

A Job Stress, Coping Strategy and Associated Factors Among Nurses Working in Cancer Unit of Selected Governmental Hospitals of Addis Ababa, Ethiopia, 2020: Cross-sectional Study.

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Abstract

Introduction: Job stress is one major health problem of nurses working in cancer units as they deal with a large number of patients with numerous conditions and work overload as the result high levels of an employee complaint, absence, high turnover, and decreased efficiency which compromises the provision of quality service to clients. Coping is a cognitive and behavioral effort one uses to face a stressful situation. **Objective:** To assess job stress, coping strategy, and associated factors among nurses working in cancer unit of selected governmental hospitals in Addis Ababa, Ethiopia, 2020. **Method:** the institution-based cross-sectional study was conducted from March-April 2020. Structured self-administered questionnaires were conducted with the total sample size of 124 nurses working in cancer units of selected three governmental hospitals in Addis Ababa from March-April 2020. The data were entered and analyzed by the SPSS window software 25 version. Descriptive statistics such as frequency distribution and measure of central tendency and variability were computed. Bivariate and multiple logistic regressions were used to identify the association between dependent and independent variables. **Result:** A total of 124 nurses working in the cancer unit of public hospitals were given the questionnaire, and the response rate was 97.6 %. The study showed that 63(52%) of nurses had job stress whereas 58(48%) were not stressed. Dealing with the death, workload, and uncertainty concerning treatment are the most sources of stress with average means 2.9, 2.73, and 2.67 respectively. Individual factors like respondents' sex (AOR 0.33,95%, CI: 0.167-0.882) was significantly associated with job-related stress score. Individual factors like respondents' sex were significantly associated with overall job-related stress scores. **Conclusion and recommendations:** Uncomfortable physical conditions, job demands and social interaction at work contribute to induce job-related stress as the results negatively affect the working environment. The basis for developing positive working environment, quality health care service particularly quality nursing care in general improves health care services.

Keywords: Stress, Coping strategy, Nurse, Selected governmental hospitals.

Accepted on September 29, 2020

Introduction

Nurses engaged for long hours to provide routine nursing care of complex activities lead to a wide range of job-related stressors which may lead to stress that may affect their job satisfaction, causes poor work performance, absenteeism, and supposed to leave their position or even the nursing profession [1,2]. Today, malignancy is the most significant health problem worldwide. Therefore, cancer is the highest cause of death around the world, accounting for 22% of all chronic disease deaths as well as one of the illnesses that can continually cause tension among nurses and patients. In addition to this, giving care to cancer patients may increase stress, disappointment, isolation from work, and exhaustion in health professionals [3,4].

Nurses employed in a cancer unit may develop stress associated with cytotoxic -induced hair loss, headache, depression, and the cytotoxic drug itself. Thus, more than 70 % of nurses working in cancer units develop moderate to high levels of job stress [5]. Job-stress in the nursing has been a worldwide problem with

rates of 9.20–68.0 percent of nurses are suffering from stress and the Institute of Health and Safety has estimated more than 13.5 million working days damages due to job-related stress and internationally the costs of work-related stress are estimated to be \$5.4 billion each year and the next to the most common job-related health problem, low back pain [6].

Literature done in Turkey in 2004 in 109 health professionals working in cancer units revealed that the common cause of job stress was a conflict with colleagues, lack of appreciation of efforts by superiors', problems experienced with patients and their relatives [7]. A study done in Sanford indicated that among questioners were distributed to 40 oncology nurses, from this 45 % of participants were less stressed, moderately stressed (52%), and highly stressed (2.5%) because of the two most stressful factors identified were workload and patient death and inadequate preparation and lack of support were identified as the least stressful factors. While the three most frequently used coping behaviors were verbalizing (45%), exercising (30%),

and taking time for self (17.5%) and the least coping mechanism used by oncology nurses was doing work 2.5% [8].

