

# Prevalence and causes of stress among nurses at Ndola Central Hospital – A nurses' perspective

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**Abstract:** The purpose of the study was to determine the prevalence and causes of stress amongst nurses at Ndola Central Hospital from the nurses' perspective. The study was conducted at Ndola Central Hospital, situated in Ndola District, on the Copperbelt province of Zambia. The study was designed as a cross sectional descriptive study. The results of this study may be used to guide policy makers and nursing managers to develop a stress prevention and management model specific to the Zambian situation.

**Methods:** The study sample consisted of 183 nurses randomly selected from a frame combining all nurses from outpatient, medical, obstetrics and gynaecology, surgical, theatre and critical care wards. Data for the study was collected using a self-administered questionnaire. Data management and analysis for the study was performed using Epi info version 3.2.2. Means and their standard deviations were used to describe continuous variables whereas frequency and percentage distributions were used to describe categorical variables.

**Results:** One hundred and ninety nurses were targeted for inclusion into the study of which 183 responded; giving a 96.3% response level. The majority (86%) of the respondents were female. Almost all (93.4%) of the respondents had experienced occupational stress, of these 66.7% rated it as very high. Nurse-patient ratio was reported as a stress factor by most (92.3%) of nurses. Sleeping disturbances and recurring headaches were reported as the most (89.1% and 85.2% respectively) symptoms of stress experienced. Talking to colleagues about stressful factors was the most (80.9%) coping mechanism reported.

**Conclusion:** The level of occupational stress as reported by the nurses was high, and in many cases accompanied by a number of emotional and physical symptoms. This observation calls for the formulation of stress management programmes, training on coping skills, as well as development and implementation of strategies for the improvement of work conditions and environment for nurses in public hospitals, with special focus on reducing work-related sources of stress in Ndola Central Hospital.

**Keywords:** occupational stress, nurse, coping mechanism, interpersonal relationship, workload, conflict.

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## 1. INTRODUCTION

The nursing a caring profession responsible for issues related to maintenance of the health and treatment of a wide range of illnesses in health care settings as observed by Siu et al (2002). It is for this reason that a nurse is expected to possess gentleness and be compassionate and sensitive (Eswari 2011). However, it has been observed that intrinsic to this caring occupation there are several sources of in-built stress that become occupational hazards for nurses (Huber, 1996).

Occupational stress is regarded as a major occupational health problem for healthcare professionals especially nurses according to various literatures. The U.S. National Institute for Occupational Safety and Health (2009) defines nurses'

stress as the emotional and physical reactions resulting from the interactions between the nurse and her or his work environment, where the demands of the job exceed capabilities and resources. Stress, up to a certain point, may improve people's performance and quality of life because it is essential that people should acknowledge challenges within their lives (Tehrani and Ayling, 2009). However, if occupational pressure is extreme, it becomes harmful since it is the reaction of people under pressure that are unable to cope with excess demands who experience stress (Lazarus, 1984)

The nursing field is both mentally and physically demanding and nurses are often exposed to health risks and chronic diseases as a result of stress. This view is supported by Mojinyinola (2008) who noted that stress may manifest by the presence of headache, sleep disturbances, difficulty in concentration, bad temper, stomach upset, job dissatisfaction and low morale, muscular tensions and ache, tightness in the chest, high blood pressure, and heart problems.

Cooper (1998) supports the concept that a nurse tends to experience work related stress from poorly equipped and overcrowded wards as well as from poor interpersonal relationships with colleagues, doctors, patients and their relatives and pressure of work-family interface.

No evidence was found of a similar study ever done Ndola Central Hospital. It is hoped that this will stimulate formulation programmes design at alleviating occupational stress in Zambia.

## 2. RESULTS

A total of 190 questionnaires were distributed for self-administration to nursing employees, of which 183 were returned responded to, representing a 96.3% response level.

Socio, demographic and economic characteristics of the respondents are shown in **table 1**. The majority (86.0%) of the respondents were females. Close to half (47.5%) of the participants were single and only (2.2%) were divorced. The mean age of respondents was 31.4 with the standard deviation of 8.7. The majority (84.7%) of participants were on permanent employment while 14.2% were on part-time. Slightly over half (54.7%) had 1 to 3 children.

