Journal of Health, Medicine and Nursing
ISSN 2422-8419 An International Peer-reviewed Journal
Vol.46, 2018

Work Related Stress among Health Care Workers in Mekelle City Administration Public Hospitals, North Ethiopia

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Abstract
Background: Work related stress is a worldwide epidemic disease. The costs of work related stress estimated about $5.4 billion each year throughout the globe. Healthcare institutions considered as a high risk and intensive work area for work related stress. However, there is nonexistence of clear and strong data about magnitude of work related stress in healthcare workers in Ethiopia. The aim of this study was to determine magnitude of work related stress in healthcare workers in North Ethiopian public hospitals.**Methods:** Institution based cross-sectional study was conducted from April 5 to 6 May 2015 in 592 healthcare workers who were selected from 3 hospitals. Data were collected through self-administration of standardized questionnaire, which was developed by Health and Safety Executive. The collected data were entered using Epi info version 3.5.4 and analyzed using SPSS version 20.0. Both binary and Multivariable logistic regression analyses were done to identify important factors having association with work related stress.**Result:** This study revealed that the magnitude of work related stress in healthcare workers was 46.9%, 95% CI (42.6, 50.8). Significant proportions (56.7%) of healthcare workers were dissatisfied with their current job. Gender, marital status, work experience in years and job satisfaction status were significantly associated with work related stress.**Conclusion:** Work related stress is significantly high among health care workers. Gender, marital status, work experience and job satisfaction status were identified as factors associated with work related stress. Therefore, it needs to set intervention programs focusing on prevention and control of stress.
Keywords: Work related stress, Healthcare workers, Public hospitals, North Ethiopia

Introduction

Work related stress is the worldwide epidemic disease assessed recently due to the nature of work activities and can lead to long-term absenteeism and work disability (1). Work-related stress has become globally one of the major problems in working societies and it increases employees' risk of disease. Its importance has been emphasized also due to its' great socio-economic consequences(2). Globally, the costs of work-related stress estimated approximately $5.4 billion each year and which is affects the

Work place is a significant source of stress. Health care workers are the most at risk of work related stress among occupational groups (3, 4). Nurses and midwives as occupational groups subjected to multiple stressors (5, 6). The incidence of suicide due to work related stress for female nurses higher than the national average while other studies have highlighted a reduced life expectancy for those working in the profession(7, 8). Work-related stress in developing countries is one of the areas which have not yet been quantified owing to lack of data on exposure or causality, important exposures and outcomes(9). One report touched in Ethiopia showed nurses reported experiencing occupational stress (10). In similar manner in a EU member state surveys indicated work related stress is highly significant with sex (11). A systemic review on job satisfaction found job dissatisfaction among nurses was highest in health care settings(12, 13).

Method and Materials

Study Design and period

An institutional based cross-sectional study design was deployed from April 5 to 6 May 2015.The study was conducted in Mekelle City Administration which is a capital city of Tigrai Regional State located at a distance of 783 km from Addis Ababa, North Ethiopia. In the City 5 private and 12 government health facilities were exist and 1,119 health care workers are engaged in three governmental hospitals. The source population for this study was all health care workers who are currently engaged in public hospitals of Mekelle City Administration. All health care workers who were engaged in public hospitals at least 12 months prior data collection period included while those who were absent during the data collection period were excluded.

Sample size determination and Sampling procedure

A total of 592 sample of health care workers were selected randomly from three hospitals. The sample size was determined using a single population proportion formula by considering the prevalence of work related stress 37.8 % which is taken from literature review (14). Assumption: 95% level of confidence and 5% margin of

error.

$n = \frac{z2\ p\ (1-p),}{d^2}$ $n = \frac{(1.96)^2 x\ (0.378)\ (1-0.378)(0.5)}{(0.04)2} = 564$

By adding 5% non-response rate the final sample size was 592. A random sampling technique was employed to draw the sample size from among public hospitals found in Mekelle City Administration, which is three public hospitals included in the study, 423 from Ayder Referal hospital,125 from Mekelle hospital and 44 from Quha hospitals. The data were collected using self-administered questionnaire, which is written in English language. The content of questionnaires: Socio demographic, occupational characteristics, work unit and Job satisfaction were included. The interest of the outcome was assessed using occupational stress scale developed by HSE (Health and Safety Executive of UK), which contains 35 items to identify the presence and sources of WRS. A scoring system ranges from one to five scales as follows: 1 (never), 2 (seldom), 3 (sometimes), 4 (often), and 5 (always). The total work related scale was divided into two categories. Presence of work related stress or absence of work related stress according to the mean score of the total work related stress which participants scored above the means was diagnosed as having work related stress and those below the mean with no work related stress. Before the actual data collection, the questionnaire was pre-tested in 30 health care workers working in other health sector found near to the study area about experiencing work related stress over the past six months.

