were supposed to measure. Based on feedback, changes were made as necessary, then the questionnaires were reviewed. According to Teddlie and Tashakkori (2009) This validation method with a group is useful because experts may disagree with one another. After that, a pre-test of the instruments was carried out in AFHSR Hospital in Saudi Arabia over a period of three weeks(23).

The pre-test yielded OR nurses who met the initial inclusion criteria for the study. OR nurses were asked to complete the study questionnaire in English language. who were invited to complete the questionnaire in the English language. The participants were asked to write their comments as the rationale for pre-testing the questionnaires was to determine whether the items were accessible and clear to understand and to consider the participants' comments in revising the questions from the context of Saudi Arabia.

In addition, the pre-test provided the opportunity to assess how long it would take the OR nurses to complete the questionnaires. The approximate time to complete the questionnaires for family members and healthcare providers was 10 and 15 minutes respectively. This pre-testing revealed that OR nurses' feedback was positive and indicated that the questionnaires were clear and accessible to understand and no changes needed to be made on the questionnaires.



**Recruitment and Data Collection Methods**

These were the researcher's provisional planning actions for the overall framework of the study:

1. The researcher contacted KSU to obtain a list of all hospitals that are located in the Southern region of KSA and have scrub nurses. From this list, two hospitals were selected in a nonrandom manner.
2. An approval from the Research Ethics Committee in each participating hospital was obtained Before conducting the data collection.
3. The researcher selected nonrandom scrub nurses from each hospital through using the previously identified in sample.
4. Then, the researcher contacted with the head nurse of each OR selected session to explain the study for them and set a plan for data collection for the nurses, as it was convenient to the nurses and not part of their duty.
5. The researcher explained the study aims and objectives for any nurse who would like to be part of study. Then, the researcher hired one research assistants who helped explain the aims of study for each nurse, distribute the information sheet.
6. The research introduced the study and distribute the invitation letters to scrub nurses whom were previously selected from the sampling frame.
7. Those nurses, interested in the study, contacted the researcher who was available in the area to explain the questionnaire and provided participants with all relevant information about the study purpose, significance, and procedures through the scrub nurse information sheet.
8. Those willing to participate were asked to sign an attached consent form before participating to ensure their agreement.
9. Data collected from the eligible scrub nurses. All study questionnaires were distributed to scrub nurses on duty. The data collection take place over a period of 8 weeks.

**Data analysis**

The collected data were categorized, coded and analyze through the IBM SPSS Statistics, which is the most widely used statistical tool. Moreover, the sample data were described through descriptive statistics.

**4. LITERATURE REVIEW**

Stress was obvious in the OR suite where nurses can experience aggravation to use complex equipment and technology that are one of the great features of contemporary operating departments. Nurses were required to have highly skilled performance and knowledge of the surgery and the environment, aside from the nursing care they need to provide to the patients(24).

The stress perceived by nurses during their work in the OR has an important impact on their quality of care, job satisfaction, and their psychological well-being (25). However, studies showed that there is lack of information about the association between work-related stress and job performance among nurses working in the OR(26) . There was an immediate need to identify pathways to improve the quality of nursing care and eliminate the sources of stress among nurses, in order to enhance the quality of nursing care and patients' health outcome(27).

Exploring the WRS would be important to all nurses working in OR as part of their education, training programs, helping the nurses to overcome stress would help to improve their satisfaction. In addition, Nurse student and newly graduate nurses might learn to reduce WRS and work more efficiently in the OR. This study offered necessary data for Saudi nurses working in OR and can be used by nurses to increase their understanding of the relationship between WRS and job performance (28).

When scrub nurses are able to manage their stress well it is expected that they would be able to improve their work environment and enhance the quality of their performance. Improving the work environment and enhancing work performance were expected when scrub nurses are able to manage their stress well. This study provided criterion data for

## International Journal of Novel Research in Healthcare and Nursing

Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

nurse managers and decision makers so they can improve the work-related conditions and minimize the level of stress in their institutions (29).

The study is also useful as a resource data for students in their educational and clinical programs, to gain knowledge of some aspects of the challenges of stress for nurses working in the OR, and its relationship with their performance. Moreover, the current study emphasized the effect of work-related stress on nurses and its relationship to their performance (30).

