Assessment and Measurement of Stress Level among Nurses in Elmek Nemir University Hospital - Sudan

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ABSTRACT

Background: Stress in the nursing workplace has significant consequences for both the person and the organization, such as psychological and physical health deterioration, financial and social impact, and impaired professional practice.
Aim: Assessment and Measurement of Stress Level among Nurses in Elmek Nemir University Hospital.
Methods: This study was descriptive, cross-sectional hospital-based design, sought to assess and measure the perceived levels of job–related stress and stressors of nurses in the clinical environment and to explore the participants' views on stress effects and sources of stressors. The data was obtained from nurses (N=121) working in the nursing field in ElmekNemir University Hospital, collected through direct interview by using closed ended questionnaire and The Nursing Stress Scale, the computer software package used was SPSS Version 16.0. The results were presented in form of tables and graphs.
Findings: The findings of the study revealed that nurses are stressed. The greatest perceived source of stress appears to be workload at mean (1.68) followed by emotional issues related to death and dying at mean (1.56). There were clearly other factors not mentioned in previous studies, they cause more stress, this study has proven these factors are a direct cause of stress like uncertainty concerning treatment at mean (1.4) and conflict with physicians at mean (1.04).
Conclusion: The main cause of stress among nurses is environment of Elmek Nemir University Hospital and the frequency of the reported stress in nurses was high enough to be considered serious for their health and their performance. The study recommended for stress management interventions in the form of supporting and clarifying nurse's roles to resolution of conflicts, stress management programs. The study does not measure the intensity of stress experienced. Future research should be directed at the intensity dimension using physiological measures of stress

Keywords: Stress, Nurse, Workload, Environment

INTRODUCTION

Stress is defined by Gray-Toft and Anderson as 'an internal cue in the physical, social, or psychological environment that threatens the equilibrium of an individual. [1]

It is stated that stress from unfortunate changes in the health care environment, world instability, the internal pressures that result when caring professionals become overwhelmed by frustrations, and the loss of perspective when encountering the inevitable failures of being involved in life and death situations make up only part of a psychologically-combustible mixture. It is also dangerous to the well-being of a talented. [2]

In previous studies it has been pointed that a shortage of nurses has a significant negative impact on the health care System. Hospitals and nursing facilities are often forced to mandate unsafe nurse overtime, add excess responsibilities to a nurse's workload, and shift nurses from one unit to another, all of which compromise the quality of care and significantly decrease a nurse's job satisfaction. [3]

Recent investigation has suggested that nursing is a stressful occupation and the negative impact of high stress levels has been widely researched. Less attention has been paid to methods for coping with stress. [4]

There are the significant differences existed among various medical units with regards to nurses' stress, depression, and intention to leave. Nurses working in internal and external medical wards, especially the inexperienced and married ones, experienced greater depression and stress, there by developing stronger intention to leave their job. [5]

The impacts of job-related stress and making use of effective coping methods play a vital role in reducing nurse's stress. A change in leadership styles from the managerial level and reallocation of manpower may help reduce job stress. The most frequent strategies used by nurses to cope with stress are evasive, confrontation, and optimistic, all of which most effective strategies in reducing stress levels. [6]

MATERIALS & METHODS

Study design:
Descriptive, cross-sectional hospital-based study conducted to assess and measure of stress level amongst nurses in Elmek Nemir University Hospital within the clinical environment.

Study area: The study area is Elmek Nimer university hospital at Shendi city, River Nile State, Sudan. Shendi town is located north of Khartoum, about 176 km. and 110 km south to Elddamer, the capital of River Nile State. The town is lies on the eastern riverbanks of the River Nile with a total area about 14596 Km2. The total population of Shendi locality is estimated at about 197589 of whom 116713 live in rural areas and 80876 in urban centers, most of them are farmers. Shendi University was established in the early 1990s and stands as a landmark institution in Higher Education.

Study Setting:
This study was carried out at Elmak Nemir University hospital. This hospital was established since 2002. The hospital provides most types of medical services (medicine, surgery, Obs/Gyne, and pediatric). Beside this there are cardiac, renal, and oncology centers. In the hospital there is a big theater complex in which most type general operations can be done. There was two diabetic outpatient clinics. The hospital working system is three shifts per day for nurses. Morning shift for five days a week with two days' rest. Afternoon night shift with two days' rest. The distribution of nursing staff according to need of hospital departments, nurses they will have rotated frequently without fixed intervals according to the need. There is also extra work (on call) mandatory 3 days in the month to each member of the nursing staff.

