



## **Sources and Perceived Effects of Work-Related Stress among Nurses Working in Acute Care Units of University of Nigeria Teaching Hospital, Enugu - Nigeria**

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### **Authors' contributions**

*This work was carried out in collaboration between all authors. Authors JAI and UAE designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors HO and OC managed the analyses of the study. Author CIE managed the literature searches. All authors read and approved the final manuscript.*

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### **ABSTRACT**

**Introduction:** Nursing is a highly stressful occupation especially for those working in the acute care unit. The aim of this study was to examine the sources and perceived effects of work-related stress among nurses working in acute care units of University of Nigeria Teaching Hospital, Enugu-Nigeria.

**Methodology:** This study utilized a descriptive cross-sectional design. The sample population encompassed 80 nurses working in acute care units (General intensive care unit, newborn intensive care unit, accident and emergency and children emergency room) of the hospital. Researcher constructed questionnaire was used as the research instrument.

**Results:** Result of the study showed that 40% of the respondents identified excessive workload as a source of stress, 35% stated caring with death and dying, 10% identified conflict with physicians

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while 11% choose inadequate preparation in cases of emergency. The most significant perceived effect of stress on physical health was identified as back pain 68.8%, headache 55%, and fatigue 28.7%. The most significant effect of stress on psychological health was 13.8% and 61.3% perceived physical exhaustion as the effect of stress on work behavior and 13% excessive sleeping.

**Conclusion:** It is widely accepted that nurses working in acute care settings are exposed to various stress sources from physical, psychological and social working environment.

*Keywords:* Work-related; stress; nurses; acute care units.

## 1. INTRODUCTION

Nurses play a pivotal role in any healthcare institution and encompass the largest workforce in any healthcare institution. Nurses act directly as caregivers who serve the hospital for twenty-four hours a day. This gives nurses the unique perspective on both patient care and hospital operations [1]. Nurses' job is physically tasking and in addition, nurses deal with human suffering daily. According to United States National Institute for Occupational Safety and Health, work-related stress is the harmful physical and emotional response that occurs when employee's health, skills, resources and need could not fulfill the requirement of the job. Work-related stress is the second most prevalent work-related health problems after a backache and musculoskeletal diseases affecting 22% of workers in 27 European countries [2]. According to the world health organization, approximately 90% of the world population is affected by work-related stress which makes it a global epidemic. In the nursing profession, it has been a global problem with rates of 9.20 - 68.0% [3].

In Nigeria over 20% of the respondents in a study on work-related stress perception among health workers of a mission hospital in southwestern Nigeria perceived themselves as stressed at work [4]. The acute care units are backgrounds of extremely stressful situations that result from regular expectation of emergencies, high technological complexities, and concentration on severely injured patients subject to sudden changes in their health status, thus this work environment is characterized as stressful and the basis of emotionally risky scenario both for the professionals and for the patients and their family members [5]. Therefore nursing professionals who work in such units are expected to have the accurate scientific knowledge to be aware of technological and technical changes and to be specialized.

The common sources of stress at work is identified including shift work, long working

hours, lack of control and conflicting demands, bad relations with colleagues, low pay, and poor working environments [6,7]. Stress can manifest physically, emotionally, cognitively and as a behavioral change. The most common negative consequences include; physical injuries, headaches, back pain, inability to concentrate, poor judgment, irritability, use of drugs and cigarette, absenteeism, increased number of accidents and inability to organize [7]. A growing body of evidence supports the assertion that workplace stress plays an important role in several types of chronic health problems, in particular, cardiovascular disease, diabetes and chronic low back pain [8]. The effect of work-related stress is considered to be devastating to both employees and the employers. For the organization, therefore, the results are disorganization, disruption in normal operation and decrease productivity [9]. On the basis of these, it is important that every occurrence of work-related stress be properly investigated and this prompted the researcher to examined the sources and perceived effects of work-related stress among nurses working in acute care units of University of Nigeria Teaching Hospital, Enugu-Nigeria.