Researchers might use this criterion data to contact more case-effect studies about WRS & job-performance of OR nurses in the future to conduct future studies examining the effectiveness of managing stress in hospitals' environment among nurses in many specialized areas such as emergency rooms, intensive care units and general hospital wards. Furthermore, this study added additional basic information for researchers to examine for new methods to overcome stress and acquire alternatives to minimize work-related stress(31).

### Strategy:

The literature search involved exploring the published material relating to the area of work related stress and nurses practices in the OR. The searches involved utilization of various databases from KSU database which included CINAHL (Cumulative Index to Nursing and Allied Health Literature), Medline (Medical literature on-line), Psych Info (Psychology Information), Pubmed. AORN Association of perioperative Registered Nurses, BMJ British Medical Journal, besides that Google Scholar search engine was used to select further studies. These electronic databases were used since they considered a helpful databases for nursing investigators, and they include references that cover all English-language journals, dissertations and theses which related to the nursing and other health-related disciplines (19). Key words included (stress, work related stress, occupational stress, OR, nursing practice and stress, Saudi, scrub nurse, job performance, scrub nurse, theater nurse). A manual search was also undertaken to identify other studies that has used the research instruments utilized in this study and some resources Arabic language related to the health care system in Saudi Arabia.

Several studies were identified, but few closely related to the study. Therefore, the final number of included studies is 80 studies. The following section will give the reader a broad view about the background of the study, starting with work related stress, job performance, workload and stress, OR nurses in Saudi Arabia, then those studies that resulted from the identified search strategy discussed thoroughly.

## 5. RESULTS

Socio-Demographic data Table (5) below shows frequency and present for all socio-demographic data in different groups.

Variable		Frequency	Present
Gender	Female	114	92
	Male	10	8
	Total	124	100
Age	20-25	7	5,6
	26-30	57	46
	31-35	31	25
	36-40	7	5,6
	41-45	10	8,1
	46-50	8	6,5
	51-55	2	1,6
	56-60	2	1,6
	Total	124	100.0
Marital Status	Single	53	42.7
	Married	65	52.4
	Divorced	4	3.2



**International Journal of Novel Research in Healthcare and Nursing**

 Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

	Separated	2	1.6
	Total	124	100.0
Education	Diploma	30	24.2
	Bachelor	75	60.5
	Master level	16	12.9
	Master graduate	3	2.4
	Total	124	100.0
Nationality	Saudi	54	43.5
	Philipino	42	33.9
	Indian	21	16.9
	Malysian	3	2.4
	Others	4	3.2
	Total	124	100.0
Years of Experience	3m-11m	15	12.1
	1yr-2yr	3	2.4
	3yr-4yr	30	24.2
	5yr-6yr	16	12.9
	7yr-8yr	17	13.7
	9yr-10yr	20	16.1
	11yr and above	23	18.5
	Total	124	100.0
Specialty	GS	62	50
	Cardiac	18	14.5
	Plastic	6	4.8
	Ortho	10	8.1
	Gyne	14	11.3
	Peads	6	4.8
	ENT	4	3.2
	Optha	4	3.2
	Total	124	100.0
Work Load	8hr	32	25.8
	10hr	28	22.6
	12hr	64	51.6
	Total	124	100.0
Work load shift	Day shift	55	44.4
	All above (day, late-night shift)	69	55.6
	Total	124	100.0
Training course	Yes	80	64.5
	No	44	35.5
	Total	124	100.0

**Work related Stress among Scrub Nurses**

Answer for first objective identify the WRS among scrub nurses in the OR of selected governmental hospitals in southern region of Saudi Arabia. The score of the questionnaire for the entire research sample was account of (124) scrub nurses. The researcher calculated means and SD for every statement (depression, anxiety, and stress). Then Ascending Order, it was per the means as shown in table (6). please see table below for more information.

International Journal of Novel Research in Healthcare and Nursing

Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

Table (6) Means and SD the stress of scrub in the OR of selected governmental hospitals in southern region of Saudi Arabia

Statement	Order	N	Mean	SD	Level
Depression	Second	124	1.008	.558	High
Anxiety	Third	124	0.971	.792	High
<b>Stress</b>	<b>First</b>	<b>124</b>	<b>1.403</b>	<b>.926</b>	<b>High</b>

Scrub nurses' Job performance

The answer of the second Objective, describe the scrub nurses job Performance in the Operating Room of Selected Governmental Hospitals in Southern Region of Saudi Arabia. The score of the questionnaire to the entire research sample was account of (124) Nurses. The researcher calculated means and SD for every statement (managerial task and responsibility, skills, environment, ethical and total degree of job performance). Then Ascending Order per the means table (7). please see table below for more information.