Stress and the aspects affected by it among the nurses are shown in **tables 2 and 4**. Almost all (93.4%) nurses said they had experienced occupational stress, and a further 66.7% had indicated to be much stressed. Eating patterns were the mostly (90.7%) reported aspects of the nurses' life adversely affected by stress. A good proportion (89.1%) of the respondents reported experiencing sleep disturbances and a further 85.2% complained of recurring episodes of headaches. The other symptoms in their reported frequency were back pain (83.6%), general physical health (82.0%), Joint and muscle pains (74.3%) and leg cramps stood at 67.8%. The other aspects affected were as follows family life (88.5%), social life (84.7%), and mental wellness (68.3%). A considerable proportion (78.7%) indicated that their work performance was adversely affected by stress.

Interpersonal factors reported as causing stress among the nurses are shown in **table 3**. A noteworthy proportion (74.9%) of nurses did not report experiencing conflicts with fellow nurses and 74.9% claimed having good working relationships with colleagues. However, 54.6% indicated they had experienced conflict with physicians while 75.4% found conflicts with patients' relatives a stressing factor. Barely over half (50.3%) reported conflicts with patients. When asked to specify other stressing factor, 10.7% reported bad toilet facilities as being stressful.

Work environment factors reported as causing stress among the nurses are shown in **table 5**. About three quarters (72.7%) of nurses found the work environment stressful and over half (55.9%) perceived it dirty. Further, a substantial number (82.5%) of participants were affected by overcrowding in wards. The majority (90.7%) indicated that being in an environment with poor working machines was equally stressful.

Working conditions and patterns of work reported as factors causing stress among the nurses are shown in **table 6**. Nurse-patient ratio was identified as a stress factor by majority (92.3%) of the nurses with 66.7% rating it as very stressful. The reported mean number of patients per ward was 27.6. Night shift was the most (74.3%) stressful with the mean hours spent on duty for a typical night shift being 17.4. The majority (71.4%) of nurses indicated that they did not feel stressed by caring for a critically ill patient. Only a minority (43.2%) admitted being stressed by exposure to death.

Mechanisms of coping with stress as reported among the nurses are shown in **table 7**. The majority (84.2%) preferred talking to their colleagues and 80.9% would let others know how they felt about stressful conditions. However, a

substantial number (74.9%) deemed it fit to be tolerant to the occupational stressors. Very few (13.1%) of the respondents indicated that they would vent their frustration on patients and only (13.7%) admitted to using alcohol to ease their stress. About (20.2%) said they would get unscheduled days off.

### 3. DISCUSSION

A total of 93.4% the respondents admitted to having suffered from occupational stress. And out of all those that had experienced stress, 66.7% rated it as very high. More than 90% of the study participants indicated that they found the nurse-patient ratio to be stressful. This could be as a result of staff shortage due to having a small number of nursing positions funded by the Government.

This outcome appears to be in agreement with Baguma (2002), who observed in his study of stress among Ugandan nurses, that nurses seemed to suffer from high levels of occupational stress. In a study by Loo See Beh and Leap-Han Loo (2012) in Malaysia, it was found that 64.2% of the staff reported being stressed by the workload placed upon them.

Out of all the participants, 72.7% thought the work environment was stressful and 55.9% found it to be dirty. Gray-Toft and Anderson (1981) in their study reported that working environment together conditions such as the poor ventilation, congestion, pollution, noise, poor lighting and the poor temperature control were among the probable work-related stressors for nurses.

Another 90.7% of the sample indicated that poor working machines were a source of stress while 82.5% found patient overcrowding to be stressing. A study done by the American Institute of Stress (2012) showed that 75% of employees in America believed they incurred more on-the-job stress no than a decade ago. This might be attributed largely to the physical demands of labour, emotional demands of patients and families, long working hours, shiftwork, interpersonal relationships and intraprofessional conflict, and other pressures that are core to the work nurses do.

