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A PREVALENCE STUDY ON WORK-RELATED STRESS AND RELATIONSHIP WITH LOW BACK PAIN (LBP) AMONG NURSING STAFF IN A TERTIARY CARE HOSPITALS OF KARACHI, SINDH.

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ABSTRACT

Introduction: Musculoskeletal health defines to the act of the locomotor system, consists intact muscles, bones, joints and face-to-face connective tissues. The most common issue among nurses is Low Back Pain, compared to other health care providers such as doctors, consultant and paramedics. The overall health of nurses including physical, mental, and social health can be affected due to occupational or job or work stress. Moreover, the increasing demands at work and higher work stress among nurses may predispose them to back ache. The higher occurrence of pain in lowerback among nursing staff is responsible for reduced productivity of workers and increased medical expenditures of both individual, their family and ultimately nurses could not able to contribute in developing nation economy. This research was intended to conclude the frequency of work-stress and their association with Low Back Pain among working nurses of Karachi. **Objective:** This research study was aimed to define prevalence of job-stress and factors associated with back ache or pain in lower back among nurses working in a tertiary care hospitals in Karachi. **Design of study:** Descriptive Cross-sectional. **Place & Duration:** Dow University hospital and Civil Hospital Karachi, from May 2019 to August 2019. **Materials and Methods:** This cross-sectional study was implemented during May-August 2019 on total sample of target population that is 324, working at tertiary care hospitals in Karachi, with minimum qualification of 3 years diploma in nursing, and had minimum 1 year of working experience. The data collection instrument consisted of a section on demographic information and Nursing Stress Scale. The analysis of data was done through SPSS 21.0, Data scrutiny involved in the use of descriptive statistics. Moreover chi-square test was used for comparative and qualitative analysis. **Results:** In this study, 59% participants were male and 75% having bachelor degree. Overall, 91 (28.1%) nurses reported that they did not have work stress while presence of high stress was found in only 4 (1.7%) nurses. low to moderate level of stress was observed in 229 (70.6%) nurses. Although low back pain was positively associated with work stress. The findings were not statistically significant ($p > 0.05$) to draw reasonable conclusions. The findings were similar for all the work stress subscales except that 12-month Low Back Pain frequency was negative correlated with conflict with physicians ($r = -.222$, $p = .008$). **Conclusion:** The frequency of low to moderate work stress was found high among health care professional (nurses) employed in two hospitals of Karachi, while there is also association found between low back pain and job-stress. However, it was not clear whether there is a connection or not between work stress and low back pain.

Keywords: Nurses, Tertiary Care Hospital, Low Back Pain, Work-Stress

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INTRODUCTION

Nursing profession is identified as a most stressful and risky profession that interact with the human aspect of well-being^{1,2}. The overall health of nurses including physical, mental, and social health can also be affected due to occupational stress¹¹. Various organizations suggest that several factors including work load, contact with death, lack of knowledge, lack of autonomy, lack of respect from patients, doctors as well as hospital administrators and interpersonal relationships, and other factors are, inadequate staffing levels, shift duties, low pay scale, lack of status, lack of resources, conflicts, and poor social support, lack of knowledge, and noise pollution significantly increase the stress level among nurses³. Throughout the world, low back pain (LBP) is the one of leading causes of functional infirmity and it remains the common type of musculoskeletal disorders⁴. It is the main reason of disability in both males and females, and after respiratory infections, it is the second common cause

for hospital visits⁵. It is also known as the third common reason of medical procedures, and the fifth leading reason for hospitalization⁶. Low back pain also the main economic, social, clinical and public health issue⁷. Each year, billions of dollars are lost in medical expenditure due to increase in the proportion of LBP and its related disorders⁸. Evidence shows that among nurses, LBP is a most familiar health issue in comparison to the general public and other health care providers because nurses perform more patient handling activities. In the both developed and developing countries, LBP mainly influence the working people and leaving them to be restricted⁹. In addition LBP can affect the work performance as well as affects the quality of life¹. According to the Bureau of Labor Statistics of United States of America among 126 occupations, nursing professionals are at sixth position with regard to lost their functioning productive hours from job due to LBP¹. As compared to other health care professional, nursing staff face a higher exposure rate of occupational

hazards. These occupational hazards may be mechanical or psychological¹⁰. Mechanical hazards may include heavy lifting, frequent patient handling, twisting and bending, standing for long hours, prolonged sitting, which may lead to LBP among nurses¹¹. While psychological hazards refer to poor job satisfaction, low self-esteem and monotony at work; however, anger has been examined and related to occurring of LBP among nurses^{1,11}.