A study conducted in Ethiopia showed that the most common causes of job stress were in Jimma death (62.94%), uncertainty regarding patient treatment (57.72%) and workload (57.6%) while in Addis Ababa, workload (44.4%), emotional issues related to patient death (40.6%) and conflict with a supervisor (37.2%). Besides this, female nurses were twice as likely to suffer from work-related stress than their male and younger, and less experienced nurses had lower stress than older and more experienced nurses [8,9].

Coping has a stabilizing factor that may support an individual in psychosocial adaptation during stressful events, but insufficient coping is linked with higher levels of psychological distress. Therefore, the types of coping methods that oncology nurses use also influence the distress that accompanies cancer [10]. The study was conducted in India, among Pediatric Oncology Nurses, revealed that cognitively appraised experiences or events linked to the work of nurses as highly stressful. Which concluded that pediatric oncology nursing is a stressful specialty, to those nurses providing care to children suffering and dying [11].

A study conducted in Norway shows that the most used coping mechanism was spirituality and relationships with colleagues. From these, spirituality was seen as a main coping strategy, which is not surprising considering that death and, dying are main themes for oncology nurses and can lead to despair and feelings of helplessness so that nurses who worked on pediatric oncology units had significantly lower levels of personal accomplishment than nurses who worked on adult oncology units [12]. A study conducted in Brazil showed that the main stressful factors for oncology nurses are patient death (28.6%), emergencies (16.9%), relationship issues with the nursing team (15.5%), and work-process situations (15.5%) While the coping strategy most used by the nurses were positive reappraisal (10.34%), followed by problem-solving (9.91%), and self-control (9.86%) [13].

Significance of the study

Job-related stress is one of the major health problems. Even though many studies were conducted in some developed countries, but very limited studies conducted in the study area, which shows the prevalence of job-related stress and coping strategies used by nurses working in cancer units.

Therefore, it is important to conduct regular and continuous assessment of Job-related stress to design appropriate strategies in related to Job related Stress, Coping Strategy, and associated factors particularly in the cancer units. With this understanding the information obtained from this study help to policy makers, hospital managers and other stakeholders in planning, implementing, and evaluating various interventions in regard to job related stress. In addition to these the finding of this study contributes as a baseline information for other researchers who are interested in this field.

Methods

Study area and period

The study was conducted in three governmental hospitals found in Addis Ababa from March to April 2020. Addis Ababa is the

capital city of Ethiopia, and the seat of the African Union & Economic Commission for Africa is situated at the heartland of Ethiopia, with a population of 3,384,569 in an area of 540 square kilometers. The population pyramid is broad-based, typical of a developing world and People from different regions of Ethiopia populate in the city [14].

Study design

An institution-based cross-sectional study conducted at three selected government Hospitals of Addis Ababa, Ethiopia.

Inclusion and exclusion criteria

Nurses working in a cancer unit who were available at work in the hospitals during the data collection period were included in the study. Nurses with less than 3 months of work experience excluded from the study.

Sample size and sampling technique

Census method was used for the sample because the study participant is equal to the total population of nurses who are working in selected governmental hospitals of cancer units. Therefore, all participants fitting the inclusion criteria were involved with a total of 121 nurses working in the three selected hospitals were participated.

Study variables

Independent variables

Age, sex, marital status, educational qualification, work experience, income, physical factor, social factor, psychological factors, and coping mechanism.