The most reported stressful shift was the night shift which accounted for 74.3% of the responses. This may be attributable to staff shortage, long working hours and restricted number of nurses on night duty. On average a single night shift lasts about 15 hours and for a period of five continuous days. This can very stressful especially that on each night shift there are about 2 to 3 (as noted on duty roasters stuck in wards) nurses on duty per each ward housing about 25 to 30 patients.

The result of this study also shows that a significant number (74.9%) of nurses did not experience conflicts with fellow nurses and 74.9% thought they received adequate support from colleagues. Perhaps this could mean that there were healthy interpersonal relationships. This finding contradicts the study by Walrafen and Brewer (2012) as cited by America Nurses association indicating that there was an increase in nonphysical form of incivility, disruptive behavior, verbal aggression, and bullying being perpetrated by other nurses. However, 54.6% indicated they had experienced conflict with physicians. In a study of urban and rural nurses in New South Wales, Wilkes and Beale (2001) found that the nurses felt that the conflict with doctors caused stress. Barely 50.3% reported conflicts with patients.

The following were some of the observed physical and emotional consequences of occupational stress that were reported in this study; 89.1% reported experiencing sleep disturbances and a further 85.2% complained of episodes of headache, followed by back pain 83.6%, Joint and muscle pains 74.3% and leg muscle cramps rated at 67.8%. A similar study done by Raja et al (2007) revealed that nurses experienced a variety of physical symptoms such as, headache (98.6%), abdominal pain (60%) and chest pain (57.1%). These effects could be attributed to long working hours with little time to rest, large number of patients to care for and staff shortage and standing for longer hours. These findings are in agreement with Mojinyinola (2008) as mentioned in the introduction who studied effects of stress among Nigerian nurses in public hospitals.

A number of respondents reported to having been socially and emotionally affected by occupational stress. Burke (2000) also observed the nurses encountering stress are likely to eat poorly, perform poorly at work smoke and abuse alcohol or drugs. The various social aspects affected were as follows, eating patterns (90.7%), family life (88.5%), and social life (84.7%) mental wellness (68.3%). A further number (78.7%) indicated that their work performance was adversely affected. In another study by Wong et al (2001) occupational stress was noted as a cause of mental problems such as anxiety, depression, insomnia and feelings of inadequacy.

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Confiding in a close colleague appeared to be the most (84.2%) preferred coping mechanism. Coping refers to a phenomenon that individuals assume to alter their personal insight and behavior in response to the conflicts raising from the environment they interact with (Lazarus, 2000). Similarly Raja et al (2007) found that 60% of ICU nurses preferred discussing their feelings and sharing their problems with close colleagues.

Only 20.2% of respondents indicated they would take unscheduled leave from duty due to stress. This results contrast the findings of Hackett *et al* (1989) in a study among nurses of two metropolitan hospitals on reasons of absence from work. Their results indicated that majority of nurses' daily expressed reasons to be absent from work were related to fatigue and stress and work interfering with home activities. When the respondents were asked if they ever thought of resigning, 64.5% of the participants said they did not. This result seems to be in line with the finding by Gibbens (2007) who, in her study of stress among nurses in Gauteng province found that only 7.8% had thought of resigning due to stress.

**4. CONCLUSION**

This study appears to indicate that the level of work stress among nurses at Ndola Central Hospital is high. This observation justifies calls for the organization of stress management programmes, training on coping skills, and development and implementation of strategies for the improvement of work conditions and environment for nurses in public hospitals, with special focus on reducing work-related sources of stress among nurses in the public hospitals in Zambia.