Study population:
The target population in this study include all nursing staff member (both gender) during the time of the study. The total numbers of nurses (121).

Inclusion criteria:
1. The nurse willing to participate in a voluntary capacity.
2. Participants must be working in the nursing field in Elmek Nemir university hospital. The study excluded any nurses on vacation.

Data collection tools:
Tow tools was used to collect the relevant data:

Standard closed ended interview questionnaire: was developed by researcher based on available Literature. It includes questions about demographical data, the working area, level of nurse`s knowledge about stress definition, effects and sources. Also questions to assess nurses level of stress, the methods used to reduce or fight it and strategies cooping used by nurses.

The Key to knowledge (question 9):
- Knowledgeable (3 points)
- Sufficient knowledge (2 points)
- Poor knowledge (1 point)

1. Nursing stress scale: was developed by Pamela Gray-Toft and James Anderson designed in a simple and understandable

English language form (7). The researcher translated the original source into the nurse's mother tongue (Arabic) verbally, easy to be use, which globally measure stress specific to clinical nursing.

The 'Nursing Stress Scale' is a 34-item scale, which identifies perceptions of the sources of stress and perceived stressful situations in the nursing environment. The Nursing Stress Scale elicited the frequency to which respondents perceived themselves to be exposed to stressors pertaining to the clinical environment. Each item is scored according to the frequency with which these situations are assessed as stressful, with response options in a Likert-like format from (0) never, (1) sometimes, (2) frequently, and (3) very frequently. The results of total scores range from 0 to 102. The stress level was divided in to four categories according to the total participant's score, from (1-34) low stress, (35-68) moderate stress, (69-102) stress full and no stress at (0) .This scale was sub-divided into factors, which focused on different aspects that were considered potential stressors in nursing practice and there are seven factors (work load, death and dying, inadequate preparation, lack of staff support, uncertainty concerning treatment, conflict with physicians, conflict with nurses)

Data collection technique:

The data was collected by researcher himself. All nurses who meet the inclusion criteria and were accessible were filled a questionnaire and nursing Stress scale. The collection plan involved accessing the population of nurses while they work in hospital. The questionnaire and nursing stress scale were filled through direct interview.

Data analysis:

The data was analyzed by using computer software SPSS program version (16.0) and presented in forms of tables and figures.

Nursing stress scale analysis:

Firstly, the nursing stress scale was analyzed manually, by sum of scores of each individual from study population, this

is limited between (0 – 102) degrees, has been divided in four levels:

1. Low stress, if score between 1-34
2. Moderate stress if score between 35-68
3. Stress full if score between 69 - 102
4. No stress at grade 0

Correlation analysis:

Correlation analysis is conducted to examine linear relationship between two or more variables and to determine the significant and degree of relationship.

Ethical consideration: -

- Approval was taken to this study from the graduate study and scientific research board and ethics Committee.
- Approval was taken from Elmek Nemir hospital administer and the nursing director.
- The purpose of the study was verbally explained clearly and in easy way for every nurse and have a chance to participate in the study or refusal.

RESULT

Table {1}: Demographic characteristics of the nurses :(N=121)

Item (s)	Frequency	Percent	Total
Gender:			
Male	20	16.5 %	
Female	101	83.5 %	
Age:			
20-25years	49	40.5 %	
26-30 years	53	43.8 %	
More than 30 years	19	15.7 %	
Marital status:			
Married	48	39.7 %	
Single	71	58.7 %	
Separated	2	1.7 %	
Level of education:			(121) 100 %
Diploma	10	8.3 %	
Bachelor	91	75.2 %	
Master	20	16.5 %	
Working experience in nursing:			
Less than 3 years	42	34.7 %	
3-5 years	42	34.7 %	
More than 5 years	37	30.6 %	
Working hours:			
8 hours (One shift)	49	40.5 %	
16 hours (Two shifts)	52	43 %	
More than 16 hours (Extra time)	20	16.5 %	

Table {2}: Distribution of nurse`s according to their knowledge about the effects of stress on nurses and their performance :(N=121)

Effects of stress	Frequency	Percent
Knowledgeable	17	14 %
Sufficient knowledge	53	43.8 %
Poor knowledge	51	42.1 %
Total	121	100 %

