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Assessment and Measure ofStress Level among Nurses in ElmekNemir University Hospital

A full thesis Submitted in Requirements of Partial Fulfill for The Master's Degree in Medical Surgical Nursing

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December 2014

الآيـــــة

قال تعالي : [فَمَنْ حَاجَّكَ فِيهِ مِنْ بَعْدِ مَا جَاءَكَ مِنَ الْعِلْمِ فَقُلْ تَعَالَوْا نَدْعُ أَبْنَاءَنَا وَأَبْنَاءَكُمْ وَنِسَاءَنَا وَنِسَاءَكُمْ وَأَنْفُسَنَا وَأَنْفُسَكُمْ ثُمَّ نَبْتَهِلْ فَنَجْعَلْ لَعْنَتَ اللَّهِ عَلَى الْكَاذِبِينَ]صدق الله العظيم

الآية [61] آل عمران

Dedication

I dedicate this thesis to :

My supervisor:

Dr. Mohamed jebrelddarabuanja

My family, friends

My colleagues

Acknowledgments

First, I thank Allah,I praise him and I glorify himas he had to be praised and glorified. And I pray and peace for prophet Mohamed peace is upon him.

I would like to thank all of the teachers in faculty of nursing science in Shendi University,Secretarial office, and Registrar of the college. And I wish to express my sincere appreciation and gratitude to the following:

- Dr.LimiaEltayb (Dean of the College)for granting me the degree of her younger brother.
- Dr. Hegazi Mohamed Ahmed (Fundamentals of Nursing Department) he was a professor and mentor always.
- Dr. Mohamed JebrelddarAbuanja(communitynursing) His smile in his face, which makes me feel that he was not a teacher, but he is a Big Brother.

A special thanks to Hospital director of ElmekNemir, University of Shendiand nursing director, for granting me the permission to conduct my study.

I would like to thank all the nurses in ElmekNemir university hospital. This study would not have been possible without your participation.

I can’t find words to thank three special people, my mother, father and my instructor that is Awad Allah FadlAlseed,for their unconditional and much appreciated support.

ملخص الدراسة

مقدمة :

الضغوط فيمكانالعملالتمريضيلهاعواقبكبيرةبالنسبةلكلمنالممرضوالمؤسسة التي يعمل بها،مثلتدهورالصحة النفسيةوالبدنية،والأثرالماليوالاجتماعي،وضعفالممارسةالمهنية.

منهجية البحث:

أجريتهذهالدراسةالوصفيةفيمستشفي المك نمر الجامعي،لتقييموقياسمستوياتالإجهاد والضغوطاتالمتعلقةبالعملالتي يعاني منهاالكادر التمريضيفيالبيئةالسريريةواستكشافوجهاتنظرالممرضينحولآثارالإجهادومصادرالضغوطات. تمالحصولعلىالبياناتمنجميع الكوادر العاملةفيمجالالتمريضفيمستشفىالمك نمرالجامعي وعددهم (121 كادر)،والتيتمجمعهاعن طريق المقابلة المباشرة باستخداماستبيانقياسي مغلق الأسئلةومقياسالإجهاد التمريضي ،وكانالبرنامجالحاسوبيالمستخدم في التحليل هو (SPSS)النسخة 16.0 التي تعني (الحزمالإحصائيةللعلومالاجتماعية). تم عرضالنتائجفيجداولوأشكال بيانية.

النتائج:

كشفتنتائجهذهالدراسةأنجميعافرادالتمريضبالمستشفييعانونمنالاجهادالمهنيبدرجاتمختلفة،المصدرالا ساسيلهذاالاجهادهوزيادةعبءالعملفيالمتوسط (1.68)
يليهاالتأثيراتالعاطفيةالتيتتعلقبموتالمرضيفيالمتوسط (1.56) .
هنالكعواملأخرىلميردذكرهافيدراساتسابقة،إلاأنهاتسببمزيدمنالتوتر،وقدأثبتتهذهالدراسةأنهذهالعوامل أيضاًهيسببمباشرللإجهادمثلالشكوك والريبة المتعلقة بعلاج المرضيفيالمتوسط (1.4)والصراعمعالأطباء في المتوسط (1.04) .

الخلاصة :

السببالرئيسيللتوتربينالممرضاتهوبيئةالمستشفى، وكانت درجة التوتروالاجهاد المهنيبينالممرضاتمرتفعةبمايكفيلاعتبارهخطير علي صحتهم وأدائهم المهني.أوصت هذه الدراسة إدارة المستشفي العامة والادارة التمريضية بدعم وتوضيح المهام والأدوار الأساسية لأفراد التمريض بالمستشفي ، التي تساعد في حل النزاعات في إطار العمل ، ودعم البرامج العلاجية للإجهاد المهني . أيضاً لم تتطرق هذه الدراسة الي الآثار الفسيولوجية للإجهاد المهني ، فينبغي توجيه الدراسات المستقبلية لهذا البعد الفسيولوجي للإجهاد .

Abstract

Introduction:

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.

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, collectedthrough direct interview by using closed ended questionnaire and The Nursing Stress Scale, The computer software package used was SPSS Version 16.0 refer to (Statistical Package for the Social Sciences).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 was 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 ElmekNemirUniversity Hospital andthe frequency of the reported stress in nurses was high enough to be considered seriousfor 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.

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1.1. Introduction

Stress is a general term which refers to two distinct concepts, namely ‘stressors’ (environmental characteristics, or thoughts which cause an adverse reaction in the individual) and ‘strain’ (the individual’s adverse reaction to the stressor **(Martin, 2006).**

Occupational stress refers to the process through which employees perceive, appraise, and respond to adverse or challenging job demands at work.The first element is the stressors, which are situational stimuli that require adaptive responses from employees. Strains, on the other hand, refer to a wide range of negative and harmful responses that employees may adopt when they encounter stressors. Strains can be emotional (e.g., anxiety, depression), physiological (e.g., problems with cardiovascular, biochemical, gastrointestinal, and musculoskeletal functioning), or behavioral (e.g., substance abuse, smoking).**(Pamela et al, 2010)**

In an earlier study show that the occupational stress can no longer be considered an occasional, personal problem to be remedied with palliatives. It is becoming an increasingly global phenomenon, affecting all categories of workers, all workplaces and all countries**(Tom Cox and Amanda Griffiths,1996).**Also was encountered the occupational stress is an unfortunate consequence of pressure on workers to become more productive, affecting a growing number of people across the world. It is estimated that up to 40% of all sickness absence from work is due to stress. In the United Kingdom alone this is costing employers and health insurance companies billions of pounds each year in lost productivity and health insurance claims.**(Pamela et al, 2010)**

In previous study 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. Stress is part of nursing because what they do is high risk and personal in nature. It requires them to shift gears constantly between priorities. It requires focus and great listening skills while under pressure, which runs counter to our natural ability to pick up subtle cues. That inherent stress can cause mistakes of omission or commission. It impacts relationships with peers and it causes health issues, which is especially important with our aging nursing workforce. It impacts their interest in self-development. It impacts their interest in participating in recognizing others and participating to make the system better. In other words, stress impacts every aspect of nursing.**(Institute of Heart Math, 2004)**

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.**(Robert, 2005)**

It has previously been demonstrated by Kohler, Mary that work-related stress, quality of life, and job satisfaction are the factors that greatly affect turnover for registered nurses in the acute care setting, workload, that resulting from inadequate resources and inability to deliver high quality patient care. Inefficiencies in healthcare delivery, a lack of organizational support .lack of support leads to situations in which nurses are more likely to leave their positions. The demands of nursing and a lack of social support seem to cause emotional exhaustion and increasedstress levels. All of these factors can be responsible for the stress at work.**(Kohler Mary, 2010)**

1.2. Rational

Firstly, It is very important to point out that a most of the nursing students in the first year does not suffer from stress , but after the start of training in the hospital, and even after the completion of their studies and engage in various hospitals, find them suffering from stress.

Several authors have described the costs of stress in organizational terms are much broader than just those incurred through sickness absence. They include increased staff turnover, recruitment problems, low morale in staff, decreased productivity, poor time-keeping, impaired decision-making, increased conflicts, increased errors rates, retirement. Also work-related stress has been identified as a relevant problem leading to negative effects on health and quality of life.The personal stressors (family, financial, and health concerns) have the greatest impact on satisfaction with supervision. Positive support in the workplace attenuated the effects of job-related stressors on the outcome.**(Brigitteand Wolfgang,2013)**

Also it is interest to note that the workload, leadership/management style, professional conflict and emotional cost of caring have been the main sources of distress for nurses for many years in previous study.**(Linda et al, 2006)**

According to previous investigation noticed that there are relationships between noise and perceived stress, perceived stress and job satisfaction, job satisfaction and turnover intention, and perceived stress and turnover intention.**(Applebaum Diane, 2010)**

It is believed that the nursing is stressful work, and there is a need to understand the nature of that problem and to better manage it. Both anxiety about the more tangible hazards of nursing, and exposure to the psycho-social hazards associated with that work can give rise to the experience of stress. In turn, that experience can detrimentally

influence job satisfaction, psychological well-being and physical health.**(Tom Cox and Amanda Griffiths, 1996)**

Finally a majority of nurse's staff in different hospitals in Sudan "especially in ElmekNemir university hospital" suffer from work stress, and this needs to look severely about the reason for this concern, is it a nursing as a profession, or other consequences of the nursing profession.

1.3. Objectives

General objective:-

Assessment and Measure of Stress Level amongst Nurses in ElmekNemir University Hospital

Specific objectives:-

1. To assess nurse's knowledge about stressdefinition.
2. To assess nurse's knowledge about stresseffects on nurses.
3. To identify the possible causes and frequency of stress experienced by nursesworking in ElmekNemir hospital.
4. To determine stressors that cause stress among nurses, and measure the level of stress.
5. To identify the management and coping strategies used by nurses.