Table (7) Means and SD of the job Performance of scrub nurses in the OR of selected governmental hospitals in southern region of Saudi Arabia.

Statement	Order	N	Mean	SD	Level
Managerial Task And Responsibility	Third	124	4.2327	.78658	Good
Skills	Second	124	4.3153	.78844	Very .good
Environment	First	124	4.3000	.82146	Very .good
Ethical	Forth	124	1.3347	.91891	Good
Total Degree Of Job Performance	—	124	3.5457	<b>.59232</b>	<b>Good</b>

Work related Stress and Scrub Nurses' Job performance

For answer the third Objective, identify the relationship between work related stress and job performance among scrub nurses in the OR of Selected Governmental Hospitals in Southern Region of Saudi Arabia. The score of the questionnaire to the entire research sample was account of (124) Nurses. It was calculated Pearson Correlation between every statement of stress (managerial task and responsibility, skills, environment, ethical and total degree of job performance) please see table (8) below for more information.

Table (8) Pearson correlation between every statement of stress scale and the job performance among scrub nurses in the OR of selected governmental hospitals in southern region of Saudi Arabia

Statement		Anxiety	Stress	Depression
Anxiety	Pearson Correlation			
	Sig. (2-Tailed)	1	—	—
	N			
Stress	Pearson Correlation	<b>.332**</b>		
	Sig. (2-Tailed)	.000	1	—
	N	124		
Depression	Pearson Correlation	<b>.722**</b>	<b>.299**</b>	
	Sig. (2-Tailed)	.000	.000	1
	N	124	124	
Degree Of Job Performance	Pearson Correlation	<b>.303*</b>	<b>.203*</b>	<b>.037</b>
	Sig. (2-Tailed)	<b>.976</b>	<b>.024</b>	<b>.680</b>
	N	124	124	124

\*\* Correlation is significant at the 0.01 level (2-tailed).

\* Correlation is significant at the 0.05 level (2-tailed).

The table (8) shows the Pearson Correlations between WRS and JP among scrub nurses in the Operating Room of Selected Governmental Hospitals in Southern Region of Saudi Arabia. The correlation between stress and Anxiety with job performance for the whole sample was positive significant ( $r = .303$   $p < .05$ ), ( $r = .203$   $p < .05$ ), the correlations between depression and Job Performance non-significant ( $r = .037 > p$ , .05). Which means when WRS is high job performance will be low and vice versa.

The study showed high stress levels among scrub nurses in OR. All nurses in this study ranked the level of stress, anxiety and depression as high one scale of four different levels (low, medium, moderate, and high). This might suggest that almost all the nurses in the OR recognized the OR as a stressful workplace and environment.

The level of stress for the OR nurses in this study was very high and many of the nurses ranked a feeling of panic, fear without reason, feeling touchy as the most stressful items from their perspective. This finding can be interpreted to be related to a number of reasons in the OR that may increase the level of stress in the OR. Studies suggested that there are many reasons to intensified stress in the OR, some of these reasons include complex surgeries and procedures, work overload, a high number of critically ill and dependent patients, a highly sophisticated technological environment(32). According to the Mc Grath theory (1997) of work related stress a person might experience a high level of stress where the environmental condition is unsupportive or over demanding therefore overcoming the persons' capabilities, and as a consequence the person may feel fearful from unexpected situations. This theory could be related to this study because nurses working in the OR have many demanding responsibilities and tasks. In addition, scrub nurses need to be fully aware and conscious about the operation environment during the surgery.