Dependent variable: Job-related stress

Data collection instrument

A structured self-administered questionnaire was used to collect data from study participants. The questionnaire was adapted from literature with modification to this study setting. The questionnaire consists of two parts. Part I deals with a selected socio-demographics and Part II modified Nursing stress scale revised (NSSR) and the questionnaire of methods of coping for a psychiatric nurse (PNMCQ). The nursing stress scale revised (NSSR) is a tool used to measures the level of job stress among nurses in hospital units. NSSR contained 40 items with eight subscales and all the items are related to physical, psychological, and social factors. The subscales are: death and dying 7 items, inadequate emotional preparation 4 items, uncertainty concerning treatment 9 items, workload 4 items, conflict with physician 3 items, problems with peers 4 items, problems with supervisors 4 items, patient and family 5 items and. Therefore, NSSR consists of 40 items with eight subscales with response options in a Likert-like format (1= never stressful, 2 = occasionally stressful, 3 = frequently stressful, 4 = extremely stressful). The reliability of the instrument was established with an overall Cronbach's alpha score of 0.966 for job stress and 0.958 for tension management 15. Two bachelor nurses were recruited. The training was given for one day on the purpose of the study, details of the questionnaire, and ensuring the confidentiality of the respondents. After being written consent the facilitators were administering the questionnaire to the

participants, collecting the questionnaire after the participants finished, and submitting the filled questionnaire to the principal investigator timely.

Data Quality Assurance

The training was given for data collectors and pre-testing of the questionnaire was made to ensure the quality of data at police hospitals by using 5% of the sample size. The supervisor nurses were made spot-checking and reviewing all the completed questionnaires to ensure completeness and consistency of the information collected.

Data Processing and Analysis

Data were entered, cleaned, and analyzed using IBM SPSS statistical software version 25. Descriptive statistics such as frequencies and measures of central tendency and variability (mean and standard deviation) were computed to describe variables of the study. were presented using graphs and tables. Bivariate analysis was used to describe the association of dependent and independent variables and result from the bivariate analysis of $p < 0.2$ will be moved to multivariate analysis and was done through stepwise multiple logistic regression techniques to control the effects of confounding variables and to identify independent predictors of stress. Statistical significance was accepted at the 5 % level ($p < 0.05$). The data were described and presented using narrative text, tables, graphs, and charts.

Ethical Approval and Consent to Participate

Ethical approval and verbal consent were acceptable and approved by the Institutional Review Board of School of Nursing and Midwifery, College of Health Sciences, Addis Ababa University. The purpose of the study was explained to study participants. Verbal informed consent was obtained from study participants. All collected information was kept confidential. Coding and aggregate reporting was used in data presentation to ensure anonymity.

Result

Socio-demographic data and work-related variables

A total of 121 nurses who were working in the cancer unit of three selected governmental hospitals were assessed by the self-administered questionnaire with response rate 97.6% (121). A total of 28.9% (35) male and 71.1% (86) females participated in this study. The minimum age of the respondents was 23 years, mean age 31.8 ± 7 years and a maximum of 52 years old. In terms of marital status, most of the participants 73(60.3%) were married, and the most frequency 86 % (104) was observed among nurses with a bachelor degree and the employment history in oncology section 47.1% (57) have belonged to the nurses with 5-10 years. Also, 52.9% (64) of the respondent nurses earned from 6000 to 9000 per month (ETB birr) (Table 1).

The overall level of job-related stress among nurses

To determine the level of job stress and to dichotomize response, respondents having an average score of below mean value were classified as not stressful and those with an average score of mean value and above were considered as stressful. Accordingly, 63 (52%) of nurses had occupational stress whereas 58(48%) were not stressed (Figure 1).

In general stress level of each subscale, the least sources of stress were a problem with the supervisor and patient and their family an average mean of 2.5 and 2.54 respectively out of five. The three most sources of stress in this study were dealing with death/dying, workload, and uncertainty concerning treatment as shown in (Table 2) with average means 2.9, 2.73, and 2.67 respectively.

Job-related stress level and Psychological and social factors

This study showed that concerning psychological factors 33.6% (40.6) of the respondents were extremely stressful with death and dying subscale and only 9% (11) of the respondents reported that they were never stressful for death and dying with a mean score of 2.9 out of four. About 31.4% (38) of respondents were frequently stressful with inadequate emotional preparation subscales. Of the respondents, 30.7% (37.1) was occasionally stressful with uncertainty concerning treatment. Among psychological factors, death and dying were the first sources of stress with the mean scales of 2.9.