2- Literature review

2.1. Background:

It is generally believed that job stress among healthcare staff is becoming a common occurrence in most public health services. In the high demand for effectiveness and efficiency of public health service delivery, nursing staff is placed on a high responsibility to ensure the demand of public citizen is satisfied . Nursing focuses on activities that relate to diagnosis and treatment of human responses to health and illness phenomena. However, inherent in this caring occupations are numerous sources of built-in stress that become occupational hazards for nurses . There are many components to this experience of stress such as staff shortages, high level of responsibility, dealing with the death and the dying, dealing with patient's relatives, coping with the unpredictable, making critical judgment about interventions and treatment, and balancing between work and family commitments. These are forces that realistically generate stress among nurses. The issue of insufficient nursing staff and its effects has caused many nurses experiencing job stress in carrying out their responsibility and maintaining the standards of patient care in public health services . Furthermore, staff shortages with increasing workload raise concerns to the nurse's ability to cope and deliver adequate service to the client, which in turn create a stressful environment within nursing profession **(Loo-See Beh ,2012)**

It is obvious that the level of stress and its psychological symptoms are emphasized with growing age, due to life events and increased responsibilities. The female gender is more often affected by stress, coping mechanisms having a special role in the differences between the two genders. The length of service is also a factor that increases stress

levels in healthcare; professional dissatisfaction, routine and increased demands being a major source of stress. **(Cozman and Dumitru, 2012)**

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. **(Brenda Happell et al, 2013)**

There is 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, thereby developing stronger intention to leave their job. **(Yu-Mei Chiang andYuhsuan Chang, 2012)**

It is considered that the effects of stress have more to do with the characteristics of the work environment and overall workload than with the degree of specialization on the unit. Also the intraprofessional conflict (i.e. with other nurses) is less psychologically damaging than is interprofessional conflict (i.e. conflict with physicians). **(Joel Hill house and Christine Adler, 1997)**

It is stated that nurses working in public hospitals generally more stress than private hospitals, nurses' satisfaction with their job increased particularly in public hospitals, which may be attributable to age, improvements in monetary compensation, and organizational support. **(Paul Tysona and RanaPongruengphantb, 2004)**

In a previous study show those high levels of stress and the challenges of meeting the complex needs of critically ill patients and their families can threaten job satisfaction and cause turnover in nurses. Job stress and nursing leadership are the most influential variables in the explanation of job satisfaction. Retention efforts targeted toward management strategies that empower staff to provide quality care along

with focal interventions related to the diminishment of stress caused by nurse-family interactions are warranted. **(MM Bratt et al, 2000)**

In an earlier study revealed that the hazards of nursing are nurses' work, work environment and organization, or work-related events which carry the potential for causing harm. Nurses may experience stress in relation to exposure to the psycho-social and organizational hazards of work as well as the more tangible and physical workplace hazards.**(Tom Cox and Amanda Griffiths.1996)**

It is interest to note that 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. **(wenruwang et al ,2011)**

Also it is worth pointing out that there are six strategies to cope with work stress in nursing. These included problem-oriented behavior, trying to unwind and put things into perspective, expressing feelings or frustrations, keeping the problem to yourself and accepting the job as it is. **(Philip J. Dewe, 1987)**

2.2. Definitions of stress:

It is known that the experience of a perceived threat (real or imagined) to one's mental, physical, or spiritual well-being, resulting from a series of physiological responses and adaptations **(Brian Luke Seaward, 2011)**,Also 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 **(Patricia Suresh et al, 2013)**,Occupational stress can be defined as the potentially harmful physical and emotional

responsesthat occur when job requirements do not match the capabilities, resources, or needs of the worker.**(JefAdriaenssens etal, 2011)**

It is stated that a psychological state, it can result from exposure, or threat of exposure, both to the more tangible workplace hazards and to the psycho-social hazards of work.**(Tom Cox and Amanda Griffiths, 1996)**.

In Eastern philosophies, stress is considered to be an absence of inner peace. In Western culture, stress can be described as a loss of emotional control. Psychologically speaking, stress, as defined by noted researcher Richard Lazarus, is a state of anxiety produced when events and responsibilities exceed one's coping abilities. Physiologically speaking, stress is defined as the rate of wear and tear on the body. Selye added to his definition that stress is the nonspecific response of the body to any demand placed upon it to adapt, whether that demand produces pleasure or pain. Selye observed that whether a situation was perceived as good (e.g., a job promotion) or bad (e.g., the loss of a job), the physiological response or arousal was very similar. The body, according to Selye, doesn't know the difference between good and bad stress **(Brian Luke Seaward, 2011)**

There are different definitions of stress in many ways:

1. The common response to attack.
2. Any influence that disturbs the natural equilibrium of the living body.
3. Some taxation of the body's resources in order to respond to some environmental circumstance.
4. The common response to environmental change.**(jermystrank, 2005)**

2.3. Classification of the causes of stress at work:

Stress affects people at work in many ways and the causes of stress are diverse. These causes can be associated with elements of the physical; environment, such as open plan office layouts, the way the organization is

managed, relationships within the organization and even inadequate work equipment. The causes can be classified as follows:

2.3.1. The physical environment:

Poor working conditions associated with the following can be frequent sources of stress in the workplace:

1. Insufficient space to operate comfortably, safely and in the most efficient manner;
2. Lack of privacy which may be disconcerting for some people;
3. Open plan office layouts, resulting in distractions, noise, constant interruptions and difficulty in concentrating on the task in hand; Inhuman workplace layouts requiring excessive bending, stretching and manual handling of materials;
4. Inadequate temperature and humidity control, creating excessive discomfort;
5. Poor levels of illumination to the extent that tasks cannot be undertaken safely;
6. Excessive noise levels, requiring the individual to raise his voice;
7. Inadequate ventilation, resulting in discomfort, particularly in summer months.**(jermystrank, 2005)**

2.3.2. The organization:

The organization, its policies and procedures, its culture and style of operation can be a cause of stress. Culture is defined as ‘a state or set of manners in a particular organization’. All organizations incorporate one or more cultures, which may be described as, for example, friendly, hostile, unrewarding or family-style. Stress can be associated with organizational culture and style due to, for instance:

1. Insufficient staff for the size of the workload, resulting in excessive overtime working.

2. Too many unfilled posts, with employees having to ‘double up’ at tasks for which they have not necessarily been trained or instructed.
3. Poor co-ordination between departments.
4. Insufficient training to do the job well, creating uncertainty and lack of confidence in undertaking tasks.
5. Inadequate information to the extent that people ‘do not know where they stand’.
6. No control over the workload, the extent of which may fluctuate on a day-to-day basis.
7. Rigid working procedures with no flexibility in approach.
8. No time being given to adjust to change, one of the greatest causes of stress amongst employees.[(jermystrank, 2005)]

2.3.3. The way the organization is managed:

Management styles, philosophies, work systems, approaches and objectives can contribute to the individual stress on employees, as a result of:

- ❖ Inconsistency in style and approach by different managers.
- ❖ Emphasis on competitiveness, often at the expense of safe and healthy working procedures.
- ❖ Over-dependence on overtime working, on the presumption that employees are always amenable to the extra cash benefits to be derived from working overtime.
- ❖ The need to operate shift work which can have a detrimental effect on the domestic lives of employees in some cases.[(jermystrank, 2005)]

2.3.4. Role in the organization:

Everyone has a role, function or purpose within the organization. Stress can be created through:

- ❖ Role ambiguity.

- ❖ Role conflict.
- ❖ Too little responsibility.
- ❖ Lack of senior management support, particularly in the case of disciplinary matters dealt with by junior managers, such as supervisors,
- ❖ Responsibility for people and things which some junior managers, in particular, may not have been adequately trained to deal with.[(jermystrank, 2005)]

2.3.5. Relations within the organization:

How people relate to each other within the organizational framework and structure can be a significant cause of stress, due to, perhaps:

- ❖ Poor relations with the boss which may arise through lack of understanding of each other's role and responsibilities, attitudes held, and other human emotions, such as greed, envy and lack of respect.
- ❖ Poor relations with colleagues and subordinates created by a wide range of human emotions.
- ❖ Difficulties in delegating responsibility due, perhaps, to lack of management training, the need 'to get the job done properly', lack of confidence in subordinates and no clear dividing lines as to the individual functions of management and employees.
- ❖ Personality conflicts arising from, for example, differences in language, regional accent, race, sex, temperament, level of education and knowledge.
- ❖ No feedback from colleagues or management, creating a feeling of isolation and despair.[(jermystrank, 2005)]

2.3.6. Career development:

Stress is directly related to progression or otherwise in a career within the organization. It may be created by:

- ❖ Lack of job security due to continuing changes within the organization's structure.
- ❖ Overpromotion due, perhaps, to incorrect selection or there being no one else available to fill the post effectively.
- ❖ Underpromotion, creating a feeling of 'having been overlooked'.
- ❖ The job has insufficient status.
- ❖ Not being paid as well as others who do similar jobs.[(jermystrank, 2005)]

2.3.7. Personal and social relationships:

The relationships which exist between people on a personal and social basis are frequently a cause of stress through, for instance:

- ❖ Insufficient opportunities for social contact while at work due to the unremitting nature of tasks.
- ❖ Sexism and sexual harassment;
- ❖ Racism and racial harassment;
- ❖ Conflicts with family demands.
- ❖ Divided loyalties between one's own needs and organizational demands.[(jermystrank, 2005)]

2.3.8. Equipment:

Inadequate, out-of-date, unreliable work equipment is frequently associated with stressful conditions amongst workers. Such equipment may be:

- ❖ Not suitable for the job or environment.
- ❖ Old and/or in poor condition.
- ❖ Unreliable or not properly maintained on a regular basis, resulting in constant breakdowns and down time.
- ❖ Badly sited, resulting in excessive manual handling of components or the need to walk excessive distances between different parts of a processing operation.

- ❖ Of such a design and sited in such a way that it requires the individual to adopt fixed and uncomfortable posture when operating same.
- ❖ Adds to noise and heat levels, increasing discomfort and reducing effective verbal communication between employees.[(jermystrank, 2005)]

2.3.9. Individual concerns:

All people are different in terms of attitudes, personality, and motivation and in their ability to cope with stressors. People may experience a stress response due to:

- ❖ Difficulty in coping with change.
- ❖ Lack of confidence in dealing with interpersonal problems, such as those arising from aggression, bullying and harassment at work.
- ❖ Not being assertive enough, allowing other people to dominate in terms of deciding how to do the work.