### 1.1 Objectives of the Study Are

To identify sources of work-related stress, to explore the perceived effect of work-related stress on the physical health of nurses, to determine the perceived effect of work-related stress on the psychological health of nurses and determine the perceived effect of work-related stress on personal and work behavior of nurses working in acute care units.

## 2. METHODS

### 2.1 Research Design

This study utilized a descriptive cross-sectional design.

## 2.2 Research Setting

This study was conducted at the acute care units of University of Nigeria Teaching Hospital, Enugu- Nigeria.

## 2.3 Population of Study

The population of the study include all professional nurses who are directly involved in the patients care in general intensive care unit, Newborn intensive care unit, accident and emergency unit and children emergency unit in UNTH, Enugu. The total number of nurses in these units is 90.

## 2.4 Sample Size

The total population was used for the study utilizing inclusion criteria of willingness to participate and those working in acute care units of the hospital.

## 2.5 Instrument for Data Collection

The instrument used for data collection was researcher constructed questionnaire. The questionnaire was constructed in line with the reviewed literature and objectives of the study.

## 2.6 Ethical Consideration

Permission to conduct the project was granted by Research and Ethical Committee of University of Nigeria Teaching Hospital Enugu- Nigeria.

## 2.7 Procedure for Data Collection

Three research assistants which comprises of two nursing officers and one matron, were recruited and trained to facilitate the collection of data. A total of 90 questionnaires were distributed by hand through Matrons in each of the unit. Matrons were briefed beforehand about the requirements to be adhered to while answering the questionnaire by the respondents. Respondents were given thirty minutes to one hour to complete the questionnaire. Completed questionnaires were collected immediately from the respondents by the researcher. Data collection lasted for 10 days.

## 2.8 Data Analysis

Data was analyzed by means of IBM statistics version 23. Variables were numerically computed and the frequencies, percentages and mean score computed. A Demographic and baseline

variable was analyzed using frequency and percentages.

## 3. RESULTS

Table 1 showed that 37.5% of respondents were between 30-39 years, 17.5% were males. Majority 96.3% were Christians. Majority 41.3% of nurses have highest professional education of RN/RM/BNSc. Also, respondents working in ICU were 26.3%, and CHER 25%, and majority of respondents 48.8% were in marital union.

Table 2 showed that 50% of the nurses were experiencing severe stress due to excessive workload with mean scores of  $3.43 \pm 65$ . Regarding exposure to caring for the death and dying in acute care unit, 38.8% of the nurses were suffering from moderate stress with mean scores of  $22.1 \pm 94$ . Also, 52% of respondents experienced moderate stress as a result of conflict with physicians with mean scores of  $2.69 \pm 90$ .

Table 3 showed that more than half of the respondents (55%) reported experiencing frequent headache as a result of work stress while 43.8% reported having headache occasionally. Majority (68.8%) of the respondents experienced back pain frequently while 26.3% experience it occasionally. Fatigue was also reported as a perceived effect of work stress on physical health with 28.7% and 48.8% experiencing fatigue frequently and occasionally respectively. Cramps and weight loss were equally significantly reported by the greater proportion of the respondents with 28% and 40% experiencing cramps frequently and occasionally while 18.8% and 55% reported losing weight frequently and occasionally.

Table 4 revealed that 51.2% of the nurses are confused occasionally when stressed at work. Also, 8.8% of the nurses reported constant worrying frequently while 43.8% reported worrying occasionally. A significant number of nurses 13.8% experience mood swings frequently when stressed while 43.8% experience mood swings occasionally. Also it was found that 22.5% experience increased tension occasionally.

Table 5 indicated that 13.8% and 31.8% of the nurses reported excessive sleeping as a result or work stress frequently and occasionally. Also, 12.5% respondents reported frequent lateness to work while 68.8 go late to work occasionally. 12.5% and 68.8% reported absenteeism

frequently and occasionally as perceived effect of stress on behavior. Regarding accidents at work place such as giving wrong medication to patients, 11.3% of the nurses reported frequent accidents. A significant number of nurses 61.3% reported experiencing physical exhaustion frequently while 28.7% are physically exhausted occasionally from work related stress.