Table {3}: Distribution of nurse`s according to their methods that reduce work-related stress :(N=121)

The methods that reduce stress	Frequency	Percent
Going on holidays	15	12.4 %
Taking leave from work	23	19 %
Spending time with loved ones	52	43 %
Listen to music	18	14.9 %
Sleeping	13	10.7 %
Total	121	100 %

Table {4}: Frequency and Percentage of strategies cooping that used by nurses to cope with stressful situations :(N=121)

Strategies cooping	Frequency	Percent
Increase awareness	26	21.5 %
Information processing	20	16.5 %
Modified behaviors	17	14 %
Peaceful resolution	58	47.9 %
Total	121	100 %

Table {5}: Nursing Stress Factor 1. Mean Levels of Work Load Stressors :(N=121)

Work load Stressors	Mean Stress Level	Mean Of factor .1
Lack of the computers	2.98	
Unpredictable staffing and scheduling	1.40	
Too many non-nursing tasks required, such as clerical work	1.72	1.68
Not enough time to provide emotional support to a patient	1.17	
Not enough time to complete all of my nursing tasks	0.62	
Not enough staff to adequately cover the unit	2.20	
Total Stressors Mean	**10.09**	

Table {6}: Nursing Stress Factor 2. Mean Stress Levels of Death and Dying Stressors :(N=121)

Death and dying Stressors	Mean Stress Level	Mean Of Factor .2
Performing procedures that patients experience as painful	1.36	
Feeling helpless in the case of a patient who fails to improve	1.17	
Listening or talking to a patient about his/her approaching death	1.21	
The death of a patient	1.96	1.56
The death of a patient with whom you developed a close relationship	1.55	
Physician not being present when a patient dies	2.59	
Watching a patient suffer	1.10	
Total Stressors Mean	**10.94**	

Table {7}: Nursing Stress Factor 3. Mean Stress Levels of Inadequate Emotional Preparation Stressors :(N=121)

Stressor	Mean Stress Level	Mean Of Factor .3
Feeling inadequately prepared to help with the emotional needs of a patient's family	0.84	
Being asked a question by a patient for which I do not have a satisfactory answer	0.89	0.86
Feeling inadequately prepared to help with the emotional needs of a patient	0.84	
Total Stressor Mean	**2.58**	

Table {8}: Nursing Stress Factor 4. Mean Stress Levels of lack of staff support Stressors :(N=121)

Lack of staff support Stressors	Mean Stress Level	Mean of Factor.4
Lack of an opportunity to talk openly with other unit personnel about problems on the unit	0.99	
Lack of an opportunity to share experiences and feelings with other personnel on the unit	0.55	
Lack of an opportunity to express to other personnel on the unit my negative feelings toward patients	0.60	
Total Stressors Mean	**2.14**	0.71

Table {9}: Nursing Stress Factor 5. Mean Stress Levels of Uncertainty Concerning Treatment Stressors :(N=121)

Stressors	Mean Stress Level	Mean Of Factor .5
Inadequate information from a physician regarding the medical condition of a patient	1.45	
A physician ordering what appears to be inappropriate treatment for a patient	1.34	
A physician not being present in a medical emergency	2.32	
Not knowing what a patient or a patient's family ought to be told about the patient's medical condition and its treatment	1.45	1.40
Uncertainty regarding the operation and functioning of specialized equipment	0.42	
Total Stressors Mean	**6.98**	

Table {10}: Nursing Stress Factor 6. Mean Stress Levels of Conflict with Physician Stressors :(N=121)

Stressors	Mean Stress Level	Mean of Factor.6
Criticism by a physician	0.90	
Conflict with a physician	0.77	
Fear of making a mistake in treating a patient	0.96	
Disagreement concerning the treatment of a patient	1.38	1.04
Making a decision concerning a patient when the physician is unavailable	1.17	
Total Stressors Mean	**5.18**	

Table {11}: Nursing Stress Factor 7. Mean Stress Levels of conflict with other nurses Stressors :(N=121)

Stressors	Mean Stress Level	Mean of Factor.7
Conflict with a supervisor	1.57	
Floating to other units that are short-staffed	1.21	
Difficulty in working with a particular nurses outside the unit	0.64	
Criticism by a supervisor	0.99	**0.90**
Difficulty in working with a particular nurse (or nurses) on the unit	0.08	
Total Stressors Mean	**4.50**	