This study suggests that the participants ranked feeling panic as high. This finding might be explained as related to high levels of stress among OR scrub nurses as it is related to the frequent change in the patients' condition from mild surgery into complex ones, or from one patient to another who have had major surgery or some patients may die or transfer to ICU and need close observation. Additionally, the long working hours in the OR might increase the level of stress and prolonged standing, awkward posture during surgeries and carrying heavy OR instruments and also transferring patient to OR table and so on (31). The findings supported by Arnold and Feldman (1986), suggest that stress is different from person to person depending on their reactions to changing situations as in some cases a simple procedure can turn into a very complicated one like shock or life threatening(33). Williams and Huber (1986) support that stress might be increased when stressful events or condition last for an extended time and the person perceives this environment as extremely stressful. Another explanation is that it might be that the tasks in the OR exceed the nurse's capabilities and most of them are overwhelmed by the over demanding responsibilities(34). This is supported by French, Kast and Rosenzweig, (1985) who emphasize that stress is neither negative nor positive on a person when it continuously causes pressure to achieve their goals, but when the responsibilities or tasks were too many the individual felt that these tasks exceeded his/ her capabilities and may also cause burnout or rust out(35).

The study of Strategies for Enhancing Perioperative Safety: Promoting Joy and Meaning in the Workforce mentioned that the perioperative area may be the most challenging work environment in which to establish meaningful cultural norms because of patient acuity, the high-stress environment, the high number of patients, and the isolation and culture of the OR, but it may also be the clinical setting most in need of change (36).

It is also stated that WRS experienced by OR staff members is one of the major challenges to be overridden to keep teamwork and respectable patient care (37). Scrub nurses experienced stress because of difficulties; uncertainty and changes when organizing work during emergency situations; in conflict situations because of inadequate current data, lack of time; and medical dominion. They pointed out the importance of patient safety, fair division of work and compliance with rules when controlling work-related stress in the surgery (38).

A large number of patients are seen in the OR of the hospital from morning till late in the evening with a variety of complaints. These patients belong to diverse economic and demographic variables. This poses a challenge for nursing staff to interact with patients and meet their needs at the same time. On a daily bases scrub nurses are faced with overwhelmed suffering, grief, and death as few other people do (11) (39). Many responsibilities are repetitive and unsatisfactory. Many are, by normal standards, offensive, others are often humiliating, and some are simply terrifying (11). Considering the fact that the job of scrub nurses is quite challenging and stressful, they are more prone to be burned out (11).

This indicates that scrub nurses may have recently been experiencing a few of the characteristics displayed by high scorers on the stress scale including feeling: unable to relax, touchy, easily upset, irritable, easily startled, nervy, jumpy, restless intolerant of interruption or delay. The results indicate that their stress levels are currently at a high level. It is suggested that participants need to continue to monitor their stress levels and identify ways to reduce this negative emotional state. If they begin experiencing these emotions frequently and strongly or if they feel that they need help then they should always seek the advice of a medical professional. The result was different to other studies where it shows that an increase in the stress level to a certain level can increase productivity by letting employees stay focused (40).

#### **The relationship between scrub nurses' JP and WRS.**

Here the researcher intended to shed light on an important issue for hospitals today concerning scrub nurse's performance in OR and its relation to WRS. In this section the researcher discusses two aspects, the first aspect is scrub nurses rating their job performance and the second is the relationship between scrub nurses performance and WRS. Scrub Nurses working in AFHSR, Saudi Arabia rated their job performance as very good. However, some aspects of performance are lacking such as ethical, managerial tasks and the ability to improve work methods need motivation were rated as good.

The result in this study showed a strong relationship between WRS and JP in OR. And per subscales of JP the highest level was related to environment, skill and procedures, and, the lowest level were managerial task and ethical items. Therefore, we can gather that environment, skill and procedures are the most important aspects in the nursing filed. For instance, they include holistic individualized care, synthesize and assess data than implement accordingly through use of critical thinking, regular checking for tasks to be done, and psychological self-management. On the other hand, AFHSR created a program for regular checking and development for each staff member in hospital.

The lack of literature available reinforced the need for the present study that indicates that scrub nurses are one of the highest stressful professions and because of the lack of consistency of findings regarding the impact of job stress on job performance. The data demonstrates strong support for the hypothesis that there is an inverse relationship between job stress and job performance (41).

Many studies about environment in nursing care found that prolonged exposure to stressful environments can lead to high levels of stress which is described as a state of physical and emotional depletion (42). High levels of stress among nurses has been reported to be higher than other health professionals owing to the nature of their work and as the problem extended the trend of research focused on burnout in nursing and its consequences in the health sector (43).