It is justifiable the causes of stress are many and varied. No two people respond to the same stressor in the same way. In the workplace, a host of factors may contribute to employee stress. When undertaking risk assessments, employers need to consider the stress-related hazards to their employees and instigate strategies to prevent stress arising in the first place.[(jermystrank, 2005)]

2.4. Stressors in caring for patients:

Various stressors related to caring for seriously ill patients and their families occur because of personal, interpersonal, health care system, and professional variables.[(Deborah Witt Sherman, 2004)]

2.4.1. Personal variables:

have been found to have an influence on nurse`s experience of stress. For example, personality characteristics such as perfectionism and overinvolvement with patients may contribute to compassion fatigue or burnout. Self-esteem, sense of mastery, and purpose in life are also

related to the emotional stress associated with caring for the dying.Hospice nurses who have coped adequately with death tend to be more religious, have a clear philosophy of life, and live in the present rather than the past or future.As nurse's witness dying and death, they may feel personally vulnerable to illness or struggle emotionally with grief. They may have unrealistic expectations of themselves—believing that “good "clinicians should be able to deal with “bad "feelings—or dismiss or avoid negative, stressful emotions. Further risk factors, such as a history of psychiatric illness, may predispose one to burnout; younger nurses with fewer years of experience report higher levels of distress.In a qualitative study of palliative care professionals, including nurses, reported that less-experienced clinicians focused on the technical aspects of care, while those with more than 10 years' experience focused on their commitment to patient and family and developing trusting and open therapeutic relationships. **(Deborah Witt Sherman, 2004)**

2.4.2. Interpersonal variables:

That contribute to burnout include patient and family stressors" such as the degree to which the patient and his family accept his illness and impending death and the rate of the patient’s deterioration" as well as stressful interactions with colleagues. It’s not unusual for nurses to bond strongly with patients who remind them of someone special in their lives or identify with patients who are similar to themselves in age, appearance, or background.Identification with patients can revive personal pain and heighten feelings of guilt or a lack of control, resulting in burnout. **(Deborah Witt Sherman, 2004)**

Nurses often grieve the loss of their patients, and their grieving may not be complete before the next patient death. The cumulative losses may lead to anger, guilt, irritability, frustration, feelings of helplessness and inadequacy, sleeplessness, and depression. Often there’s no

opportunity for debriefing, either while working with patients or after they die.Having a long-standing professional relationship or friendship with a patient or caring for a famous, extremely angry, or depressed patient may also increase distress. **(Deborah Witt Sherman, 2004)**

The high level communication and psychosocial skills needed to respond to patients and families can be a source of interpersonal stress for nurses, as can caring for patients whose families have problems such as substance abuse, violence, or depression. Nurse's knowledge of another's suffering or trauma, and the sometimes unmet desire to alleviate it, may result in secondary traumatic stress. If left unaddressed, secondary traumatic stress may result in secondary traumatic stress disorder, the symptoms of which are nearly identical to those of post-traumatic stress disorder.**(Deborah Witt Sherman, 2004)**

Nurses may need extra emotional support to avoid developing such psychological symptoms.Inadequate support from colleagues after a patient dies, as well as not recognizing the need for time off or reassignment to different duties may also result in emotional and social isolation and an eventual desire to leave the work setting.Nurses may find themselves stressed by issues such as understaffing and those associated with interdisciplinary care. For example, as hospitals begin offering palliative care services, an advanced practice nurse may be the only full-time professional on the palliative care team. Inadequate staffing or limited involvement of staff from other disciplines can result in unmanageable workloads and stress. However, interpersonal conflict can also arise as nurses roles overlap with those of other members of the interdisciplinary team. Stress further increases if there is disagreement among staff members regarding the goals of care or if team meetings are not held. Nurses relationships with their supervisors, nurse managers, and fellow nurses can either increase or decrease stress. In reviewing the

stressors and manifestations of stress in oncology and palliative care settings, recognized that a lack of supportive, collaborative workplace relationships diminished nurse's self-esteem and reduced professional effectiveness. **(Deborah Witt Sherman, 2004)**

2.4.3. Health care system variables:

The pressures of increased workloadsand given the nursing shortage, this is an especially urgent concerncan create additional stress for nurses, as can organizational concerns such as scheduling conflicts and, for administrative nurses, uncertainty about funding. **(Deborah Witt Sherman, 2004)**

2.4.4. Professional variables:

Nurses often face moral and ethical dilemmas in their work. For example, a nurse may find that a patient's family members want everything possible done to prolong life while, in the nurse's estimation, such measures would only prolong suffering. Stress may occur when it's difficult or impossible to practice in accordance with one's own values. Adverse effects of treatments and treatment errors are also sources of distress in nurses. An awareness of professional liability and a fear of being sued may exacerbate stress. **(Deborah Witt Sherman, 2004)**

2.5. Self-care, insulation against stress:

Although stressors that can result in burnout among nurses may not be eliminated immediately, they can be reduced when nurses make caring for themselves a priority. One can think of self-care, then, as a form of insulation against stress. There's a common tendency to look for external solutions to problems rather than internal ones. By paying attention to thoughts, feelings, and actions the inner life a nurse can maintain important mind–body–spirit connections. **(Deborah Witt Sherman, 2004)**

For some nurses, the stresses of nursing may create a crisis in meaning and personhood, central aspects of spirituality.In the quest for

personal understanding, nurses should consider their personal beliefs, in general and in their roles as nurses. Equally important is the development of self-confidence: trusting instincts and intuition, as well as appreciating personal strengths and limitations. That means knowing, among other things, why they chose nursing, particularly positions that require caring for seriously ill patients and their families. **(Deborah Witt Sherman, 2004)**

Martin defines personal power as "the ability to control one's actions and personal and professional life" and says that in order to remain healthy, nurses must exercise personal power. For nurses, exercising such power is an important step in alleviating or preventing stress and burnout. Healthy personal and professional relationships—as well as spiritual connections—are vital. It's crucial that nurses not view death as a failure. Indeed, death can be seen as an opportunity to face adversity in life and to embrace life morefully. **(Deborah Witt Sherman, 2004)**

2.5.1. Self-care and personal stressors

Self-care is the self-initiated behavior that people choose to incorporate to promote good health and general well-being. Nurses must recognize their stress reactions and symptoms and employ self-care strategies to replenish themselves in physical, emotional, mental, and spiritual ways in order to overcome the various sources of stress.

2.5.1.1. Physical health:

To promote physical health, nurses must care for their bodies by eating well, exercising (aerobics, yoga, walking, sports), and engaging in restful and relaxing activities (massage therapy, napping, taking warm baths). Biofeedback and acupuncture are two methods that have been shown to balance physical energy.**(Deborah Witt Sherman, 2004)**

2.5.1.2. Emotional health:

Can be bolstered by developing a calm mind and focusing on peaceful thoughts.Meditation and listening to quiet music are two good

methods. Letting go of negative emotions such as resentment may be difficult but worthwhile; by recognizing positive emotions each day, interacting with optimistic people, enjoying fantasy and play, keeping a daily journal, and speaking with colleagues or friends about concerns, positive feelings may overtake negative ones.**(Deborah Witt Sherman, 2004)**

2.5.1.3. Mental health:

Is strengthened by making deliberate choices in response to stress. Setting priorities, saying no, letting go of conflict, and keeping the mind open to new ideas can disrupt upsetting thoughts. Distractions such as music or hobbies can also help.**(Deborah Witt Sherman, 2004)**

2.5.1.4. Intuitional health:

Can be nurtured by meditation and relaxation techniques that augment one's sense of inner peace, harmony, and wholeness.Nurses working with dying patients in particular should consider ways of promoting inner harmony in their day-to-day work.**(Deborah Witt Sherman, 2004)**

2.5.2. Tips for Self-Care, listening to the body, caring for the self.

- ❖ Believe that optimal wellness is possible and that your body has the knowledge to achieve wellness and healing.
- ❖ Listen to your body's symptoms and its messages of health and healing. Seek medical care or the expertise of a holistic practitioner if necessary.
- ❖ Work with what you have, dispelling fears and finding strength to handle what is happening in the present moment.
- ❖ Keep reminding yourself that you have a right to nurture yourself because if you don't value yourself, you cannot be renewed.
- ❖ Realize that you don't have to be all things to all people. You can say no and set limits without putting others out of your heart.
- ❖ Remember that you have a right to your own life. Giving to others does not mean neglecting yourself.

- ❖ Consider that your best is good enough and no one has the right to judge you or make you feel guilty.
- ❖ Keep a positive attitude, and accept each day's offerings.
- ❖ Do not try to control people or events or expect certain outcomes.
- ❖ Pay attention to the people and activities that nurture your mind, body, and spirit. Commit to making time to increase those interactions or activities.
- ❖ Acknowledge negative feelings without judgment, and let go of negative emotions as soon as possible.
- ❖ Prioritize your tasks and responsibilities, and delegate when appropriate or necessary.
- ❖ Ask for help and accept it when it's offered.
- ❖ Learn to say no to protect your time and energy while setting reasonable expectations for yourself.
- ❖ Remember that service means enhancing another person's life, not giving yours away.
- ❖ Be aware of destructive ways of coping such as misusing medications, drinking too much, or overeating. Seek health care if you are experiencing changes in your physical or emotional health.**(Deborah Witt Sherman, 2004)**

2.5.3. Self-care and interpersonal stressors

When relations with others are difficult, nurses may find it helpful to reflect on the rewards of their work, the moments in which they've made the greatest difference to patients and families. Such memories can serve to reinforce a nurse's commitment to her work, even provide a sense of personal transcendence. To help nurses cope with loss and grief, memorial services for patients and discussion of patients during team rounds or meetings can be important, if time is taken to reflect on what happened at the time of death, the care given, and the lessons learned.