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**TABLES**
**Table 1: Socio-demographic and economic characteristics of the respondents. (N=183)**

Age in years:			
	<i>Mean (Standard Deviation)</i>	31.4	(8.7)
Gender:			
	<i>Female n (%)</i>	159	(86.9)
	<i>Male n (%)</i>	24	(13.1)
Marital Status:			
	<i>Single n (%)</i>	87	(47.5)
	<i>Married n (%)</i>	85	(46.4)
	<i>Divorced n (%)</i>	4	(2.2)
	<i>Widowed n (%)</i>	7	(3.8)
Number of Children:			
	<i>0 n (%)</i>	57	(31.1)
	<i>1-3 n (%)</i>	100	(54.7)
	<i>4-6 n (%)</i>	26	(14.2)
Employment Status:			
	<i>Permanent n (%)</i>	155	(84.7)
	<i>Part-time n (%)</i>	26	(14.2)
Professional Category:			
	<i>Midwife (registered and enrolled midwife) n (%)</i>	81	(44.3)
	<i>Theatre nurse n (%)</i>	24	(13.1)
	<i>Registered nurse n (%)</i>	56	(30.6)
	<i>Enrolled nurse n (%)</i>	19	(10.4)
Ward/ Department:			
	<i>Medical n (%)</i>	40	(22.1)
	<i>Surgical n (%)</i>	28	(15.5)
	<i>Maternity n (%)</i>	57	(31.5)
	<i>Theatre n (%)</i>	12	(6.6)
	<i>Orthopaedics n (%)</i>	10	(5.5)
	<i>OPD n (%)</i>	13	(7.2)
	<i>ICU n (%)</i>	12	(6.6)
	<i>Psychiatry n (%)</i>	4	(2.8)

**Table 2: Stress and the aspects of life adversely affected by it among the respondents. (N=183)**

Stress:			
Have you ever experienced occupational related stress?			
Yes <i>n (%)</i>	171	(93.4)	
No <i>n (%)</i>	9	(4.9)	
Aspects:			
Does stress adversely affect any of the following aspects of your life?			
Sleep			
Yes <i>n (%)</i>	163	(89.1)	
No <i>n (%)</i>	20	(10.9)	
Eating patterns			
Yes <i>n (%)</i>	166	(90.7)	
No <i>n (%)</i>	17	(9.3)	
Social life			
Yes <i>n (%)</i>	155	(84.7)	
No <i>n (%)</i>	28	(15.3)	
Family life			
Yes <i>n (%)</i>	162	(88.5)	
No <i>n (%)</i>	21	(11.5)	
Physical health			
Yes <i>n (%)</i>	150	(82.0)	
No <i>n (%)</i>	33	(18.0)	
Mental Well-being			
Yes <i>n (%)</i>	125	(68.3)	
No <i>n (%)</i>	58	(31.7)	
Performance at work			
Yes <i>n (%)</i>	144	(78.7)	
No <i>n (%)</i>	39	(21.3)	

**Table 3: Interpersonal factors causing stress among the respondents. (N=183)**

Interpersonal Relationships:			
Do you often experience any of the following conflicts at work?			
Conflicts with fellow nurses			
Yes <i>n (%)</i>	46	(25.1)	
No <i>n (%)</i>	137	(74.9)	
Conflicts with supervisor			
Yes <i>n (%)</i>	55	(30.1)	
No <i>n (%)</i>	128	(69.9)	
Conflicts with patients			
Yes <i>n (%)</i>	92	(50.3)	
No <i>n (%)</i>	91	(49.7)	
Conflict with patients' relatives			
Yes <i>n (%)</i>	138	(75.4)	
No <i>n (%)</i>	43	(23.5)	
Lacking support from colleagues			
Yes <i>n (%)</i>	46	(25.1)	
No <i>n (%)</i>	137	(74.9)	
Conflicts with physicians			
Yes <i>n (%)</i>	83	(45.4)	
No <i>n (%)</i>	100	(54.6)	
Do you find interpersonal relationships at work stressful?			
Yes <i>n (%)</i>	75	(41.5)	
No <i>n (%)</i>	106	(57.9)	

Table 4: Physical symptoms of stress among the respondents. (N=183)

Physical Symptoms:		
After a stressful day at work, do you experience any of the following symptoms?		
<b>Back pain</b>		
Yes <i>n (%)</i>	153	(83.6)
No <i>n (%)</i>	30	(16.4)
<b>Headache</b>		
Yes <i>n (%)</i>	156	(85.2)
No <i>n (%)</i>	27	(14.8)
<b>Joint and muscle pains</b>		
Yes <i>n (%)</i>	136	(74.3)
No <i>n (%)</i>	47	(25.7)
<b>Leg cramps</b>		
Yes <i>n (%)</i>	124	(67.8)
No <i>n (%)</i>	59	(32.2)
<b>Constipation</b>		
Yes <i>n (%)</i>	66	(36.1)
No <i>n (%)</i>	117	(63.9)
<b>Indigestion or heartburn</b>		
Yes <i>n (%)</i>	71	(38.8)
No <i>n (%)</i>	112	(61.2)