On a daily basis scrub nurses need to learn increased skills & procedures in OR and this requires highly-qualified individuals in order to accommodate the job requirements to work in the OR. Therefore, scrub nurses are under a high level of stress during the day. As many studies about WRS have determined the speed of practice for skills and procedures required from scrub nurses in the OR is constant and provokes stress (39).

There are also other studies where the results demonstrate that the highest negative impact on nurses is related to their exposure to traumatic events in practice and the everyday time pressures (44). Given that the scrub nurse who generally works directly in the operating room the reported stressors were associated with OR management rather than routine nursing care (39). In the results of this study scrub nurses rated their performance lowest in managerial tasks and ethical aspects, where multi tasking of managerial tasks most likely evoked stress in a direct or indirect manner(30).

In another study, it concluded that, WRS related to staff issues like poor staff management, resource inadequacy and security risks are most important in defining stress and job fulfillment among scrub nurses and possibly other health professionals(45) (1). Stress clearly impacts mental health and wellbeing of scrub nurses, which most likely compromises efficiency, performance and the quality of patient care(46) (36) (45).

In the results of this study the lowest self-performance evaluation items were 4th ethical than 3rd managerial task and responsibilities and it would seem that they have less affect than environment, skills and procedures. In one study of the impact of stress on employees Job Performance the results were significant with negative correlation between job stress and job performances and showed that job stress significantly reduces the performance of an individual(47)

The fact that these two aspects of performance received the lowest self-rating shows that perhaps: lack of incentive at work, work overload, lack of motivation for personal development and creativity evoke stress among nurses, in this study. It more likely reflects the limited opportunity available for improving nursing skills and competencies, and lack of a professional climate that stimulates ambition among nurses(48).

#### **And for Missing and cleaning of data**

Before analysis, data were screened for outliers missing data for incongruent values were found after randomly checking data. The researcher found no missing data in all questionnaires. Then, the variable values evaluated by histogram to assess the skewness level, and to ensure the normal distribution for the study values.

The total mean scores for each scale (DASS21, Job performance scale) were calculated for participants. Descriptive statistics (mean, median, standard deviation, and range) used to describe and summarize the contentious variables. Frequency or percentage statistics used to describe and summarize the nominal variables (gender, nationality and marital status and OR related training courses

#### ***Lessons and limitations:***

The first limitation of this study is that it was conducted in one sector AFHSR from many sectors in KSA. Conducting the study in only one context make its findings specific to this setting and consequently, the results of the current study cannot be generalized for all hospital setting in the kingdom.

Also, This study was conducted in one type of hospitals through a convenience sample. Conducting this study at a national level and recruiting many hospital and random sampling techniques will yield more representative sample and enhance the generalizability of the finding. Coverage of majority of the OR nurses diversified areas in southern region AFHSR is putting limitations due to distances and large numbers.

In spite of its limitations, the study has certain strengths that increase confidence in its results. First, this study contributes basic knowledge to Literture on relationship between scrub nurse's perceptions for WRS and job performance at the health care organization at KSA, and the finding of this study may be used by nurse administrators, researchers, clinical nurses and educators.

In this study Respondents intended to Share their prevised feeling through self-rated scale of level WRS and job performance and this can create limitation due to work loads and hesitancy were putting boundaries. So that Participates' own perspective and their lived experiences in the OR were not examine, for that it is suggested to conducted qualitative study to get deeper understanding about the WRS from scrub nurses own perceptions.

#### **Recommendation in Nursing Practice:**

It is important to develop such an atmosphere where scrub nurses are well managed their WRS to improve their job performance. In this way, scrub nurses will be in a position to utilise their full potential in their job. From the results of the study, it is recommended that in order of reducing stress in OR to involve higher authority and policy makers in planning baseline strategies for creating a better atmosphere of supportive culture within the working site. Also to include these strategies in their hospital polices and procedures. This study suggests having a base knowledge in OR to plan to reduce WRS.

#### **Recommendation in Nursing Education:**

It is recommended to plan for a training program to improve job performance and reduce stress among scrub nurses in OR. Also, would increase the quality of patient care as expected result to be. The stress perceived by nurses during their work in the OR had an important impact on their quality of care, job satisfaction, and their psychological well-being (Jamal 2014). Improve supportive culture among healthcare workers through continuous education and training for WRS management. Also, it is recommended to increase the awareness among scrub nurses about job stressors, work behaviour and work life balance concepts across various hospitals put some margin for more queries on the similar issues.