Staff may also create patient memory books or, in a journal, write “letters to patients "expressing their feelings about caring for them. It can be of great value to speak with colleagues when pain overwhelms, or to seek professional counseling.**(Deborah Witt Sherman, 2004)**

2.5.4. Self-care and health care system and professional stressors:

Although nurses may not always have direct influence over systemic stressors regarding issues such as continuity of care, they can speak to their nursing and hospital administrators as advocates for appropriate resources, staffing, and workloads. Administrative policies that provide support on both the institutional and unit levels should be developed.For example, tuition support that enables nurses to seek further education can increase staff confidence in nurses 'skills. In-service training and continuing education programs can give a necessary boost to the quality of care a nurse provides, while at the same time strengthening the interdisciplinary team. Discussions about professional roles and expectations are important among nurses, particularly regarding ethical issues often encountered in caring for the seriously ill and dying.**(Deborah Witt Sherman, 2004)**

2.6. The Nature of Stress:

2.6.1. The Stress response:

In 1914 Harvard physiologist Walter Cannonfirst coined the term fight-or-flight responseto describe the dynamics involved in the body’s physiological arousal to survive a threat. In a series of animal studies, Cannon noted that the body prepares itself for one of two modes of immediate action: to attack or fight and defend oneself from the pursuing threat, or to run and escape the ensuing danger. What Cannon observed was the body’s reaction to acute stress, what is now commonly called the stress reaction. The fight response required physiological preparations

that would recruit power and strength for a short duration, conversely, the flight response, he thought, was induced by fear.**(Brian Luke Seaward, 2011)**

2.6.2. Stages of the fight-or flight response:

Stage 1:

Stimuli from one or more of the five senses are sent to the brain (e.g., a scream, the smell of fire, the taste of poison, a passing truck in your lane).

Stage 2:

The brain deciphers the stimulus as either a threat or a non-threat. If the stimulus is not regarded as a threat, this is the end of the response (e.g., the scream came from the television). If, however, the response is decoded as a real threat, the brain then activates the nervous and endocrine systems to quickly prepare for defense and/or escape.

Stage 3:

The body stays activated, aroused, or "keyed-up" until the threat is over.

Stage 4:

The body returns to homeostasis, a state of physiological calmness, once the threat is gone.**(Brian Luke Seaward, 2011)**

2.6.3. Types of Stress:

Actually, there are three kinds of stress: eustress, neustress, and distress.

2.6.3.1. Eustress: Good stress; any stressor that motivates an individual toward an optimal level of performance or health.

2.6.3.2. Neustress: Any kind of information or sensory stimulus that is perceived as unimportant or inconsequential.

2.6.3.3. Distress: The unfavorable or negative interpretation of an event (real or imagined) to be threatening that promotes continued feelings of fear or anger; more commonly known simply as stress.**(Brian Luke Seaward, 2011)**

2.6.4. Types of Stressors:

A. **Bio ecological influences:**

There are several biological and ecological factors that may trigger the stress response in varying degrees, some of which are outside our awareness. These are external influences, including sunlight, gravitational pull, solar flares, and electromagnetic fields, that affect our biological rhythms.

B. **Psycho intrapersonal influences:**

Make up the greatest percentage of stressors. These are the perceptions of stimuli that we create through our own mental processes (perceptions and interpretations). Psycho intrapersonal stressorsinvolve those thoughts, values, beliefs, attitudes, opinions, and perceptions that we use to defend our identity or ego.

C. Social influences:

Include financial insecurity, the effects of relocation, some technological advances, violation of human rights, and low socioeconomic status.**(Brian Luke Seaward, 2011)**

2.6.5. The general Adaptation Syndrome:

Hans Selye, a young endocrinologist noted that several physiological adaptations occurred as a result of repeated exposures to stress, adaptations that had pathological repercussions. Examples of these stress-induced changes included the following:

1. Enlargement of the adrenal cortex (a gland that produces stress hormones).
2. Constant release of stress hormones; corticosteroids released from the adrenal cortex.
3. Atrophy or shrinkage of lymphatic glands (thymus gland, spleen, and lymph nodes).
4. Significant decrease in the white blood cell count

5. Bleeding ulcerations of the stomach and colon
6. Death of the organism

Selye referred to these collective changes as the general adaptation syndrome(GAS), a process in which the body tries to accommodate stress by adapting to it. From his research, Selye identified three stages of the general adaptation syndrome:

Stage one: Alarm reaction.

The alarm reaction describes fight-or-flight response; in this stage several body systems are activated, primarily the nervous system and the endocrine system, followed by the cardiovascular, pulmonary, and musculoskeletal systems. All senses are put on alert until the danger is over.

Stage two: Stage ofresistance.

In the resistance stage, the body tries to revert to a state of physiological calmness, or homeostasis, by resisting the alarm. The body stays activated or aroused, usually at a lesser intensity than during the alarm stage but enough to cause a higher metabolic rate in some organ tissues. One or more organs may in effect be working overtime and, as a result, enter the third and final stage.

Stage three: Stage of exhaustion.

Exhaustion occurs when one (or more) of the organs targeted by specific metabolic processes can no longer meet the demands placed upon it and fails to function properly.**(Brian Luke Seaward, 2011)**

2.7. Psycho physiological background of stress:

- Psychophysiology is a term to describe the body's physiological reaction to perceived stressors, suggesting that the stress response is a mind-body phenomenon.

- There are three physiological systems that are directly involved in the stress response: the nervous system, the endocrine system, and the immune system.
- The nervous system comprises two parts: the central nervous system and the peripheral nervous system. The central nervous system includes three levels: the vegetative, the limbic, and the neocortical.
- The limbic system houses the hypothalamus, which controls many functions, including appetite and emotions. The neocortical level processes and decodes all stimuli.
- The most important part of the peripheral nervous system regarding the stress response is the autonomic nervous system, which activates sympathetic and parasympathetic neural drives. Sympathetic drive causes physical arousal (e.g., increased heart rate) through the secretion of epinephrine and norepinephrine, whereas parasympathetic drive maintains homeostasis through the release of adrenocortical hormones. The two neural drives are mutually exclusive, meaning that you cannot be aroused and relaxed at the same time.
- The endocrine system consists of a series of glands that secrete hormones that travel through the circulatory system and act on target organs. The major stress gland is the adrenal gland.
- The adrenal gland has two parts, each performing different functions. The cortex (outside) secretes cortisol and aldosterone, while the medulla (inside) secretes epinephrine and norepinephrine.
- The nervous system and endocrine system join together to form metabolic pathways or axes. There are three pathways: the adrenocorticotropic hormone axis, the vasopressin axis, and the thyroxin axis.

- The body has several backup mechanisms to ensure physical survival. These systems are classified as immediate, lasting seconds (sympathetic drive); intermediate, lasting minutes (adrenal medulla); and prolonged, lasting hours if not weeks (neuroendocrine pathways). Each system is involved in several metabolic pathways.
- Stress is considered one of the primary factors associated with insomnia. Good sleep hygiene consists of behaviors that help promote a good night's sleep rather than detract from it, including decreased caffeine consumption, consistent bed times, and a host of effective relaxation techniques that enhance sleep quality.
- A decade of brain research reveals that humans are hard-wired for stress through an intricate pattern of neural pathways designed for the fight-or-flight response. Research also suggests that chronic stress appears to atrophy brain tissue, specifically the hippocampus.**(Brian Luke Seaward, 2011)**

2.8. Stress and health:

2.8.1. Work hazards, stress and health:

A work hazard is an aspect of the work situation, or an event, which carries the potential for harm. Work hazards can be broadly divided into *(1) the physical*, which include the biomechanical, chemical, microbiological and radiological, and *(2) the psycho-social*. Psycho-social hazards are those which relate to the interactions among job content, work organization, management systems, environmental and organizational conditions, on the one hand, and workers' competencies and needs, on the other. Those interactions which prove hazardous influence workers' health through their perceptions and experience. Exposure to both types of hazard may threaten psychological and physical health. The experience of work-related stress generally detracts from the quality of nurses' working

lives, increases minor psychiatric morbidity, and may contribute to some forms of physical illness.[Tom Cox and Amanda Griffiths, 1996]

2.8.2. The impact of stress on health and performance:

Stressors produce cognitive, emotional, physiological, and behavioral changes that can be detrimental to both our physical and psychological health. Examples of detrimental cognitive changes include worry, loss of concentration, memory loss, and inability to make decisions as well as other mental changes. Emotional changes may include apprehensiveness, anxiety, irritation, anger, sadness, shame, guilt, and depression. Physiological reactions to stressors typically involve not only the central nervous system, but also the immune system, the autonomic nervous system, and the endocrine system. These reactions may include heart rate increases, blood pressure elevation, muscle tension, dry throat and mouth, trembling, teeth grinding, cold hands and feet, headaches, weakness, fatigue, and frequent illnesses. Changes due to stressors typically have negative effects on our relationships and on our work performance. Behavioral changes such as frequent arguing poor work performance, overeating or undereating.[Rick Harrington (2012)], these are affectiveresponses resulting in possible anxiety, tension, anger, depression and apathy experienced by the individual. The interpersonal affective response was possible irritability and oversensitivity demonstrated in conflict with others leading to the organizational response of job dissatisfaction. Cognitive response describes how the mind processes the information leading to a possible feeling powerlessness. The resulting organizational response was cynicism about role at work, feeling undervalued and could lead to distrust in work colleagues at all levels. Physical effects of stress in the workplace also have effect on the individual with possible physical distress, psychosomatic disorders and immune system impairment. Behavioral

response to stress has individual consequences such as hyperactivity, impulsivity, eating disorders and raised consumption of caffeine or tobacco. The behavioral response can manifest in poor work performance, increased sick leave and staff turnover. Motivational outcome could manifest as loss of zeal and enthusiasm with disillusionment, boredom and demoralization. Interpersonal effects could be loss of interest in colleagues, indifference and discouragement. The organizational impact is attrition, low moral lack of work initiative. This provided an overview of the effects of stress in the workplace, though this applied to all workplaces as opposed to health care settings. The consequences of stress can lead to symptoms such as alcohol and drug dependence and eating disorders along with sleep disorders and absenteeism. Emotional symptoms outlined included inability to relax, and can lead to anxiety and depression with physical symptoms such as frequent colds and headaches associated with stress. **(Patricia Suresh et al, 2013)**