The data coded and entered into EPI INFO 7 and SPSS 20.0 version software for further analysis. Bivariate logistic regression analysis was used to determine the association of independent and dependent variables, and those variables with P-value < 0.2 were exported to multiple logistic regressions for further analysis. The summary statistics such; as mean, standard deviation and percentage were used to describe the study population in relation to outcome variables. The degree of association between independent and dependent variables were assessed using odds ratio with 95% confidence interval.

Ethical Clearance

Ethical clearance was obtained from the institutional review board (IRB) of university of Gondar. Informed consent was obtained from each hospital and after obtaining permission from the hospital directors, and unit coordinators. Informed consents also obtained from the study participants, and participants were informed about the objectives and expected outcomes of the study. All Information's obtained from individual participants were kept in secure and confidential. Names and other data, which identifies respondents, were eliminated throughout the study process to maintain confidentiality.

Results

Socio-Demographic Characteristics of Health care workers

In the study, 559(94.42%) health care workers responded with non-response rate of 5.57%. The age of respondents ranges from 21 to 60 years with mean age of 29.21 (SD±6.554) years. The majority, 343(61.7%) were in the age group of 25–34 years. Out of the total respondents 226 (40.5%) men and 333 (59.5%) women participated and 299 (53.5%) were single, 249(44.4%) were married and 11(1.96%) were divorced/widowed/separated. Majority of them 488 (87.3%) were bachelor degree holders. Regarding their work experience 312(55.8) of them were served ≤5 years and 247(44.2%) of them had worked ≥5 years.

Table 1: Socio-Demographic Characteristics of health care workers of public hospitals in Mekelle City Administration, 2015(n=559).

Variables		Frequency	Percent
Sex :	Male	226	40.5
	Female	333	59.5
Age:	18-24	119	21.3
	25-34	343	61.4
	35-44	71	12.7
	≥45	26	4.7
Marital Status:	Single	299	53.7
	Married	249	44.4
	Divorce/Widowed/separated	11	2.00
Educational Status			
	Diploma	184	32.9
	Degree	488	87.3
	Masters	17	3.04
Work experience			
	< 5 years	312	55.8
	> 5 Years	247	44.2
Work Unit:			
	Medical	110	19.7
	Surgical	96	17.2
	Pediatrics	77	13.8
	OPD	94	16.8
	Maternity	72	12.9
	MCH	40	7.2
	ICU	47	8.4
	Others	23	4.1

From the study participants 110(19.7) of them works in medical words,96(17.2%)were works in the surgical words,94(16.8%) works in the outpatient department,77(13.8) works in the pediatrics,72(12.9)works in maternity,47(8.4) were works in Intensive care unit.