The finding of the study has important implications for education where it deemed significant to all nurses working in OR as part of education, training, interns and students who can be who can be taught in classes on managing their stress. It was also useful for nurse managers in OR when planning to hire new graduate nurses in OR. This study offered necessary data for Saudi nurses working in OR; this data can be used by nurses to increase their understanding the relationship between WRS and job performance. Also, a nursing educator can play an important role in spreading the awareness of WRS, and its management among nurses especially scrub nurses, and it can involve types job stressors, work behavior and work life balance concepts across various hospitals and put some margin for more queries on the similar issues.

#### **Recommendation in Nursing Research:**

Replication of this study in different settings and other healthcare professionals will be benefit able to have a better job performance and less stressed employees.

Supporting research, collecting data for health care facilities that demonstrate the effectiveness of a positive WRS management through demonstrating high-quality health care in many health facilities.

Further studies to explore the obstacles and factors during applying WRS management strategies in a hospital setting. There were prompt needs to identify pathways to improve the quality of nursing care and eliminate the sources of stress among nurses to enhance the quality of nursing care and patients' health outcomes. Based on the findings of this study, the researcher proposes the following recommendations : Using qualitative study would give in-depth information more than quantitative study, Using larger sample size would represent higher reliable result, Using a different type of hospital would be better for generalisation purpose.

The interaction between organisational factors and the characteristics of individual workers play a significant role in WRS. Because of many reasons like different working conditions, education, social status and the autonomy of nurses in a different culture, which can be assumed causing WRS.

Therefore, because of the serious need, it is recommended to examine work-related stress among scrub nurses in different countries, and the findings of such studies must be interpreted from the perspective of the socio-cultural surroundings in which they are conducted. It was recommended in one of the studies listening to music during operation help reduce the level of WRS(MacClelland, 1979).

#### **Recommendation in Nursing Administration**

The finding of this study provides baseline information about association of WRS and job performance in OR to the policymakers and leaders. Leader and manager of OR might use this findings to plan strategies and policies to overcome the WRS level in the OR and improve the nurses satisfaction in the work and also to improve job performance level. Administrators and managers in health care sector might take into consideration the OR nurses' level of stress and manage it to enhance the organisational productivity and effectiveness. Administrators can help to reduce the source of stress in hospital environment and facilitate more positive, supportive and healthy environment.

#### **Note**

**No fund was received for this study also no competing interests.**

### **6. CONCLUSION**

From literature review of this study, we can conclude that there is room for further work in this area to identify formally the important of understanding WRS and its effect on JP in health care sector, especially on nursing. And critical areas where stress is higher as shown by many studies it becomes essential to take Sept further to manage and reduce stress. In OR stress is obvious where in this study researcher put more effort to investigate more in scrub nurses. It found out that WRS among scrub nurses in OR is significantly high. However, there JP level was good in total, and most of the participant ranked the highest in the environmental area even though OR considered to be a complex environment with high technology and sophisticated equipment. The result of the study views the association between WRS and JP among scrub nurse. Which explained as the less of stress, the better the performance and visa verse. Perhaps the strong positive correlation between WRS and socio-demographic variables such as age, years of experiences, nationality indicated the need for conducting more studies to get more information to manage WRS in OR setting among nurses.