Table {12}: The relation between gender and stress categories (N= 121)

Gender	Stress categories			Total	P.value
	Low stress	Moderate stress	Stress full		
Male	3	15	2	20	
Female	28	73	0	101	**0.046** *
Total	31	88	2	121	

Table {13}: The relation between experience years and Stress categories :(N=121)

Experience years	Stress categories			Total	P.value
	Low stress	Moderate stress	Stress full		
1-2 years	10	31	1	42	
3-5 years	7	34	1	42	
More than 5 years	14	23	0	37	**0.135**
Total	31	88	2	121	

Table {14}: The relation between common source of stress and Stress categories :(N= 121)

Source of stress	Stress categories			Total	P.value
	Low stress	Moderate stress	Stressful		
Nursing job	3	11	2	16	
Interpersonal relationships	2	17	0	19	
Paying	2	3	0	5	
Hospital environment	24	57	0	81	**0.027** *
Total	31	88	2	121	

Table {15}: The relation between nurses feeling regard stress and Stress categories :(N=121)

Level of stress	Stress categories			Total	P.value
	Low stress	Moderate stress	Stress full		
Non stress full	11	14	0	25	
Mildly stress	9	25	0	34	
Moderately stress full	7	25	0	32	
Very stress full	3	19	2	24	
Extremely stress full	1	5	0	6	
Total	31	88	2	121	**0.005** **

DISCUSSION

According to study result more than half of nurses (54.5 %) have a mild to moderate stress due to hospital environment (66.9 %) with highly significant statistical relation with real nurse's stress level (p.value = 0.00). Moreover, it may be correlated with overcrowding, hospital policies and management style. This interpretation is supported by the true score of nurses was measured by nursing stress scale that revealed the most (72.7 %) of nurses have a moderate level of stress and more than quarter (25.6 %) have low stress with significant statistical relation with the source of stress (p.value = 0.02).

One of the striking features of this study was less than half (43 %) of nurses spend time with loved ones to reduce stress this may be due to the majority of nurses are female. It is of some interest to speculate that most of nurses (64.5 %) battling stressful situations within the hospital by finding solutions from hospital administrator and nursing director but without response. They used peaceful resolution to cope with stressful situations.

In factor one (work load) the study revealed that rated frequently stressful at mean (2.98) is a lack of the computers in work place. This finding is justifiable because the hospital is not built on nursing informatics. On the other hand, the study

confirmed that not enough staff to adequately cover the units at mean (2.20). This is clear from that they are working during the evening and night shifts.

In factor two and five, the absence of physician when a patient dies at mean (2.59) and in a medical emergency at mean (2.32) was perceived as stressful by nurses respectively, this may be due to a physician's shortage or multiplicity of tasks. In addition to the disagreement concerning the treatment of a patient at mean (1.38) and making a decision concerning a patient at mean (1.17) was rated highest by the nurses in factor six (conflict with physicians). This is due to unavailability of physicians.

In factor seven conflicts with a nurse supervisor rated frequently stressful at mean (1.57). Following by floating to other units at mean (1.21) this correspond to nurse's shortage as mentioned already.

According to the study conducted in Australia and Jordan there is some similarity with our study discovered that the greatest source of stress appears to be as work load at mean (1.68) while the lowest source is lack of staff support at mean (0.71). [7] this findings agree with previous study which mentioned that staffing patterns in hospitals have been dramatically impacted because of the critical nursing shortage and the advancing age of the current nursing workforce. [8] There is other factor appear as stressfully to nurses was death and dying at mean (1.56) this consistent with study conducted in Japan. [9] One might envision a case scenario of inevitable death with the nurse ministering to the needs of both the patient and family. Indeed, one would have to be stoic, unattached or indifferent to not feel emotionally in pain. In the Sudanese culture, overt expression of emotion is not appearing. Perhaps, even repression of an emotional state may be more stressful and certainly warrants further study.

The most striking difference was found between the study and other previous studies this study has proven these factors are a direct cause of stress like uncertainty concerning treatment at mean (1.4) and conflict with physicians at mean (1.04). A possible explanation for this discrepancy may be because there is no clear job description for nurses in Sudanese hospitals. Negative perception of one's work or how the staff nurse interacts with the physician in the work setting is an important variable in stress level rating. It can only be surmised that in a situation where a physician is unavailable, the nurse is forced to make a prudent decision, then a criticism results from such action.

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