#### 4. DISCUSSION

Majority of the respondents were in the age group between 20-29 years. This is in line with the study carried out by [10] which revealed that 20.3% of the respondents were between such brackets. This may be connected to the fact that many young nurses have been employed in the

health sector. Also, about 82.5% of the respondents were females. This is also in line with the study carried out by [7] which found out that 89% of the respondents were females. This is due to the fact that nursing as a profession is mostly dominated by females. Results revealed that 41% of the respondents were educated up to Bachelor of nursing science degree. This does not correspond with the findings of [11] whose report has it that 2% of the nurses had a Bachelor of Science in nursing certificate. The study also shows that majority of the respondents 37.5% have spent at least one year in their unit. This result also agrees with that of Mehta who reported that that 38% have spent up to one year in critical care areas.

**Table 1. Socio-demographic characteristics of the respondents N=80**

<b>Variable</b>	<b>Category</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Age distribution</b>	20-29	25	31.3
	30-39	30	37.5
	40-49	15	18.8
	50-59	9	11.3
	>60	1	1.3
<b>Mean age</b>	35.3 years		
<b>S.D±</b>	1.0		
<b>Sex</b>	Male	14	17.5
	Female	66	82.5
<b>Marital status</b>	Single	31	38.8
	Married	39	48.8
	Separated	5	6.3
	Widowed	3	3.8
	Cohabitation	2	2.5
<b>Highest professional qualification</b>	RN	12	15.0
	RN/RM	26	32.5
	RN, RM, BNSc.	33	41.3
	MSc Nursing	9	11.3
<b>Designation</b>	NO11	11	13.8
	NO1	21	26.3
	SNO	13	16.3
	PNO	12	15.0
	ACNO	11	13.8
	CNO	12	15.0
<b>Ward/unit</b>	ICU	21	26.3
	NICU	17	21.3
	A&E	22	27.5
	CHER	20	25.0
<b>Years of working in the unit</b>	<1	12	15.0
	1-2	30	37.5
	3-4	17	21.3
	>5	21	26.3
	<b>Extra specialization</b>	A&E	3
Acute care nursing		1	1.3
Burns and plastic		2	2.5
Cardiothoracic		1	1.3
Intensive care nursing		1	1.3

**Table 2. Sources of work related stress in acute care units**

Sources of stress in acute care units N=80	Responses				Mean	S.D
	N(%) never stressful	N(%) slightly stressful	N(%) moderately stressful	N(%) extremely stressful		
Exposure to caring for death and dying	20(25)	31(31.8)	21(26.2)	8(10)	2.21	.94
Excessive workload	1(1.2)	4(5.0)	35(43.8)	40(50)	3.43	.65
Conflict with physicians	3(3.8)	27(33.8)	42(52)	8(10)	2.69	.70
Conflict with other nurses	16(20)	41(51.2)	17(21.3)	6(7.5)	3.16	.83
Problem with supervisors	37(46)	35(45.8)	4(5)	4(5)	1.16	.79
Inadequate preparation in cases of emergency	24(30)	11(13.8)	34(42.5)	11(13.8)	2.40	1.0
Uncertainty concerning treatment	46(75)	13(16.3)	19(23.8)	2(2.5)	1.71	.92
Lack of opportunity to share experience and feelings with other personnel in the unit	48(60)	15(18.8)	13(16.3)	4(5)	1.66	.93
Limited or no equipment's to carry out procedures	16(20)	20(25)	30(37.5)	14(17.5)	2.53	1.61
Excessive noise from machines and alarms	22(27.5)	16(20)	33(41.3)	9(11.3)	2.36	1.01
Dealing with patients families	4(5)	22(27.5)	26(32.5)	28(35)	2.98	.91
Experiencing discrimination on the basis of sex and age	33(66.3)	15(18.8)	11(13.8)	1(1.3)	1.50	.78