### REFERENCES

- [1] Moustaka Å, Constantinidis TC. Sources and effects of Work-related stress in nursing. *Health Science Journal*. 2010;4(4).
- [2] Mimura C, Griffiths P. The effectiveness of current approaches to workplace stress management in the nursing profession: an evidence based literature review. *Occupational and environmental medicine*. 2003;60(1):10-5.
- [3] Palmer S, Cooper C, Thomas K. A model of work stress. *Counselling at Work-Winter*. 2004.
- [4] Nabirye RC, Brown KC, Pryor ER, Maples EH. Occupational stress, job satisfaction and job performance among hospital nurses in Kampala, Uganda. *Journal of nursing management*. 2011;19(6):760-8.
- [5] Lu H, While AE, Barriball KL. Job satisfaction among nurses: a literature review. *International journal of nursing studies*. 2005;42(2):211-27.
- [6] Jennings BM. Work stress and burnout among nurses: Role of the work environment and working conditions. 2008.
- [7] Dubois C-A, D'Amour D, Pomey M-P, Girard F, Brault I. Conceptualizing performance of nursing care as a prerequisite for better measurement: a systematic and interpretive review. *BMC nursing*. 2013;12(1):7.
- [8] Dubois C-A, D'Amour D, Pomey M-P, Girard F, Brault I. Conceptualizing performance of nursing care as a prerequisite for better measurement: a systematic and interpretive review. *BMC nursing*. 2013;12(1):1.
- [9] Awaji MA, Alahmary K. Analysis of Work-related Injuries among Health Care Workers in Armed Forces Hospital Southern Region, Kingdom of Saudi Arabia. *British Journal of Medicine and Medical Research*. 2016;15(4).
- [10] Neto AS, Hemmes SN, Barbas CS, Beiderlinden M, Fernandez-Bustamante A, Futier E, et al. Association between driving pressure and development of postoperative pulmonary complications in patients undergoing mechanical ventilation for general anaesthesia: a meta-analysis of individual patient data. *The Lancet Respiratory Medicine*. 2016;4(4):272-80.
- [11] Azeem SM, Nazir NA, Zaidi ZBA, Akhtar N. Role of stress and burnout among nurses in the private hospitals. *International Journal of Academic Research in Business and Social Sciences*. 2014;4(3):420.
- [12] Alligood MR. *Nursing theorists and their work*: Elsevier Health Sciences; 2014.
- [13] Kerr R, McHugh M, McCrory M. HSE Management Standards and stress-related work outcomes. *Occupational Medicine*. 2009;59(8):574-9.
- [14] Mitchell L, Flin R. Non-technical skills of the operating theatre scrub nurse: literature review. *Journal of Advanced Nursing*. 2008;63(1):15-24.
- [15] He W, Ni S, Chen G, Jiang X, Zheng B. The composition of surgical teams in the operating room and its impact on surgical team performance in China. *Surgical endoscopy*. 2014;28(5):1473-8.
- [16] Riley R, Manias E. Foucault could have been an operating room nurse. *Journal of Advanced Nursing*. 2002;39(4):316-24.
- [17] Henry JD, Crawford JR. The short-form version of the Depression Anxiety Stress Scales (DASS-21): Construct validity and normative data in a large non-clinical sample. *British journal of clinical psychology*. 2005;44(2):227-39.
- [18] Brink PJ, Wood MJ. *Basic steps in planning nursing research: From question to proposal*: Jones & Bartlett Learning; 2001.
- [19] Polit DF, Beck CT. *Nursing research: Generating and assessing evidence for nursing practice*: Lippincott Williams & Wilkins; 2008.
- [20] Burns N, Grove SK. *Understanding nursing research: Building an evidence-based practice*: Elsevier Health Sciences; 2010.