There has been anintuitive association between stress and disease, the immune system has been discovered to be greatly affected by prolonged bouts of stress. Stress-related diseases were placed into one of two categories: those related to an over responsiveautonomic nervous system (e.g., migraines, ulcers, and coronary heart disease) and those associated with a dysfunctional immune system (e.g., colds and cancer). Research shows that several relaxation techniques are effective as complementary strategies in decreasing the symptoms of stress-related illness. **(Brian Luke Seaward, 2011)**

2.9. Stress management:

Risk assessment and risk management in the workplace:

1. Identification of hazards.
2. Assessment of associated risk.
3. Implementation of appropriate control strategies.

4. Monitoring of effectiveness of control strategies.
5. Reassessment of risk.
6. Review of information needs and training needs of workers exposed to hazards.**(Tom Cox and Amanda Griffiths, 1996)**

2.9.1. Risk assessment:

1. Recognition that nurses are experiencing stress through work.
2. Analysis of potentially stressful situations confronting nurses, with the identification of the psycho-social and other hazards involved, the nature of the harm that they might cause, and the possible mechanisms by which the hazards, the experience of stress and the harm are related.
3. Estimation and evaluation of the risk to nurses' health associated with exposure to those hazards through the experience of stress, and the justification of intervening to reduce stress and its effects.**(Tom Cox and Amanda Griffiths, 1996)**

2.9.2. Risk management:

1. Design of reasonable and practicable stress management (control) strategies.
2. Implementation of those strategies.
3. Monitoring and evaluation of the effects of those strategies feeding back into a reassessment of the whole process.**(Tom Cox and Amanda Griffiths, 1996)**

2.10. The concept of coping:

How individuals perceive or appraise any specific problem will determine what coping strategies they use. Coping can include attempts at "managing or altering the problem (problem focused coping) or regulating the emotional response to the problem (emotion focused coping). Problem focused coping includes problemsolving activities and seeking information, while emotion-focused coping may include

behaviors, and also cognitive activities such as denial of facts to distort reality. Coping is viewed as a process, determined by cognitive appraisal and is context dependent.**(Vatiswa veronica maki, 2006)**

2.10.1. Coping strategies:

Successful coping strategies to deal with the cause of perceived stressors involve four basic components:

- **The first** is an increased awarenessof the problem: a clear focus and full perspective on the situation at hand. By their very nature, stressors tend to encourage a myopic view, distorting both focus and perspective. A good coping strategy will begin to remove the blinders to the true nature of the problem and open your view to a host of possibilities.
- **Second,** effective coping strategies involve some aspect of information processing. The dynamics of information processing include adding, subtracting, changing, and manipulating sensory input to deactivate the perception of the stressor before physical damage occurs.
- **Third,** the result of information processing will most likely include a new series of actions, or modified behaviors, which, combined with the new cognitive approach, ambush the stressor from all sides.
- **The fourth** and perhaps most important component is peaceful resolution. For a coping strategy to be effective, it must work toward a satisfactory resolution.**(Brian Luke Seaward ,2011)**

2.11. Relaxation Techniques:

As is well known we process information from the five senses: vision, hearing, smell, taste, and touch. Stimuli picked up through one or more of these senses are then delivered to the cerebral cortex and deciphered, and then processed by the subcortex of the brain. Each piece

of information tracked by the senses is labeled with a perception, which is interpreted as either a threat or a non-threat. If a stimulus is perceived to be a threat, then an alarm is sounded and the body is activated as a means of survival. To relax the body from a heightened state of physical arousal to homeostasis, action must be taken to alter both the quality and the quantity of stimuli taken in by the five senses. The purpose of relaxation techniques is to do just that: to deactivate the body's sensory system, decrease stimuli and their associated perceptions, and replace these with nonthreatening sensations that promote the relaxation response. Because the mind-body connection is so strong, relaxation techniques promote not only physical calming but rebound to calm mental processes, creating mental homeostasis. This allows for greater self-awareness.**(Brian Luke Seaward, 2011)**

2.12. Findings from previous studies using the Nursing Stress Scale as a research instrument:

Previous studies that have used the same scale are outlined in chronological order. For clarity and comparison the following studies are illustrated in tabular form in table below. This table illustrates the country in which the study was conducted and the number of participants andoutlines the highest and lowest ranking factors that emerged from the studies.**(Patricia Suresh et al, 2013)**

Studies in Chronological Order	Country of Study	Discipline of Nursing	Partici-pants	Highest Equivilised Score	Lowest Equivilised Score
Healy and McKay, 2000	Australia	Registered nurses (unspecified discipline)	129	Workload	Lack of staff support
Payne, 2001	United kingdom	Hospice nurses and Care assistants	89	Death and dying	Uncertainty concerning treatment
Pinikahana and Happell, 2004	Australia	Psychiatric nurses	136	Workload	Conflict with other nurses
Lambert et al, 2004	Japan	General and Psychiatric nurses	310	Death and dying	Lack of staff support
Lambert et al, 2004	South Korea	General and Psychiatric nurses	449	Workload	Conflict with other nurses
Lambert et al, 2004	Thailand	General and Psychiatric nurses	297	Workload	Conflict with other nurses
Lambert et al, 2004	USA Hawaii	General and Psychiatric nurses	498	Workload	Lack of support
Hughes and Umeh, 2005	England	Psychiatric nurses	28	Workload	Conflict with other nurses
(Hughes and Umeh, 2005)	England	General nurses	45	Workload	Conflict with other nurses
Chang et al, 2006	New Zealand	Registered nurses (unspecified discipline)	127	Workload	Lack of support
Chang et al, 2006	Australia	Registered nurses (unspecified discipline)	225	Workload	Lack of support
Hamaideh et al, 2011	Jordan	General nurses	446	Workload	Lack of support

3. Methodology

3.1. Study design:-

The design in a research study refer to the researcher`s overall plan for answering the researcher`s questions, This study was Descriptive, cross-sectional hospital-based study; Conductedto assessment and measure of stress level amongst nurses in ElmekNemirUniversity Hospital in Shendicity; within the clinical environment.

3.2. Study time:-

This study was conducted during the period which extends from April 2014 to November 2014.

3.3. Study area:

This study was conducted in Shendi city, river Nile state, Sudan, It is bounded by Khartoum state to the southabout 176 Km, Elddamer locality to the north, River Nile to the west and Gadarif state to the east.It is situated on the main River Nile, which provides the water for the agricultural land. Culturally the population of Shendi is a mixture of the various cultures that occur in Sudan though the Northern tribes, particularly ElGaalien, are predominant. The total population of Shendi 'Mahalia' is estimated at about 245000;Shendi city population about 80000 persons (WHO: 2003) most of them are farmers.. Growth Rate: 2.3%, Male 48.7%, Female % 51.3%. The average of family size is 6members, 78% of the population depends upon subsistence agriculture while the rest are traders, teachers and handcraft workers, including spinners, weavers and other artisans. Many governmental and private health services were established, to provide health care to the community. There are threehospitals;ElmekNemirUniversity Hospital,Military Shendi Hospital and Teaching Shendi Hospital.

Moreover, environmental Health and Sanitary activities are carried out by the Environmental Health staff. The major constraints facing the health facilities in the Shendi city are the small number of qualified staff, lack of training courses, and the shortage of equipment's.

3.4. Setting:-

This study was carried out at ElmakNemir University hospital. This hospital was established since 2002. And it’s the second university hospital in Sudan. The hospital provides most types of medical services (medicine, surgery, Obs/Gyne, and pediatric). Beside these there are cardiac, renal, and oncology centers). In the hospital there is a big theatercomplex in whichmost type general operations can be done (caesarean, GIT surgery and orthopedic surgery …etc.). There was two diabetic outpatient clinics in the hospital established science 2009 ,one for adult and other for children , which composed of three rooms ,laboratory ,doctor and nursing follow-up care room which provide care , follow up and teaching for the diabetic patients. Inthis clinic there are nurses rotate the duty among them, doctors and physician, the clinic work every Thursday from eight o'clock to midday.

The hospital system to the work of the nurses three shifts per day .Morning shift (eight hours) for five days a week and two days' rest. Afternoon and evening shift (16 hours) and two days' rest, and is the distribution of nursing staff according to need of hospital departments ,nurses they will 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.

3.5. Study population:-

The target population in this study was identified as being all nursing staff member (males and females) during the time of the

study.And they are 121nurse,they have various certificates of bachelor, diploma, and master degree in nursing science.

3.6. Sampling & Sample size:-

The accessible population in this study was covered all members of the nursing staff currently working in the hospital of ElmekNemir,Except the nurse`s on holiday, and they are 17 nurses.

3.6.1. The inclusion criteria:

To be eligible for inclusion, each participant must satisfy the researchers' inclusion criteria:

1. The person must be willing to participate in a voluntary capacity.
2. Participants must be a holder of a certificate of nursing sciences from accredited university.
3. Participants must be working in the nursing field in ElmekNemir university hospital.

3.6.2. Exclusion criteria:

The study excluded any nurse on annual holiday

3.7. Data collection tools:

Tow tools was used to collect the relevant data:

1. **standard closed ended interview questionnaire:** was developed by researcher according to the available Literature, include 14 items: questions from 1 to 6 about demographical data ,question 7 to recognize the working area , questions8 - 10 to identify level of nurse`s knowledge about stress definition, effects and sources**.**

The Key to knowledge (question 9):

- Knowledgeable (3 points)
- Sufficient knowledge (2 points)
- Poor knowledge (1 point)

Questions 11 - 13 to assess nurses if there is stress, and which method that used to reduce and fight it .The lastquestion to identify strategies cooping that used by nurses.

2. **Is a nursing stress scale**: was developed by Pamela Gray-Toft and James Anderson **(Pamela and Anderson, 1981)**, designed in a simple and understandable English language form and there was need to translate the original source into the nurses 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 ina 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 greater frequency of work stressors experienced by the participant is indicated with a higher score.Also 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:

Factor 1 (Workload):

This includes Lack of the computers, perception of too manynon-nursing tasks and time pressures regarding the provision of nursing care andemotional support. Also included in this factor are staff shortages and unpredictablestaffing and scheduling. (Range of scale: 0-18).