Table 5: Work environment factors causing stress among the respondents. (N=183)

Work Environment:		
Does the physical work environment stress you?		
Yes <i>n (%)</i>	133	(72.7)
No <i>n (%)</i>	48	(26.2)
Which of the following factors cause you work related stress?		
<b>Overcrowding</b>		
Yes <i>n (%)</i>	151	(82.5)
No <i>n (%)</i>	32	(17.5)
<b>Poor Ventilation</b>		
Yes <i>n (%)</i>	110	(60.1)
No <i>n (%)</i>	73	(39.9)
<b>Dirty conditions</b>		
Yes <i>n (%)</i>	102	(55.9)
No <i>n (%)</i>	81	(44.3)
<b>Bad lighting</b>		
Yes <i>n (%)</i>	89	(48.6)
No <i>n (%)</i>	94	(51.4)
<b>Poor equipment</b>		
Yes <i>n (%)</i>	166	(90.7)
No <i>n (%)</i>	17	(9.3)
<b>Sophisticated equipment</b>		
Yes <i>n (%)</i>	60	(32.8)
No <i>n (%)</i>	122	(66.7)
<b>Exposure to death</b>		
Yes <i>n (%)</i>	79	(43.2)
No <i>n (%)</i>	102	(55.7)

**Table 6: Working conditions and patterns of work reported as factors causing stress among the nurses. (N=183)**

Working Conditions:			
Does the patient-nurse ratio stress you?			
Yes n (%)	169	(92.3)	
No n (%)	12	(6.6)	
If yes, to what extent does the patient-nurse ratio stress you?			
A little n (%)	10	(5.5)	
Moderate n (%)	39	(21.3)	
Very n (%)	122	(66.7)	
Patterns of Work:			
Does your work involve shifts?			
Yes n (%)	152	(83.1)	
No n (%)	31	(16.9)	
Which shift do you find stressful?			
Day shift n (%)	39	(21.3)	
Night shift n (%)	136	(74.3)	
What is the duration, in hours, of your typical night duty?			
No. of hours. Mean (Standard Deviation)	17.4	(16.6)	
On a typical night shift how many patients do you have to attend to?			
No. of Patients. Mean (Standard Deviation)	27.6	(14.6)	
Do you find the shifts and work schedule stressful?			
Yes n (%)	157	(85.8)	
No n (%)	14	(7.7)	

**Table 7: Coping with stress among the nurses. (N=183)**

How do you cope with stressful work situations?			
Let others know your opinion			
Yes n (%)	148	(80.9)	
No n (%)	35	(19.1)	
Become more involved in non-nursing activities –hobbies, leisure etc			
Yes n (%)	93	(50.8)	
No n (%)	90	(49.2)	
Try to be more tolerant			
Yes n (%)	137	(74.9)	
No n (%)	46	(25.1)	
Go out and have drinks/beers			
Yes n (%)	25	(13.7)	
No n (%)	158	(86.3)	
Express your irritation on other colleagues			
Yes n (%)	24	(13.1)	
No n (%)	159	(86)	
Just shut off from things going on around you			
Yes n (%)	24	(13.1)	
No n (%)	159	(86)	
Take your unscheduled days off			
Yes n (%)	37	(20.2)	
No n (%)	146	(79.8)	
Talk the problem over with nursing colleagues			
Yes n (%)	154	(84.2)	
No n (%)	29	(15.8)	
See the humour side of the situation			
Yes n (%)	105	(55.7)	
No n (%)	81	(44.3)	
Have you ever thought of quitting nursing due to stress?			
Yes n (%)	61	(33.3)	
No n (%)	118	(64.5)	