**Table 3. Respondents perceived effects of work related stress on physical health**

Perceived effect of work related stress on physical health	Responses			Mean	S.D
	N(%) never	N(%) occasionally	N(%) frequently		
Headache	1(1.3)	35(43.8)	44(55)	2.54	.53
Back pain	4(5)	21(26.3)	55(68.8)	2.64	.57
Stomach ache	64(80)	15(18.8)	5(6.3)	1.21	.44
Weight gain	60(70)	15(18.8)	5(6.3)	1.31	.59
Weight loss	21(26.3)	44(55)	15(18.8)	1.93	.67
Fatigue	18(22.5)	30(48.8)	23(28.7)	2.06	.72
Increased Bp.	61(76.3)	14(17.5)	5(6.3)	1.30	.58
Stomach ulcers	76(95)	4(5)	0(0)	1.05	.22
Dyspnea	69(86.3)	10(12.5)	1(1.3)	1.15	.39
Palpitation	46(57.5)	31(38.8)	3(3.8)	1.46	.57
Cramps	25(31.3)	32(40)	23(28.7)	1.98	.78
Skin allergy	59(73.6)	21(26.3)	0(0)	1.26	.44

**Table 4. Items on perceived effects of work related stress on psychological health**

Perceived effect of work related stress on psychological health	Responses			Mean	S.D
	N(%) never	N(%) occasionally	N(%) frequently		
Inability to concentrate	46(57.5)	30(37.5)	4(5)	1.48	.59
Confusion	36(45)	41(51.2)	3(3.8)	1.59	.58
problem with decision making	61(76.2)	17(21.3)	2(2.5)	1.26	.49
Memory problems	68(89.3)	10(12.5)	1(1.3)	1.15	.39
Constant worrying	38(47.5)	35(43.8)	7(8.8)	1.61	.64
Depression	57(71.3)	21(26.3)	2(2.2)	1.31	.51
General unhappiness	44(55)	30(37.5)	6(7.5)	1.53	.64
Mood swings	34(42.5)	35(48.7)	11(13.8)	1.71	.69
Anxiety	49(61.3)	25(31.3)	6(7.5)	1.46	.64
Increased tension	55(68.8)	16(22.5)	7(8.8)	1.40	.68
Withdrawal	69(83.5)	13(16.3)	0(0)	1.16	.37

**Table 5. Perceived effects of work related stress on personal and work behavior**

Perceived effects of work related stress on personal and work	Responses			Mean	S.D
	N(%) never	N(%) occasionally	N(%) frequently		
Excessive sleeping	44(55)	25(31.3)	11(13.8)	1.58	.72
Insomnia	43(53.8)	33(41.3)	4(5)	1.51	.59
Over eating	55(68.8)	19(28.8)	6(7.5)	1.39	.63
Anorexia	52(65)	21(26.1)	7(8.8)	1.44	.65
Isolation	61(76.3)	18(22.5)	9(9.8)	1.23	.42
Lateness to work	15(18.5)	55(68.8)	10(12.5)	1.94	.59
Absenteeism	15(18.5)	55(68.8)	10(12.5)	1.94	.56
Physical exhaustion	8(10)	23(28.70)	49(61.3)	2.51	.68
Accidents at work place e.g. giving wrong medication to patients	63(78.8)	63(78.8)	9(11.3)	1.33	.67
Over dependent on supervisors	63(78.8)	16(20)	1(1.3)	1.23	.65

The result of the study showed that the most identified source of stress among nurses in acute care is excessive workload with mean score of 3.43. The excessive workload was reported due

to shortage of staff. This is in agreement with a study done in Nepal by Mehta and Chaudhary with a mean score of 3.9 stress reported due to excessive workload, the factors

that gave rise to excessive workload were inadequate staff to cover the duties. This also agrees with the study carried out by [12] among Iranian nurses which revealed excessive workload as one of the major factors of stress.