Factor 2 (Death and dying):

Explores the perceptions of the participants about thefrequency to which they found that the performance of procedures that could causepain and the feeling of helplessness when dealing with patients whose condition mightnot improve. The stress relating to the dying process was also examined in relation toits effects on the participants. (Range of scale: 0-21).

Factor 3 (Inadequate preparation):

This area explores the frequency of which theparticipants felt inadequately prepared for their role in dealing with difficult questionsand in the provision of emotional care to both the patient and relatives. (Range ofscale: 0-9).

Factor 4 (Lack of Staff Support):

This area looks at the participants' view on thesupport available to them in the clinical setting and examined the occurrence at whichthat they felt unable to voice their concerns and felt unsupported by personnel. (Rangeof scale: 0-9).

Factor 5 (Uncertainty concerning treatment):

This area focuses on the medical aspectof the patients care and looked at the frequency in which the participants felt that therewas inadequate information for patients regarding treatment, inappropriate treatmentand uncertainty regarding the working of medical equipment. (Range of scale: 0-15).

Factor 6 (Conflict with physicians):

This focused on the frequency of physicianconflict, fear of error in nursing care, conflict regarding appropriate treatment of thepatient and perceptions of being left to make decisions in the absence of a physician.(Range of scale: 0-15).

Factor 7 (Conflict with other nurses):

This was concerned with the amount of timesthat the participants felt that they had disagreement with the nursing supervisor,moving to work on other wards due to staff shortages and difficulty working withparticular nurses within and beyond the ward. (Range of scale: 0-15).

3.8. Data collection technique:

The data was collected in period of(20days)by researcher himself. All nurses who satisfied the inclusion criteria and were accessible received a questionnaire containing the 'Nursing Stress Scale' and a closed ended question.The collection plan involved accessing the population of nurses while they in hospital. To insure that they filled the questionnaire on appropriate site to enhance accuracy of their perceived stress at that time; the questionnaires and nursing stress scale were filled through direct interview.

3.9. Validity and Reliability of the Questionnaire:

The questionnaire in its initial form has been presented to the supervisor who gave his opinion by adding, excluding; and amending some of the statements of the questionnaire.

To verify the validity of the study, the researcher after that presented the questionnaire to experienced nursing staff at the University of Shendi, faculty nursing science, to approve and reassure the validity and to what extents the questionnaire statements and phrases were clear and appropriate to the study. They all gave their valuable contribution by adding, excluding or amending some of the statements of the questionnaire. So the questionnaire validity was of a high stability and an internal consistency. After the verification of the validity of the questionnaire, then questionnaire was distributed to 13 nurses were not included later in the study sample.

3.10. Data analysis:

The data was analyze by using computer software “statistical package for social sciences”SPSS program version (16.0) and presented in forms of tables and figures.

3.10.1. Questionnaire analysis:

All the questions in questionnaire were coded, only the ninth question was analyzed manually using rating scale then after that has been emptied of data in statistical analysis program (SPSS) to conduct statistical tests on them. The questionnaire results were presented in the form of frequencies and percentages in tables and graphs.Descriptive statistics was used to describe andsummarize the data obtained from the respondents.

3.10.2. 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

This category of stress was coded in addition to the items of the nursing stress scale, and then was emptied in to (SPSS) program for statistical analysis to conduct the appropriate statistical tests.Descriptive statistics was used to describe andsummarize thedata obtained from the respondents in tables and graphs to illustrate the mean of stress scale items. Also the stress scale factors mean calculated by the sum of items mean within each factor, then dividing the total mean by the number of items within each factor.This ascertains a comparative picture of the different factors and identifies the factor of high and low scoring to illustrate which factors cause stress than other.

3.10.3. Correlation analysis:

Correlationanalysis is conducted to examine linear relationship between two or more variables and to determine the significant anddegree of relationship. Relationship between stress categories with gender, experience years, source of stress and nursing feeling regard stress was examined by used of person correlation.

3.11. Ethical consideration:-

- Approval was taken to the study from the graduate study and scientific research board and ethics Committee.
- Approval was taken by Agree written consent from ElmekNemir hospital administer and the head nurse.
- 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 rejection.

4. Results

The results were presented into the following sequences:

Item (s)	Frequency	Percent	Total

1. **Section I:**

The frequency and percentage distribution of the nurses according to their general characteristics and Socio-demographic data

2. **Section II** :

The frequency and percentage distribution of the nurses regarding their knowledge about stress, an action and coping strategies to reduce stress

3. **Section III**:

Mean levels of nursing stress scale factors and its items

4. **Section IV:**

Correlation between variables of the study (stress categories, gender, experience years, source of stress and nursing feeling regard stress)

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:			
Diploma	10	8.3 %	121, 100 %
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 %	
Workinghours:			
8 hours (One shift)	49	40.5 %	
16 hours (Two shifts)	52	43 %	
More than 16 hours (Extra time)	20	16.5 %	

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

In this table the result showed that the majority of nurse`s were female (83.5 %), and (16.5%) were male.Age distribution of the nurse`s was divided into three groups and statistical analyses carried out, showed that the majority of the nurse`s; nearly of half (43.8 %) are between 26-30 years;more than one third (40.5%) between 20-25years;and nearly of fifth (15.7 %) more than 30 years.The result found that more than half of nurses (58.7 %) were primarily single**;** there were only (39.7%) married, and minority of them (1.7%)was separated.The most of nurse`s (75.2%) have bachelor qualification, there were only (16.5%) have a master degree, few number (8.3%) have a diploma qualification. Years of experience of the

nurses were divided into three namelyLess than 3;3-5; more than 5 years,the results showed that more than one third (34.7%)less than 3 years and (34.7%)between 3-5 years of service to the profession, with (30.6%)more than 5 yearsof service.Near of half of nurse`s (43 %) working 16 hours; more than one third (40.5%) working 8 hours;nearly of fifth (16.5%) working more than 16 hours.

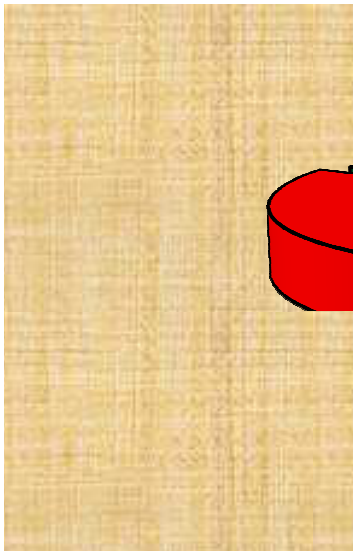


Figure {1}: Distribut
work.(N=121)
Figure (1) reflect that
general wards (52.1%)
specialist centers accoun

Table {2}: Distribution
definition ofstress:(N=

Definition of stress
Situation, event, or agen sec
Any influence that distur of the liv
Imbalance between de nur
I do nc
Total

In this table the results
nurses state the correct
the natural equilibrium
,18.2 %) state the incorr
not knowing what does i

Table {3}: Distribution of nurse`s according to theirknowledgeabout the effects of stresson 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 %

In this table the results showed that nearly half of nurses (43.8 %) have a sufficient knowledge about effects of stress; (42.1 %) They have a weak knowledge. There was only (14 %) have a good Knowledge**.**

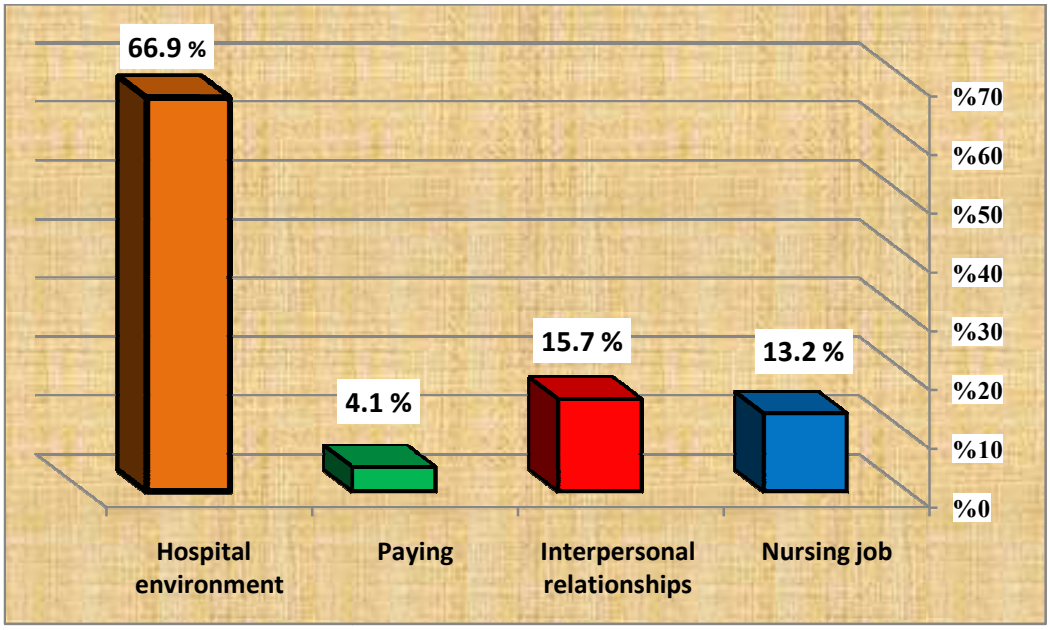


Figure {2}:Distribution of nurse`s according to theiropinion aboutcommon source of stress.(N=121)

The results reflect that more than two-third of nurses (66.9 %) mentioned that the major source of stress is environment. (15.7 %, 13.2 %) of them mentioned that the source of stress is the relationships between colleagues and nursing profession, respectively. A little number (4.1%) believed that the source of stress is the payment.