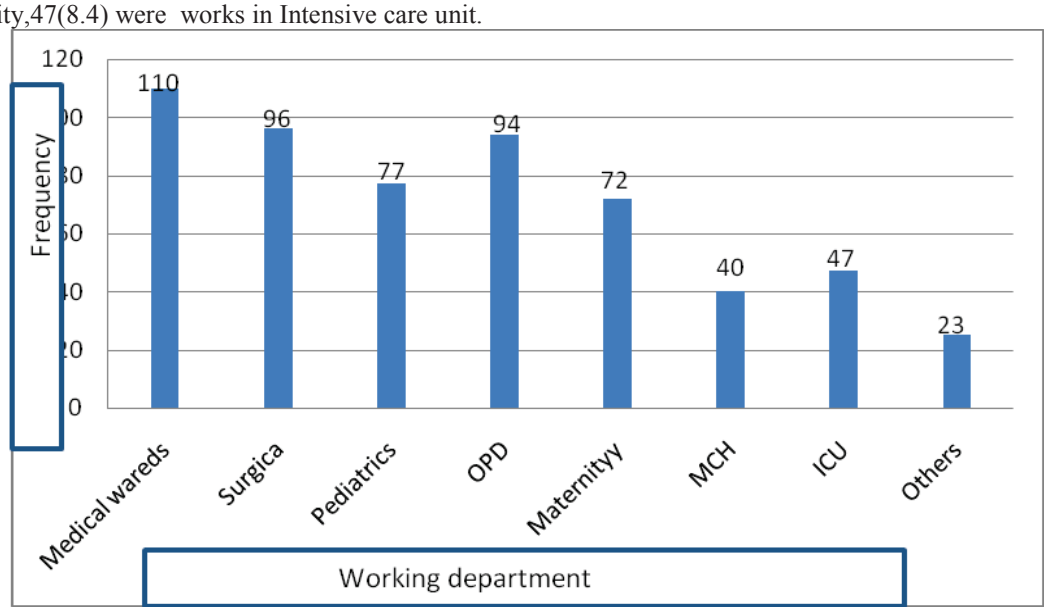

Figure 1: Work category of the study participants in Mekelle City hospitals, North Ethiopia, 2015(n=559).

Behavioral Characteristics

Of the 559 study subjects 253 (45.3 %) were alcohol consumers and 81(14.5%) had practiced khat chewing at least once in their lifetime. Moreover, 63 (11.3 %) of the respondents were current smokers, and 28(5%) have used drugs at least once in their lifetime.

Table 2: Behavioral characteristics of study respondents in Mekelle City Administration, North Ethiopia, 2015

Variable		Frequency	Percent (%)
Alcohol users	yes	253	45.3
	No	306	54.7
Khat users	yes	81	14.5
	No	478	85.5
Smokers	yes	63	11.3
	No	496	88.7
Drugs/shisha/hashish users	yes	28	5
	No	531	95

Job satisfaction level

The dimensional analysis of job satisfaction level was done based on Likert scale. Accordingly the mean satisfaction summary score was found 2.60.Taking the mean summary score of satisfaction as cut off point 317(56.7) of the respondents are satisfied.

Magnitude of Work related stress

From the study participants 262(46.9) were developed stress in the past six months with over all prevalence of 46.9% (95% CI 42.6-50.8).While 209(62.8%)females were more developed work related stress than males.

Table 3: The dimensional characteristics of WRS study participants in Mekelle City Administration, North Ethiopia, 2015.

Work related stress dimensions	Mean(SD)	WRS frequency (%)	
		Yes, n(%)	No, n(%)
Job demand	2.82(0.71)	285(51.0)	274(49)
Job control	2.96(1.00)	266(61)	293(52.4)
Job and Social Support	3.45(0.70)	312(55.8)	247(44.2)
Relationship	3.27(1.00)	276(49.4)	283(50.6)
Role	3.92(1.01)	317(56.7)	242(43.3)
Change	3.29(0.98)	322(56.6)	237(42.4)
Over all magnitude of WRS	3.29(0.43)	262(46.9)	297(53.1)

Factors Associated with work related stress

Bivariate analysis showed that three variables age, work unit and monthly income were statistically insignificant with work related stress while sex, marital status, education, work experience and job satisfaction were associated with work related stress. The magnitude of work related stress was higher among females (62.8%) when compared to males health care workers. A greater numbers of work related stress subjects were found 90.9% in the group of widowed/divorced/separated, 63.5% single and 24.9% were married. In the multivariate analysis being female was more likely develop WRS than males [AOR=3.96, 95%CI: 2.55, 6.51]. Married HCWs less likely develop WRS than singles. Respondents those who had work experience ≥5 years, 4.1[95%CI: 4.18, 4.73] times more likely had WRS than those not experienced. Respondents who were dissatisfied with their work 3 times more likely to develop work related stress than respondents who were satisfied with their job (AOR=3.05, 95%CI 2.01, 4.58).

Table 4: Factors associated with work related stress among health care workers in Mekelle City Administration by multivariate and bivariate logistic regression.2015 (n=559)