Pakistani nursing professionals face considerable work load and the current nurse-to-patient ratio is 1:50 in tertiary care hospitals of Pakistan. However Nursing Council (PNC) suggests that there should be one nurse for every ten patients in General Wards and two nurses for one patient for ICU and specialized units³. In comparison of normal workload, stress-related symptoms increase by approximately 1.7-2.9 times because of heavy workload among nurses^{12,13}. The increasing demands at work and higher work stress among nurses may predispose them to LBP. Furthermore, LBP reduce productivity of workers and increased medical expenditures of both individual as well as nation. Therefore, this investigation study was directed to discover the levels of stress amongst nurses working in tertiary care hospitals in Karachi.

Nurse work rate is important approximately 17% in United States due to there is increased demand for Intensive Care Unit (ICU) beds. Furthermore, 114,000 nurses are available for delivered quality of care to the population in United States by 2015. On an ICU component, nursing become shorter and they migrate because of quality care delivery can tend to more stress. National telephone survey registered 700 nurses because common reason for nursing leaving their jobs to want less stressful status¹⁴. Compared with rest of UK working population there is physical and psychological health care and

related diseases level are higher amongst health care workers¹⁵.

Health organization frequently experience stress among different component, and working conditions and employees work ability which usually found in hospitals. The most affected employees by these issues are nurse, Hospitals give highly stressful work setting to their employees as compared to others workers on their work environment. Nurses are the foundation of tertiary care hospitals. Quality care toward patients are linked when nursing staff is satisfied or happy with his/ her work¹⁶. Many big and small hospitals are set upped in relatively every small and big cities which offer the opportunity for employee in various components but at the same time could not fulfill the requirement of hospitals to give quality care services to the general population. Every day there is a large quantity of patients found in hospital from morning till late night with various illnesses. These patients belong from the different demographic background and economic status. This gives a task to nurses of institute to manage patients and fulfill patients health needs at that time¹⁷. Commonly nursing is a nerve-wracking and challenging job. It take both psychologically and physically challenges as they manage individual who are effected from major or minor health issue and critical situations¹⁷. Job performance of nurses is defined as the level of success of a nurse is completing his or her responsibilities and roles linked with nursing care and excellence of healthcare services toward the patients¹⁸. Quality healthcare depend on the support of adequate qualified health care workforce involving nurses they shape second largest working things in hospitals¹⁸. In addition to other studies among all professional group hospital workforce experience more work related health issues and the low back ache is most familiar in them¹⁹. Nursing is a highly risky

occupation for the incidence of pain at low back²⁰. In addition, the one of the most common well-being issue in nursing profession is low back pain¹. Also, in working population, the maximum level of work related back injuries were found in nursing profession. This is because of high demand of bodily work required in their job, such as lifting and moving of patients, manual handling and job related psychological stress. Other factors are distributions in nutritional status such as obesity, anemia and HIV can also cause LBP among nurses^{9, 15, 21}.

WHO defines people response work required stresses, which not match with their abilities and knowledge and they challenge greater than their ability. People with unusual work compose different types and different quantities of stress²². Some authors have demonstrated nursing as most upsetting profession, that have brought up the need of taking into account and examining work related stress among nurses, because under stressful condition performance decays by nurses²². Furthermore; study conducted in Dow University Hospital suggests severe stress levels among 61% of study participants³. Work related stress comes from in less confidence and less inspiration, poor relationships with colleagues, poor ability to communicate as well as poor decision making²³.

With regard of their work, the nurses look inspiration, such as income and information about organization, to keep up a double work journey, and able to face challenges the extrinsic and intrinsic factors that continually show²⁴.