In this study, 40.8% (49) of study participants reported that occasionally had job-related stress and 30.7% (37.2) of study participants were work-related stress frequently from the patient and their family subscale. About 27.9% (33.3) was extremely stressful in job-related stress from problems with the physician subscale. Among social factors, problems with the physician subscale were the first source of stress with the mean stress level of 2.63 and the least subscale concerning with peer and supervisor with the mean stress level of 2.5.

Factors associated with job-related stress

Binary Logistic regression was performed to assess the association of each independent variable with job-related stress with p-value of 0.25 and less were added to the multivariate regression model. The model contained one independent variable. The result showed that the sex of respondents was among the variables that were found to be associated with job-related stress. As shown in the table 3 below participants who were female had 67% often less stressed as compared with those males. (AOR= 0.384, 95 % CI: 0.167-0.882) (Table 3).

COR= Crude Odds Ratio, AOR=Adjusted odds ratio, 1=Reference, significant at p-value <0.05, C.I- confidence interval.

The level of job stress coping strategy used by nurses

To determine the overall level of job stress and to dichotomize the response, respondents having an average score of below mean value were classified as not used, and those with an average score of mean value and above were considered as used coping mechanism. Accordingly, 43% (57) of nurses had not used whereas 57% (64) were used coping strategy for their job stress.

Generally, from the descending mean coping level of each subscale, the most used methods by respondents were Positive attitude for the profession and Self-regulation with average mean 2.1 and 2 respectively out of four. As shown in table 4 the least methods used in this study were a distraction and social protection with average means 1.9 for each out of four (Table 4).

Table 1: Sociodemographic characteristics of the respondents with job stress and coping strategy, at three public hospitals in Addis Ababa, Ethiopia, 2020. (n=121).

Characteristics		Frequency	Percent (%)
Gender	Female	86	71.1
	Male	35	28.9
Age of participant	20-30	77	63.6
	31-40	27	22.3
	>41	17	14.1
Marital status	Single	47	38.8
	Married	73	60.3
	Divorced	1	.8
Educational level	Degree	104	86.0
	Master's in nursing	17	14.0
Working Experience	<5 year	39	32.2
	5-10 year	25	20.7
	> 10 year	57	47.1
Income of participants	3000-6000	36	29.8
	6000-9000	64	52.9
	>9000	21	17.4

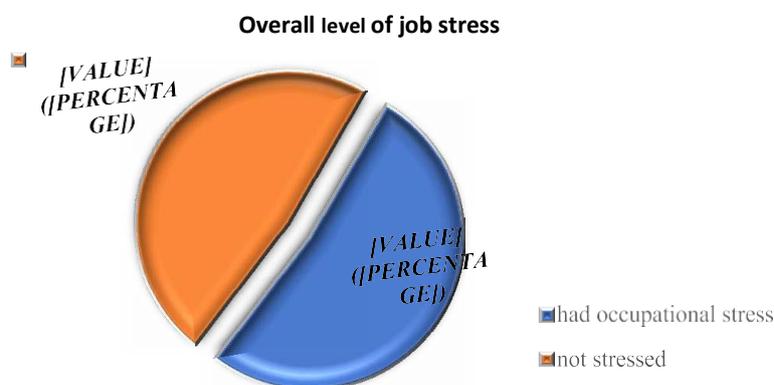


Figure 1. Overall level of job stress among nurses working in three public hospitals of cancer unit found in Addis Ababa, Ethiopia, 2020. (n=121).

Table 2: The three most sources of stress subscale by ascending mean stress level at selected government Hospitals, Addis Ababa, Ethiopia, 2020. (n=121).