Result revealed mean score of 2.69 of respondents exposed to conflict with physicians. Interpersonal conflict was found to have significant influence on the prevalence of stress among acute care nurses. Similarly the studies done by [3,13,14], had revealed similar influence. In the study by Tadesse, a mean score of 3.1 experienced stress as a result of verbal aggression from physicians which brings about violence and reduced work morale which is a sign of stress. Mean score of 2.40 have inadequate preparation in cases of emergencies. This is similar to the study carried out by [14] on stress among nurses working in critical care areas. In the result 60% of the nurses agreed to be stressed as a result of frequent emergencies. This can be attributed to unexpected fluctuations in patients' state of health and patients being rushed into the hospital in critical stage at a time when it was least expected.

A mean score of 2.53 respondents experience stress as a result of limited or lack of equipment to carried out procedures. This is in line with result of the study carried out by [15] which revealed that 30.8% of the nurses reported experienced stress due to lack of instruments and where these equipments were available; it is either obsolete or insufficient to boost the level of service delivery.

Most perceived physical stress reported by the respondents is back pain 68.8%. This result is similar to [2] who conducted a study on stress among professional critical care nurses in Serbia. Result of the study showed that back pain was significantly reported by nurses. The high frequency of 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.

The result of the study also shows that 55% of nurses frequently complain of headache which agrees with [15] results and findings which showed that headaches/migraine 76.3% are the most frequently occurring symptom of stress among acute care nurses. Stressful situations

such as heavy workload and problems with peers and superiors are correlated with high incidence of headache. Similarly, [2] reported that high prevalence of headache could also be attributed to novel technologies, as complex technical equipment in Acute Care Units requires rapid update of knowledge and skills, which along with constant time pressure leads to "techno-stress".

Results of the study showed significant stress symptoms were psychological stress symptoms of which mood swing 38% was the most significant. But the above result is in contrary to another study carried out by [7], to determine the prevalence and sources of stress among 183 nurses working in acute care unit at central hospital Zambia, sleep disturbance was reported as the most experienced symptoms of stress. The sleep disturbance was attributed to night shift as it was found out that most of the nurses do not sleep after excess work in the acute care unit, but rather go about their normal duty in the day time and then return to work again at night.

The result of the study revealed that majority of the respondents' perceived physical exhaustion and accidents in workplace such as giving wrong medication to patients 78.8%. This agrees with the study carried out by [16] which revealed that 60% of the participants had physical stress symptoms with physical exhaustion and accidents in the workplace as the most significant factor affecting their personal and work behavior. The physical exhaustion was attributed to stress as a result of excessive workload and too many patients to care for at the same time leads to confusion at work with frequent accidents as the result. Also, other perceived personal and behavioural stressors includes; absenteeism and lateness to work. This agrees with the study conducted by [15] whose study revealed that the highly stressed nurses exhibited personal or work behavioural problem like bullying, absenteeism and lateness to work.

## 5. CONCLUSION

It is widely accepted that nurses are exposed to various stress sources from physical psychological and social working environment. It seems imperative that nurses are identifying the perceived sources of stress and are assisted in applying knowledge to practice. Such a positive approach will motivate and nurture the confidence in the nurses, creating a positive socialization which in turn will increase job

satisfaction and will reduce the level of stress. This will allow the modifications of the stress management programme for the policy maker and organizations to address specific factors rated as most stressful.

## 6. RECOMMENDATIONS

Based on the findings of the study, the researcher made the following recommendations:

- The Nurse Managers should ensure the suitability of individual nurses for each job before assigning tasks, and the challenge of task should be based on the objective of each nurse in order to maintain good mental health among nurses
- Psychological counseling and therapy should be easily assessable and available for troubled staff members
- Clear work practices and policies, for both the physicians and nurses, can help reduce conflict among health workers
- Employing more nurses is an obvious potential remedy for reducing workload

## CONSENT

All authors declare that written informed consent was obtained from the respondents for publication of this paper.

## ETHICAL APPROVAL

As per international standard or university standard, written approval of Ethics committee has been collected and preserved by the authors.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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