MATERIALS AND METHODS

The Descriptive cross-sectional study was implemented on working nurses of Dow University of Hospital and Dr. Ruth KM Pfau Civil Hospital Karachi. A total 324 female nurses were participated in study. The duration of study was started from May

2019 to August 2019. Data collection took place after getting Ethical approval from Institutional Review Committee (IRC) of Dow Institute of Nursing and midwifery of Dow University of Health Sciences Karachi. Permission was taken from both head of the institutes. The proforma were anonymously administered to the participants. before administrating the questionnaires verbal consent was taken from the participants. Participants were free to refuse to participate in this study. Data were kept confidential, and anonymous. The participants were identified with special identification codes, which were made known only to the research team. following were study instruments were used during data collection. Nursing Stress Scale, was used to measure the Work-related stress, consuming 34 item, 4 point Likert scale ranging from 1 to 4 (i.e. “never” to “very frequently”). Grey Toft et al developed this scale which is divided into of 7 subscales including death and dying (7 items), conflict with physicians (5 items), inadequate preparation (3 items), lack of support (3 items), conflict with other nurses (5 items), workload (6 items), and uncertainty concerning treatment (5 items). A total score, that measures the overall frequency of stress experienced by a nurse, was calculated by adding the individual's responses to all 34 items. Total scores ranged from 34 to 136, with higher scores indicating more frequent stress. In addition, tertial rank classifications were used to classify low stress, moderate stress, and high stress³³. Founded on the tertiles of the total NSS scores, values between 61 and 73 represented low stress; values from 74 to 95 showed moderate stress and values from 96 and over was used to demonstrate high stress. Moreover, scores below 61 were grouped in the “no stress” category

STATISTICAL ANALYSIS

Data were gathered and following by assessment of raw data for wholeness and

uniformity. SPSS version 21.0 was used for breakdown. Descriptive statistics such as average, standard deviation and percentage were used. Chi-square test was employed for test of significance and comparison of qualitative variables and a $P < 0.05$ was taken as statistically significant for presence of work stress while found no relationship with Low Back Pain based on statistical analysis.

ETHICS APPROVAL:

The ethical approval for this study was sought from the review committee of the Dow Institute of Nursing and Midwifery, Karachi, Sindh, Pakistan (Letter No: Ref: ION/MSN/2019-06/-18/-342).

RESULTS

Table-1 Socio-economic and Demographic factor of Target Population (n=324).

The results of this research show that, A total 324 participants were included in study, 191 (59%) were males, 50% were each married and single, 245 (75.6%) had a bachelor's degree, and 172 (53.1%) were appointed on a regular-basis job. The average age of the target enrolled participants were 29.93 ± 6.340 years, with the weekly workload of 51.10 ± 14.151 hours.

Variable	Category	Frequency	Percentage
Gender	Male	191	59.0
	Female	133	41.0
Marital Status	Single	162	50.0
	Married	162	50.0
Educational level	Diploma	74	22.8
	Bachelors	245	75.6
	MSN	4	1.2
	MPH	1	0.3
Specialty	Anesthesia	1	0.3
	Bone marrow transplant	2	0.6
	Cath Lab	2	0.6
	CCU	45	13.9
	Emergency	71	21.9
	Gastro	8	2.5
	General	2	0.6
	Gynecology	29	9.0
	ICU	53	16.4
	Medicine	71	21.9
	Pediatrics	22	6.8
	Surgery	18	5.6
Job nature	Regular	172	53.1
	Contract	151	46.6
Age (years)	18-56	29.93	6.340
Monthly income (PKR)	13000-200000	54101.85	20791.285
Weekly workload (hours)	32-72	51.10	14.151

Table 2 : Work stress scale in study participants (n=324).