Subscale	Never Stressful 1	Occasionally Stressful 2	Frequently Stressful 3	Extremely stressful 4	Mean
Problem with supervisor	25.5(20.8%)	35(29.3%)	32.5(26.8%)	27.7(23.1%)	2.5
Patient and their family uncertainty concerning treatment	13.4(11.1%)	49.4(40.8%)	37.2(30.7%)	21(17.4%)	2.54
Workload	17.1(14.2%)	37.1(30.7%)	32.7(25.1%)	33(27.3%)	2.67
Dealing with Death /dying of parents	21(17.4%)	28.3(23.4%)	34.5(28.5%)	37.3(30.7%)	2.73
	11(9%)	30.4(25.2%)	39(32.2%)	40.6(33.6%)	2.9

Table 3: Bivariate and multivariate binary logistic regression of factors associated with Job-related stress of nurses working in the selected public health hospitals of cancer units, Addis Ababa, Ethiopia, (n=121).

Variable	Categories	Job stress		COR [95%, CI]	AOR [95%, CI]	P-value
		Yes N (%)	No N (%)			
Sex	Female	51(42.1%)	35(29%)	2.793[1.230-6.340]	0.33[0.167-0.882]	0.013
	Male	12(9.9%)	23(19%)			
Age	20-30	36(29.7%)	41(33.9%)	0.479[0.161-1.426]	1.528[0.408-5.718]	0.53
	31-40	16(13.2%)	11(9.1%)	0.793[0.226-2.787]	0.774[0.174-3.453]	0.74
	>41	11(9.1%)	6(5%)	1	1	
Working experience	< 5 year	24(19.8%)	15(12.4%)	1.440[0.629-3.299]	1.475[0.514-4.231]	0.64
	5-10 year	9(7.4%)	16(13.2%)	0.506[0.192-1.333]	1.475[0.514-4.231]	0.47
	> 10 year	30(24.8%)	27(22.3%)	1	1	
Coping mechanism	Used	39(32.2%)	30(24.8%)	1.517[0.735-3.128]	0.634[0.295-1.362]	0.24
	Not used	24(19.8%)	28(23.2%)	1	1	

Table 4: Coping mechanisms used by respondents by descending mean coping level in the selected institutions, Addis Ababa, Ethiopia (n=121).

Subscale	Used somewhat 1	Used Very often 2	Used to Great extent 3	Mean
Positive attitude for the profession	23.3(22%)	50.5(42%)	44.7(36%)	2.1
Self-regulation	33.2(27.4%)	51(42.2%)	36.8(30.4%)	2
Distraction area	38.8(32%)	52(43%)	30.4(25%)	1.9
Social protection in workplace area	35.5(29.4%)	52.3(43.2%)	33.2(27.4%)	1.9

Discussion

The prevalence of job stress in this study is 52%. This finding is low compared to the study done in India which revealed that 62.9% of respondents had a moderate range of stress 13 and study done in Jimma, Ethiopia showed that an average overall job-related stress level of 58.46 ± 12.62 9. The possible reason for the difference may be study setting or sample size. It was also high compared with a study conducted in Addis Ababa Ethiopia where the prevalence of stress among nurses was 37.8 % [15]. This might be because in this study the sample size was relatively small. This finding also consistent with studies done in Sanford that showed were 54.5% of nurses reported that moderate extreme stress 15 and with studies done in Ahvaz, Iran revealed that 55.3% of study units develop job stress 5.

This study indicated that “death and dying”, workload, uncertainty regarding patient treatment, a problem with the patient and their family, and conflict with the supervisor was the major source of stress for nurses. Death and dying were perceived as the first greatest source of stress. The current study revealed that death and dying is a major source of stress which is consistent with studies done in, Brazil that showed the scores of NSSR of dealing with death and dying situations had the highest stress score, mean 28.6% and in Jima, again the highest stressful condition that nurses rated as extremely stressful were the death and dying of a patient with a mean score of 62.94 % followed by uncertainty regarding patient treatment 57.72 % [16,17].

The second source of job-related stress in this study was workload subscale. It is like the study done among 189 oncology nurses in Istanbul (Turkey) that showed that work overload [18]. It is contrasted with another study done in North Dakota State University and Sanford (USA) revealed that the main cause of job-stress was workload, uncertainty concerning with treatment, death and dying, and lack of support [19]. This might be due to a lack of experience/skill or ability to handle unexpected and difficult problems.