**International Journal of Novel Research in Healthcare and Nursing**

 Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

- [21] Creswell JW, Klassen AC, Plano Clark VL, Smith KC. Best practices for mixed methods research in the health sciences. Bethesda (Maryland): National Institutes of Health. 2011:2094-103.
- [22] Hoskins A. Televising war: from Vietnam to Iraq: A&C Black; 2004.
- [23] Teddlie C, Tashakkori A. Foundations of mixed methods research. Thousand Oaks, CA: Sage; 2009.
- [24] Sørensen EE, Olsen IØ, Tewes M, Uhrenfeldt L. Perioperative nursing in public university hospitals: an ethnography. BMC nursing. 2014;13(1):45.
- [25] Jamal M. PROFESSIONAL COMMITMENT AMONG NURSES AS A MODERATOR OF JOB STRESS AND JOB PERFORMANCE: AN EMPIRICAL EXAMINATION IN THE MIDDLE EAST. Middle East Journal of Nursing. 2014;7(3).
- [26] Richardson-Tench M. The scrub nurse: basking in reflected glory. Journal of Advanced Perioperative Care. 2008;3(4).
- [27] Akasaka K, Tamura A, Otsudo T, Sawada Y, Okubo Y, Igarashi H, et al. Asymmetric trunk range of motion in college female students with low back pain. Manual Therapy. 2016;25:e158-e9.
- [28] Awases MH, Bezuidenhout MC, Roos JH. Factors affecting the performance of professional nurses in Namibia. Curationis. 2013;36(1):1-8.
- [29] Van Bogaert P, Adriaenssens J, Dilles T, Martens D, Van Rompaey B, Timmermans O. Impact of role-, job-and organizational characteristics on Nursing Unit Managers' work related stress and well-being. Journal of Advanced Nursing. 2014;70(11):2622-33.
- [30] Chaudhary I. Effects of Job Stress on Job Performance & Job Satisfaction. OF IPEM.34.
- [31] Homaid MB, Abdelmoety D, Alshareef W, Alghamdi A, Alhozali F, Alfahmi N, et al. Prevalence and risk factors of low back pain among operation room staff at a Tertiary Care Center, Makkah, Saudi Arabia: a cross-sectional study. Annals of occupational and environmental medicine. 2016;28(1):1.
- [32] Vowels A, Topp R, Berger J. Understanding stress in the operating room: a step toward improving the work environment. Kentucky nurse. 2011;60(2):5-7.
- [33] Feldman AD.  $\mathcal{F}$ -Bases and subgroup embeddings in finite solvable groups. Archiv der Mathematik. 1986;47(6):481-92.
- [34] Williams L, Podsakoff P, Huber V, editors. Leader behaviors, role stress, and satisfaction as determinants of organizational citizenship behaviors: A structural equation analysis with cross validation. A paper presented at the Annual Academy of Management Meeting, Chicago; 1986.
- [35] French WL, Kast FE, Rosenzweig JE. Understanding human behavior in organizations: Harper & Row; 1985.
- [36] Morath J, Filipp R, Cull M. Strategies for enhancing perioperative safety: promoting joy and meaning in the workforce. AORN journal. 2014;100(4):376-89.
- [37] Silén-Lipponen M, Turunen H, Tossavainen K. Collaboration in the operating room: The nurses' perspective. Journal of nursing Administration. 2002;32(1):16-9.
- [38] Aholaakko TK. Reducing surgical nurses' aseptic practice-related stress. Journal of clinical nursing. 2011;20(23-24):3339-50.
- [39] Bianchi ERF. Stress and Brazilian operating room nurses. Journal of Advanced Perioperative Care. 2008;3(3).
- [40] Lamontagne AD, Keegel T, Louie AM, Ostry A, Landsbergis PA. A systematic review of the job-stress intervention evaluation literature, 1990–2005. International journal of occupational and environmental health. 2007;13(3):268-80.
- [41] Kazmi R, Amjad S, Khan D. Occupational stress and its effect on job performance. A case study of medical house officers of district Abbottabad. J Ayub Med Coll Abbottabad. 2008;20(3):135-9.

**International Journal of Novel Research in Healthcare and Nursing**Vol. 6, Issue 2, pp: (139-155), Month: May - August 2019, Available at: [www.noveltyjournals.com](http://www.noveltyjournals.com)

- [42] Park J. Work stress and job performance. Perspectives on labour and income. 2008;20(1):7.
- [43] Al-Ahmadi H. Factors affecting performance of hospital nurses in Riyadh Region, Saudi Arabia. International Journal of Health Care Quality Assurance. 2009;22(1):40-54.
- [44] Chang HY, Nuyten DS, Sneddon JB, Hastie T, Tibshirani R, Sørli T, et al. Robustness, scalability, and integration of a wound-response gene expression signature in predicting breast cancer survival. Proceedings of the National Academy of Sciences of the United States of America. 2005;102(10):3738-43.
- [45] Khamisa N, Oldenburg B, Peltzer K, Ilic D. Work related stress, burnout, job satisfaction and general health of nurses. International journal of environmental research and public health. 2015;12(1):652-66.
- [46] Minnick AF, Donaghey B, Slagle J, Weinger MB. Operating room team members' views of workload, case difficulty, and nonroutine events. Journal for Healthcare Quality. 2012;34(3):16-24.
- [47] Bashir U, Ismail Ramay M. Impact of stress on employees job performance: A study on banking sector of Pakistan. 2010.
- [48] Ma C-C, Samuels ME, Alexander JW. Factors that influence nurses' job satisfaction. Journal of nursing Administration. 2003;33(5):293-9.