Overall, 91 (28.1%) nurses reported that they did not have work stress and presence of high stress was reported by only 4 (1.7%) nurses. Low to moderate level of stress was observed in 229 (70.6%) nurses

Subscale	Min-Max	Mean	SD
Death and dying	8 – 23 (28)	14.21	3.019
Conflict with physicians	5 – 17 (20)	9.85	2.700
Inadequate preparation	3 – 12 (12)	6.24	1.670
Lack of support	3 – 11 (12)	5.98	1.880
Conflict with other nurses	5 – 18 (20)	10.41	2.778
Workload	6 – 19 (24)	12.31	2.716
Uncertainty concerning treatment	5 – 16 (20)	10.10	2.544
Total Stress Scale	43 – 99	69.10	12.543
No stress	Below 61	91	28.1
Low stress	61-73	121	37.3
Moderate stress	74-95	108	33.3
High stress	96 and above	4	1.2

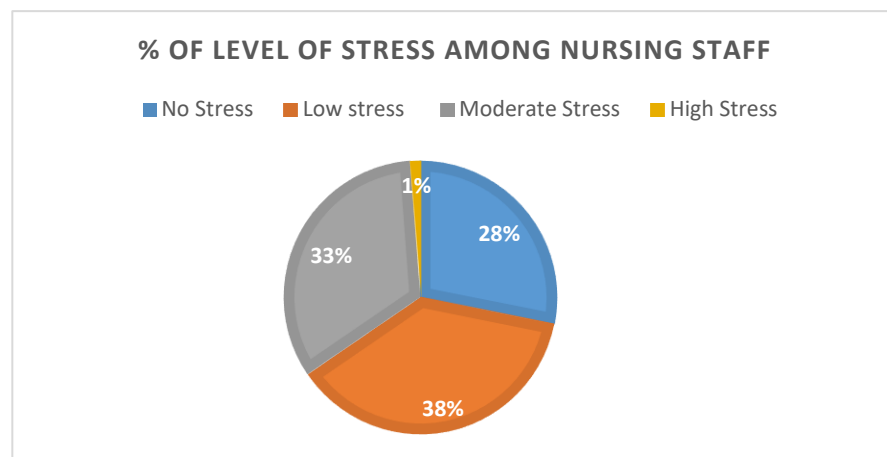


Table:3 Demonstrates the relationship of low back pain with work stress among nurses
Although Low Back Pain was positively associated with work stress, the result of findings were

	Work stress	Death and Dying	Conflict with physicians	Inadequate preparation	Lack of support	Conflict with nurses	Workload	Uncertainty for treatment
Lifetime prevalence of LBP	-.010	.069	-.008	-.047	.033	.068	-.092	-.041
P value	.859	.217	.888	.400	.559	.221	.097	.461
12-month prevalence of LBP	-.114	-.079	-.222**	-.110	-.031	-.098	-.123	.063
P value	.179	.351	.008	.193	.713	.250	.145	.457
1-week prevalence of LBP	.097	.020	.108	.025	-.014	.164	.057	.032
P value	.333	.841	.283	.805	.890	.102	.571	.751

not statistically significant ($p>0.05$) to draw reasonable conclusions. The findings were similar for all the work stress subscales except that 12-month low back pain frequency was negative correlated with conflict with physicians ($r=-.222$, $p=.008$).

Table:4 Gender based prevalence of low back pain and work stress.

shows the difference for the frequency of low back pain and work stress across the genders. Overall, there was a statistical significance difference for lifetime frequency of low back pain ($p=0.001$) and pain intensity for low back pain ($p=0.019$) across gender.

Variable	Total	Male	Female	<i>p</i> value
Lifetime prevalence of LBP				
No	183	122	61	0.001
Yes	141	69	72	
Total	324	191	133	
12-months prevalence of LBP				
0 days	40	19	21	0.105
1-7 days	80	45	35	
8-30 days	10	3	7	
>30 days	9	2	7	
Everyday	2	0	2	
Total	141	69	72	
1-week prevalence of LBP				
No	48	26	22	0.365
Yes	52	23	29	
Total	101	50	51	
Pain intensity for low back pain				
Mild pain	78	44	34	0.019
Moderate pain	56	23	33	
Severe pain	5	0	5	
Total	139	67	72	
Work stress				
Low stress	121	83	38	0.310
Moderate stress	108	70	38	
High stress	4	4	0	
Total	233	157	76	

DISCUSSION

The purpose of the current study was to determine the frequency of work stress and their association with each other among nurses working at tertiary care hospitals in Karachi. A striking finding was that 57.4%

of nurses never visited a health care professional regarding the treatment of low back pain. Low to moderate level of stress was present in 70.6% nurses. Also, presence of low back pain for 12 months was positively correlated with conflict with physicians. Low back pain is growing public

health issue and has been studied in different countries of the world.