In the current study, many of the sociodemographic variables were not significantly associated with overall occupational stress. However, the sex of participants was significantly associated with overall job stress in multivariate logistic regression. Accordingly, participants who were female were 67% often less stressed as compared with those males (AOR= 0.384, 95 % CI: 0.167-0.882). This result inconsistent with the study done in Addis Ababa (Ethiopia) which revealed that female nurses were two times more stressed than males [AOR =2.47,95% CI:1.28-4.77].

This study indicated that “death and dying”, workload, uncertainty regarding patient treatment, a problem with the patient and their family, and conflict with the supervisor was the major source of stress for nurses. Death and dying were perceived as the first greatest source of stress.

This study indicated that Positive attitude for the profession, Self-regulation, Distraction area, and Social protection in the workplace area were the main coping strategy used by participants. Positive attitude toward the profession's greatest coping mechanism out four. This result is consistent with the study done in Ahvaz (Iran) showed that main coping mechanism used by the nurse were Positive attitude for the profession, self-regulation, Distraction and social support 5 and literature conducted in Brazil revealed that the coping strategy most used by the nurses were positive reappraisal 13, followed by problem-solving and self-control. On other hand, this study is inconsistent with the study done in Sanford (USA) which showed that main coping mechanism used by nurses were verbalization, exercise, and relaxation and taking time for themselves 19 and A study was done in Norway showed that the most frequently used coping strategies were spirituality and relationships with coworkers 12. The difference is maybe the tool used or study setting.

The study reveals that workload, conflict among nurses and clients, environmental crowding, noise, air pollution, lack of resources, heavy workload and lack of in-service training can directly contribute to job related stress. Therefore, to alleviate aforementioned problems the nurse care manager plays a great role in related to work expectations that includes plan and implement in-service training in regard to stress copying strategies and conflict management, allocate resources and reducing heavy work load through sharing responsibilities.

Limitation of the study

The current study mainly focused on examining coping strategies nurses by using closed ended questionnaire only that may not indicate the nurse practice on copying strategies therefore, in addition to these multiple methods (both qualitative and quantitative methods) are necessary.

Conclusion and Recommendation

Uncomfortable physical conditions, job demands and social interaction at work contribute to induce job-related stress as the results negatively affect the working environment. The basis for developing positive working environment, quality health care service particularly quality nursing care in general improves health care services. As the result of this study would like to recommend the following points: The administration of health institutions should develop standards for job prospects, clear working ladders, establish professional conflict management system and safety of working system. Job reform activities desirable to avoid heavy workloads/ burden. Provide in service training for nurses to create awareness about job stress management and coping strategies. Create administrative supportive working environment in the health care institutions.

Abbreviations

AAU: Addis Ababa University, AOR: Adjusted Odd Ratio, CI: Confidence Interval, COD: Crude Odd Ratio, NIOSH: National Institute for Occupational Safety and Health, NSSR: Nursing Stress Scale-Revised, PNMCQ: psychiatric nurse method of a coping questionnaire, OR: Odds Ratio, SD: Standard Deviation, SPSS: Statistical package software for social sciences, WPCS: workplace coping scale

Data Sharing Statement

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

Ethics Approval and Consent to Participate

Ethical approval and clearance were obtained from Institutional Review Board of Department of Nursing and Midwifery, College of Health Sciences, Addis Ababa University. The objectives of the study were explained to study participants. Verbal informed consent was obtained from study participants. All collected information was kept confidential. Coding and aggregate reporting was used in data presentation to ensure anonymity.

Authors' Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation., or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

Acknowledgements

The authors would like to acknowledge to Addis Ababa University, College of Health Sciences, School of nursing and midwifery and study participants for their unreserved support during data collection.

Conflict of Interest

The authors declare that they have no conflict of interest.

Funding

Funding for this study was made possible through grants offered by Addis Ababa University post graduate office.

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