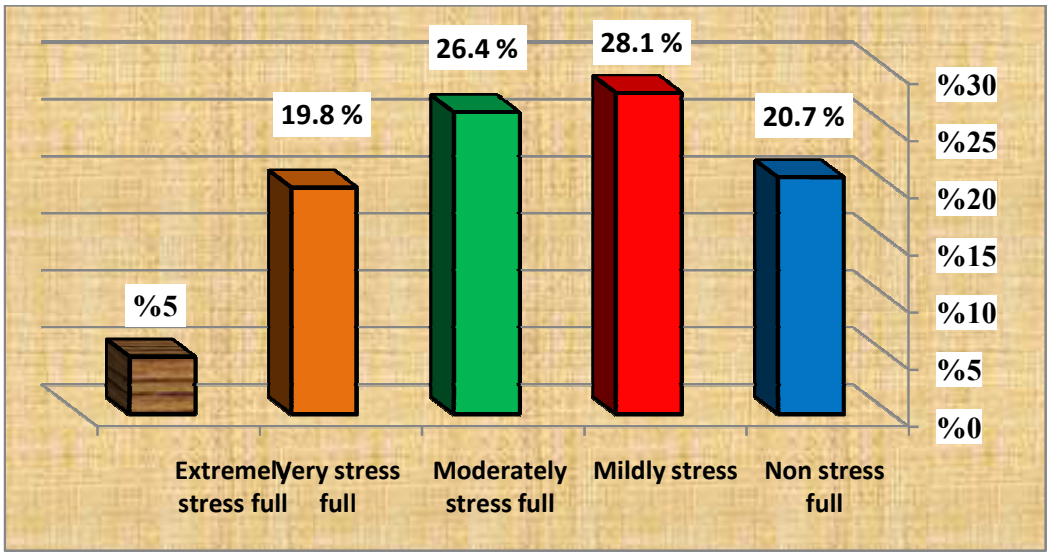


Figure {3}: Distribution of nurse`s according to their feeling regard stress.(N=121)

In this figurethe results showed that the greatest frequency of the nurses had a mild stress (28.1%) followed by moderate (26.4 %); more than fifth (20.7 %) of them are not stress full; nearly of fifth (19.8 %) had a very stress feeling.

Table {4}: Distribution of nurse`s according to their methods that reducework-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 %

In this table it is apparent that more than two fifth (43 %) they spend time with loved ones to reduce stress .Also the result noticed that nearly of fifth (19 %) taking leave from work . By the other hand (14.9 %, 12.4 %) they listen to music and going on holidays, respectively.

Table {5}: Distribution of nurse`s according to their action that fight stressfully situation :(N=121)

Fighting	Frequency	Percent
By finding solutions	78	64.5%
By staying calm and focused	13	10.7%
By exercising, relaxation	6	5 %
By eating	4	3.3%
By entertainment activity	20	16.5%
Total	121	100 %

The above table clarifies that less than two third (64.5 %) they fight stressfully situation by finding solutions. corresponding to (16.5%) fighting by entertainment activities. But 10.7 %staying calm and focused on stressfully situation.

Table {6}: Frequency and Percentage of strategiescooping 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 %

As regarding strategies cooping among nurses table {9} display that nearly of half (47.9%) used peaceful resolution. Furthermore, (21.5%)increase their awarenessabout stressfulsituation. In addition to less than fifth (16.5%, 14 %) they coop by Information processing and modified behaviors, respectively.

Table {7}: Nursing Stress Factor 1. Mean Levels ofWork Load Stressors :(N=121)

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

Infactor one rated frequentlystressful at2.98 is a lack of the computers in work place.Following nearly by 2.20 "not enough staff to adequately cover the unit"

Table {8}:Nursing Stress Factor 2. Mean Stress Levels of Death and Dying Stressors :(N=121)

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

The absence of physicianwhen a patient diesis perceived as most stressful hereat(2.59)

Table {9}: Nursing Stress Factor 3. Mean Stress Levels of Inadequate Emotional Preparation Stressors :(N=121)

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

A sense of dissatisfaction when answering the patient's questions is higher rating here at (0.89)

Table {10}: Nursing Stress Factor 4. Mean Stress Levels of lack of staff support Stressors :(N=121)

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

Lack of an opportunity to talk openly with other unit personnel about problems on the unitwas rated highest at(0 .99)

Table {11}: Nursing Stress Factor 5. Mean Stress Levels of Uncertainty Concerning Treatment Stressors :(N=121)

Stressors	Mean Stress Level	Mean of Factor .5
1. Inadequate information from a physician regarding the medical condition of a patient	1.45	
2. A physician ordering what appears to be inappropriate treatment for a patient	1.34	
3. A physician not being present in a medical emergency	2.32	**1.40**
4. 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	
5. Uncertainty regarding the operation and functioning of specialized equipment	0.42	
Total StressorsMean	**6.98**	

The absence of physicianin a medical emergencywas rated highest at(2.32).

Table {12}: Nursing Stress Factor 6. Mean Stress Levels of Conflict with Physician Stressors :(N=121)

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

Disagreement concerning the treatment of a patient **(**1.38) and making a decision concerning a patient when the physician is unavailable **(**1.17) was rated highest bythenurses in factor six.

Table {13}: Nursing Stress Factor 7. Mean Stress Levels of conflict with other nurses Stressors :(N=121)

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

In this table conflict with a nurse supervisorrated frequentlystressful at1.57.Following by floating to other units that are short-staffed(1.21)

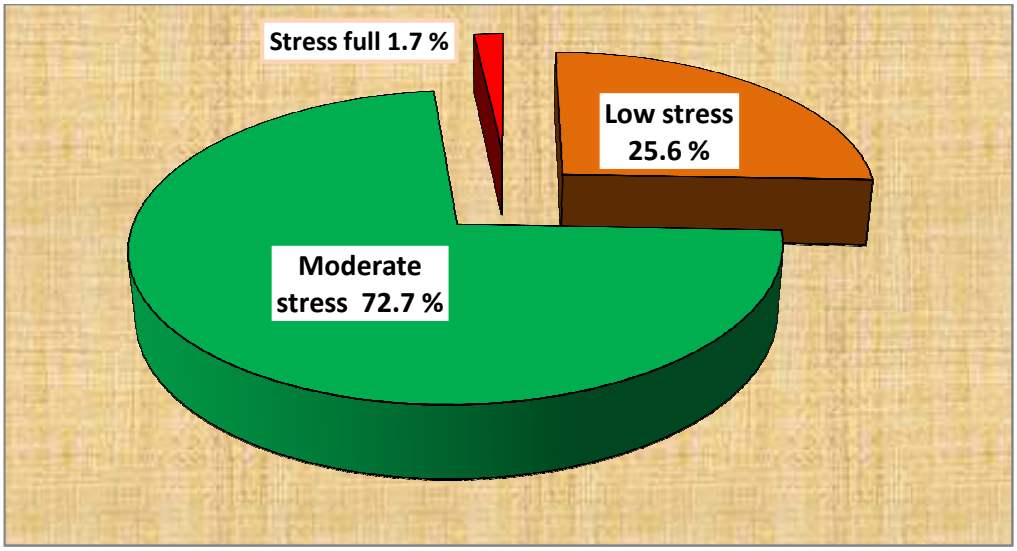
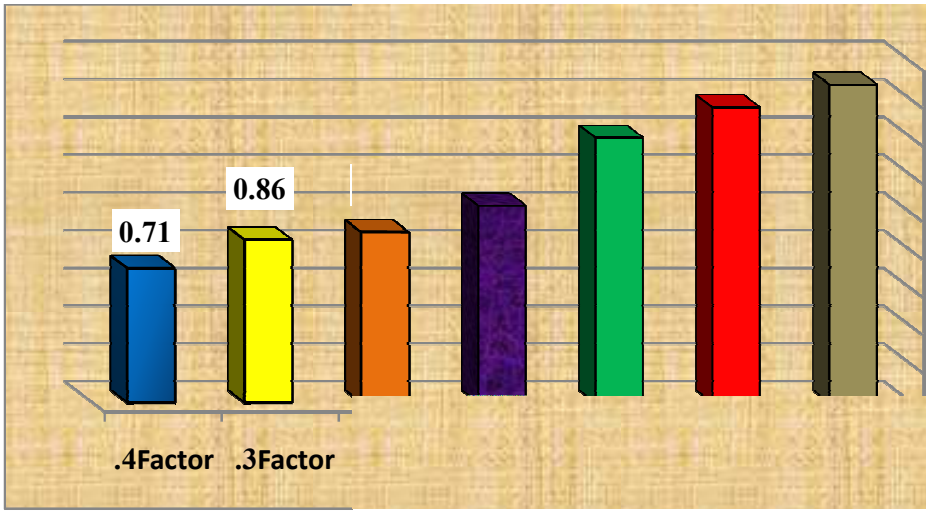


Figure {4}:Frequency and percentage of nurse`s according to their level of stress by nursing stress scale.(N=121)

In this figurethe results revealed thatthe majority of nurses (72.7 %) have a moderate level of stress. While more than quarter**(**25.6 %)have low stress.



1.Work load
Factor 2. Death and dying
Factor 5. Uncertainty concerning treatment
Factor 6. Conflict with physicians
Factor 7. Conflict with other nurses
Factor 3. Inadequate preparation
Factor 4. Lack of staff support

Figure {5}: Nursing Stress Scale (Gray-Toft& Anderson), So stress by mean of factors of nursing stress scale.(N=121)

In this figure the results discovered that the greatest source appears to be as work load(1.68)followed bydeath and dying (1. lowest source appears to be as Factor 4.Lack of staff support (0.7

Table {14}: 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	**0.046***
Female	28	73	0	101	
Total	31	88	2	121	

* Significant at P.value≤ 0.05.
**** Highly significant at P.value≤0.01

Table {15}: 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	**0.135**
3-5 years	7	34	1	42	
More than 5 years	14	23	0	37	
Total	31	88	2	121	

* Significant at P.value≤ 0.05.
**** Highly significant at P.value≤0.01

Table {16}: The relation between common source of stress and Stress categories:(N=121)

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

* Significant at P.value≤ 0.05.
**** Highly significant at P.value≤0.01

Table {17}: 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	**0.005****
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	

* Significant at P.value≤ 0.05.
**** Highly significant at P.value≤0.01

5.1. Discussion

The nursing is stressful work, and there is a need to understand the nature of that problem within this job and to better manage it.