Variable Characteristics	Work related stress		COR (95% CI)	AOR (95%CI)
	Yes	No		
Sex				
Female	209(62.8)	124(37.2)	**5.5(3.76, 8.04)****	**3.96(2.55,6.51)****
Male	53(23.5)	173(76.5)	1	1
Marital status				
Married	62(24.9)	187(75.1)	**0.19(0.131, 0.776)****	**0.35(0.127,0.975)***
Divorced/widowed	10(90.9)	1(9.1)	5.74(0.725, 45.42)	4.47(0.522,38.238)
Single	190(63.5)	109(36.5)	1	
Educational status				
Degree	169(47.2)	189(52.8)	1.24(0.868,1.779)	0.860(0.55, 1.34)
Masters	16(94)	1(6)	**22.2(2.887,171.23)***	6.1(0.73, 50.55)
Diploma	77(58.2)	107(41.7)	1	1
Work Experience				
>5 years	177(71.7)	70(28.3)	**6.75(4.65, 9.8)****	**4.1(2.69,6.23)****
<5 years	85(27.2)	227(72.8)	1	
Age				
25-34	158(46.1)	185(53.9)	0.84(0.55, 1.275)	1.05(0.63, 1.75)
35-44	35(49.3)	36(50.7)	0.96(0.53,1.72)	1.47(0.70, 3.06)
≥45	9(34.6)	17(65.4)	0.52(0.25, 1.26)	0.92(0.31, 2.70)
18-24	60(50.4)	59(49.6)	1	1
Work Unit				
Surgical	43(39.4)	66(60.6)	0.75(0.433,1.281)	0.78(0.39, 1.54)
Pediatrics	38(52.1)	35(47.9)	1.24(0.682, 2.257)	1.38(0.672, 2.84)
OPD	46(46.5)	53(53.5)	0.99(0.572,1.72)	1.02(0.52, 2.00)
Maternity	39(54.2)	33(45.8)	1.35(0.74, 2.5)	1.53(0.73, 3.20)
MCH	16(44.4)	20(55.6)	0.91(0.427,1.957)	0.88(0.35, 2.23)
ICU	20(47.6)	22(52.4)	1.04(0.5, 2.127)	1.17(0.49, 2.76)
Others	11(47.8)	12(52.2)	1.05(0.424, 2.586)	0.95(0.32, 2.79)
Medical wards	49(46.7)	56(53.3)	1	1
Job satisfaction				
Dissatisfied	164(67.8%)	78(32.2%)	**4.699(3.279,6.73)****	**3.05(2.006,4.577)****
Satisfied	98(67.8%)	219(69.1%)	1	1

***= P-Value < 0.05, **= P-Value <0.01 ***= P-Value <0.001**

Discussions

In this study, the prevalence of work related stress was 46.9% with [95% CI: 42.6, 50.8]. Based on the multivariate analysis, sex, marital status, work experience and job satisfaction were statistically significant variables associated with work related stress. The study disclosed the prevalence of work related stress and its associated risk factors among health care workers of public hospitals in Mekelle City Administration. The prevalence of this study was higher than the study conducted in Addis Ababa 37.8%(10). The possible reason for this higher prevalence of work related stress it might be due to study setting, the measurement tools used, time difference study setting and differences in study population. However this result was lower than the other studies reported 58% among midwifery in Iran(15), 70% in U.S (16), 73.4% nurse India (17), and 73.5% Isfahan University of Medical Sciences hospitals in Saudi Arabia(18) and 80% in Swedish (19). The discrepancy might be the prevalence of WRS among study area or setting could be the work culture, workload in the HCWS, social and economic differences, the way in which the work was organized, methodological issue and the protective factors involved contribute to the differences observed in comparison to the present study. The findings of this study also showed that lower prevalence of WRS among female worker when compared to a study conducted in Ghana female physicians 79 % (20). This variation might be explained due to the presence of higher bullying at work and poor social interaction in previous study.

This study has depicted as age, educational status and work unit had insignificant association with WRS. However, the result reported in Canada and England (21, 22) showed significant association with WRS. This difference might be due to the differences in sample size, methods of data collection and analysis and sample representation. Based on the multivariate analysis, sex, marital status, work experience and job satisfaction were

the major significant variables which associated with work related stress. According to this study being female had 3.96 times higher odds of developing WRS compared to male [AOR= 3.96, 95%CI: 2.55, 6.51]. Respondents those who had work experience of ≥5 years had 4.1 times higher odds of developing WRS than those who had ≤5 years of experience [95%CI: 4.18, 4.73]. This might be due to as the work experience increased the role and responsibility at work place may increase and may develop WRS, working in similar workplace for long years, become fatigue and poor communication and respect with inexperienced workers. Participants who were dissatisfied with their work had 3 times more likely to develop WRS than respondents who were satisfied with their job [AOR=3.05, 95%CI: 2.01, 4.58]. The reason might be the dissatisfied workers has poor interaction and communication with their colleagues and supervisors/managers, low work moral, lack of vision, stigmatized by themselves and less coping ability.

Competing Interests
The authors declare that they have no competing interests

Abbreviations
AOR: Adjusted Odd Ratio
HCWs: Health Care Workers
HSE: Health and Safety Executive
US: Untied Sate
WRS: Work Related Stress

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