This study found that 71.8% nurses had the overall nursing stress scale scores over 61 and the mean score of 69.10. A study from Spain found similar results, particularly for the death and dying subscale²⁵. Another study conducted in Grand Valley State University had similar findings²⁶. Study of Iran confirmed that 93.1% nursing professionals have work stress which was higher to the findings of this study²⁷. Studies of Pakistan carried out in Peshawar and Karachi showed that 81% and 61.5% nurses have work stress, respectively^{3,28}. Another study conducted in tertiary care hospital of Pakistan reported that highest level of work stress occur from work load¹⁴ and lowest from the inadequate preparation (7.69)²⁹. The findings could be due to the methodological differences and variations in the participant characteristics. This study did not find out any significant relationship between work stress and LBP, with only one exception in the conflict with physician scale ($r=0.222$, $p=.008$). Previous studies are suggestive of an association of low back pain with work stress^{30,31}. However, they have used different data collection instruments and methodologies. Thus, further studies about this issue are needed.

The sample size of the current study was comparable to the studies conducted earlier. However, the study participants were recruited from only one city and through a non-randomized sampling approach. Nevertheless, this study is a multicenter study covering a large sample of nurses of either gender. To the best of possible knowledge, it is one the first study which determines the prevalence of work stress and their association among nurses in Karachi. One of the study was conducted in Portugal (Europe) on stress among nurses who are working in Intensive care unit (ICU) of tertiary care Hospitals, in study they ask

questions from 21 nurses who were working in different hospital and found that 57.1% of nurses having stress working in ICU and 23.8% have gotten high score indicating the presence of stress. As per my study result

I got less number of high stressed nurses it is due to my target population was ICU and Non-ICU³². Another study was conducted on sources of occupational stress among nurses in five (05) countries and concluded on following results based on emic and etic experience of occupational stress and found that all sources of job stress related given in etic and and emic are present and other reasons found in UK and hungarian nurses that is low salary and lack of resources other three countries (US, Italy & Israel) does not present that factor causing stress. Finding of this study does not match with my study as author here applied eti and emic experience while I had used the nursing stress scale.³³ Furthermore one more study was conducted in china on job stress among nurses in china and found somewhat similar results to my study, for study ninety two participants were recruited and found that relatively high level of stress with working environment and resources and workload and time were recognized as the major stressor in this study.³⁴

A-Five years of study was conducted in Thailand among nurses in public and private hospital to discover sources of professional stresses, coping strategies and job-satisfaction and concluded on following results that there is significant increases in nurses workload, attached with life and death event and pressure being essential to perform tasks outside of their competency and other finding that nurses who are working in public sector having more stress than private hospital and more satisfaction in public university as compared to private hospital due to organizational support, monetary benefits and compensation.³⁵

LIMITATIONS

The study was centered on self-reported data and hence Individual in nature. another limitation is that the study was of non-randomized control and a causal connection cannot established.

CONCLUSION

The frequency of low to moderate work stress was found high among nurses working in tertiary care hospitals while there is also insignificant association Low Back pain is presence with job-stress in Karachi. However, it was not clear whether there is a relationship or not between work stress and low back pain.

This Study proved that work-stress present in nurses who are serving in hospitals and are suffer It is recommended that future studies should include large scale sample size from diverse settings. Nurses should be encouraged to have proper posture, ergonomics and biomechanical techniques at their work place. Nurse training programs that cover all above said criteria should be run to maximize improvement in work related techniques and minimize work stress. During their job in life time, they should care their physical, Psychological health.

Ethics approval: The ERC gave ethical review approval

Consent to participate: written and verbal consent was taken from subjects and next of kin

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responsibility of this manuscript. All authors read and approved the final manuscript.

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