In the light of the present findings of the study, the majority of nurse`s (83.5 %) were femalewith significant statistical relation with stress level (p.value = 0.04), less than half of them (43.8 %)their age range between 26-30 years. and more than half of them (58.7 %) were single this may contribute them to be stressful,in my opinion they are more affected by emotions and need psychological support from others. The evidence in this study, most of nurses (75.2 %) have bachelor qualification and they were expertise,these allow them to have a decision about stress fully situations. In spite of the non-statistical significance between years of experience and the stress level (p.value = 0.13) but these finding is in contradiction with (Humpel and Caputi, 2001) mentioned thata significant relationship was found between emotional competency and years of experience. Nurses with six years and more experience had higher levels of emotional competency. This relationship was stronger for female than male nurses.

The collected evidence from the obtained results suggests that majority of nurses (83.5 %) their working hours range between 8-16 hours and more than half of them (52.1 %) they work in general wards. More working hours plus direct contact with patient's family may increase the level of stress. Meanwhile the nurses need to increase their level of knowledge about stress because nearly of two third (60.3%) choose the wrong definition of stress. but less than half of them (42.1%) have a poor knowledge regard stress effect on nurses, this has contributed to their stress level as results showed.

It is interesting to note that according to nurses opinion, 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

nurses 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 stresswith significant statistical relation with the source of stress (p.value = 0.02) .One of the striking features of this study is 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 as mentioned already.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 nurses director, but without response, then they used peaceful resolution to coop with this 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, it is justifiable that 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 (Hamaideh et al, 2011; Chang et al, 2006) their 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)And the lowest source appears to be as lack of staff support at mean (0.71)also in agreement with previous study 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 **(Elizabeth M. Andalm, 2006)**. There is other factor appear as stressfully this is death and dying at mean (1.56) this consistent with study conducted in Japan **(Lambert et al, 2004)**.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 maybe more stressful and certainly warrants further study.

The most striking difference was found between this study and other previous studies **(Elizabeth M. Andalm, 2006; Lambert et al, 2004)** that, there was 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). 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.

5.2. Conclusion

Based on previous results of this study concluded that nearly two-thirds of the nurses did not know what stress is, and less than half of them have poor knowledge about the effects of stress.The main cause of stress among nurses is environment of ElmekNemiruniversity hospital.The frequency of the reported stress in nurses was high enough to be considered serious.

The frequently reported source of stress appeared to be ‘workload’ followed by ‘emotional issues related to death and dying.There was clearly other factors not mentioned in previous studies, they cause more stress, like uncertainty concerning treatment and conflict with physicians.The least frequently reported source of perceived stress was Lack of staff support.

5.3. Recommendations

5.3.1. Recommendations related to hospital managers and nurse director:

1. Prevention of stress is better than cure. Stress must be considered a potential threat to the wellbeing of the person, quality of patient care, and effective running of the organization. Stress management interventions in the form of supporting and clarifying nurse's roles to resolution of conflicts, stress management programs.
2. The establishment of programs and workshop for occupational stress and its psychological, physiological effects.
3. Developing systems for effective two-way communication.
4. Psychological counseling and therapy should be easily accessible and available for troubled staff members.
5. Continuing education and staff development should be promoted. Increased skill training, even for those personnel who are more experienced, pays by leading to a reduction in levels of stress, turnover and better performance.
6. The hospital manager and nurse director should endeavour to increase her observational skills in order to detect increased stress levels or signs of burnout among her personnel in the early stages and in order to identify the sources of stress and to reduce or eliminate them.
7. Policies that reduce stress from shift work should be developed. These could include reducing the number of hours of the afternoon

night shift, increasing rest time between shifts, providing adequate meal times, and providing a fair distribution of weekend and holiday work.

8. Nurses were used adoptive coping strategies in dealing with their work stress as displayed by their use of peaceful resolution. It preferable that organizational interventions at reducing the impact of stressors such as workload it must be include (providing more staff to adequately cover unit might be more appropriate and may benefit some staff more than stress management).

5.3.2. Recommendations related to research:

The present study has identified the possible causes and frequency of stress experience by nurses working in ElmekNemir hospital. It does not measure the intensity of stress experienced. Future research should be directed at the intensity dimension using physiological measures of stress.

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Appendix A

University of Shendi

Faculty of graduate studies andscientific research

M.Sc. MEDICAL SURGICAL NURSING

Questionnaire about Assessment and measure of stress among nurses in ElmekNemirUniversity hospital

No ( )

Demographical data:

Q1- Gender:

a) (Mal
b) (Female

Q2- Age:

a) 20-25 year ( )
b) 26-30 year ( )
c) more than 30 years ( )

Q3- Marital status:

a) Married ( )
b) Single ( )
c) Separated ( )

Q4- Level of education:

a) Diploma ( )
b) Bachelor ( )
c) Master ( )

Q5 .Experience years:

a) Less than 3 years ( )
b) 3-5 years ( )
c) More than 5 years ( )

Q6 .How many hours of your work shift?

a) 8 hours (One shift) ( )
b) 16 hours (Two shifts) ( )
c) More than 16 hours (Extra time) ( )

Q7- Work area:

General wards:

a) Surgery ( )
b) Medicine ( )
c) Pediatric ( )
d) Obs ( )
e) Outpatient ( )

Critical department:

a) ICU ( )
b) CCU ( )
c) Theater ( )
d) Nursery ( )

Specialist centers:

a) Oncology ( )
b) hemodialysis ( )
c) Administrated nurse ( )

Q8. Regarding definition, stress is:

a) A situation, event, or agent that threatens a person's security. ( )
b) Any influence that disturbs the natural equilibrium of the living body. ( )
c) Imbalance between demands and resources in nursing. ( )
d) I do not know ( )

Q9.What are the effects of stress on the nurses? يمكن اختيار اكثر من اجابة

a) Decrease the quality of nurses care ( )
b) Absenteeism and turnover ( )
c) Psychiatric morbidity and physical illness. ( )
d) I do not know ( )

Q10 .According to your opinion what are the common source of stress.

a) Nursing job. ( )
b) Interpersonal relationships. ( )
c) Paying. ( )
d) Hospital environment. ( )

Q11. Do you feel that you are stressed?

a) Non stress full ( )
b) Mildly stress ( )
c) Moderately stress full ( )
d) Very stress full ( )
e) Extremely stress full ( )

Q12. What are the methods through which you reduce your stress due to work?

a) Going on holidays. ( )
b) Taking leave from work. ( )
c) Spending time with loved ones. ( )
d) Listen to music ( )
e) Sleeping. ( )

Q13. How do you fight stressfully situation?

a) By finding solutions ( )
b) By staying calm and focused ( )
c) By exercising, relaxation ( )
d) By eating ( )
e) By entertainment activity(ترفيه)( )

Q14.What is strategies cooping that you use for stressfully situation?

a) Increase awareness. زيادة الوعي حول المشكلة ( )
b) Information processing معالجة المعلومات لوجود حل ( )
c) Modified behaviors تعديل السلوك واتخاذ القرار ( )
d) Peaceful resolution. الحل السلمي والتأقلم مع المشكلة ( )

Appendix B

Nursing Stress Scale

No ( )

(Adapted from Gray-Toft and Anderson, 1981a, p.641), below is a list of situations that commonly occur on ahospital unit. For each itemindicate by means of a tick (√) how often on your present unit you have found thesituation to be stressful.

Four response categories are provided for each item: Never (0), Occasionally (1), Frequently (2), Very frequently (3).

Stressors	Never (0)	Occasionally (1)	Frequently (2)	Very frequently(3)
Factor 1: work load				
1. Lack of the computers				
2. Unpredictable staffing and scheduling				
3. Too many non-nursing tasks required, such as clerical work				
4. Not enough time to provide emotional support to a patient				
5. Not enough time to complete all of my nursing tasks				
6. Not enough staff to adequately cover the unit				
Factor 2: death and dying				
1. Performing procedures that patients experience as painful				
2. Feeling helpless in the case of a patient who fails to improve				
3. Listening or talking to a patient about his/her approaching death				
4. The death of a patient				
5. The death of a patient with whom you developed a close relationship				
6. Physician not being present when a patient dies				
7. Watching a patient suffer				

Item	Never (0)	Occasionally (1)	Frequently (2)	Very frequently(3)
Factor 3: inadequate preparation				
1. Feeling inadequately prepared to help with the emotional needs of a patient's family				
2. Being asked a question by a patient for which i do not have a satisfactory answer				
3. Feeling inadequately prepared to help with the emotional needs of a patient				
Factor 4: lack of staff support				
1. Lack of an opportunity to talk openly with other unit personnel about problems on the unit				
2. Lack of an opportunity to share experiences and feelings with other personnel on the unit				
3. Lack of an opportunity to express to other personnel on the unit my negative feelings toward patients				
Factor 5: uncertainty concerning treatment				
1. Inadequate information from a physician regarding the medical condition of a patient				
2. A physician ordering what appears to be inappropriate treatment for a patient				
3. A physician not being present in a medical emergency				
4. Not knowing what a patient or a patient's family ought to be told about the patient's medical condition and its treatment				
5. Uncertainty regarding the operation and functioning of specialized equipment				

Item	Never (0)	Occasionally (1)	Frequently (2)	Very frequently(3)
Factor 6: conflict with physicians				
1. Criticism by a physician				
2. Conflict with a physician				
3. Fear of making a mistake in treating a patient				
4. Disagreement concerning the treatment of a patient				
5. Making a decision concerning a patient when the physician is unavailable				
Factor 7: conflict with other nurses				
1. Conflict with a supervisor				
2. Floating to other units that are short-staffed				
3. Difficulty in working with a particular nurses (or nurses) outside the unit				
4. Criticism by a supervisor				
5. Difficulty in working with a particular nurse (or nurses) on the unit				

Scoring system of the scale

Factors of the scale	Total Score	Never (0)	Occasionally (1)	Frequently (2)	Very frequently(3)
1. **work load**	18	zero	6	12	18
2. **death and dying**	21	zero	7	14	21
3. **inadequate preparation**	9	zero	3	6	9
4. **lack of staff support**	9	zero	3	6	9
5. **uncertainty concerning treatment**	15	zero	5	10	15
6. **conflict with physicians**	15	zero	5	10	15
7. **conflict with other nurses**	15	zero	5	10	15

Stress categories

Categories	Score
No stress	Zero
Low stress	1-34
Moderate stress	35-68
Stress full	69-102