

PREVALENCE AND CORRELATES OF JOB STRESS AMONG JUNIOR DOCTORS IN THE UNIVERSITY COLLEGE HOSPITAL, IBADAN

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ABSTRACT

Introduction: Doctors respond differently to their complex work environment, some find it stimulating while others find it stressful. This study aimed to assess the prevalence and correlates of stress among junior doctors in a teaching hospital in Southwest Nigeria.

Methodology: A descriptive cross sectional survey of all junior doctors employed at the University College Hospital, Ibadan was carried out. Information was collected with a structured pretested questionnaire from 253 doctors. Descriptive statistics were generated. T-test, chi square and logistic regression analyses were conducted using SPSS version 16. Statistical significance was set at 5%.

Results: Mean age of respondents was 29.9 (± 4.1) years, 61.3% were males, 59% had spent less than 5 years in medical practice, and 34.8% were married. Majority (79.4%) were resident doctors. Prevalence of stress, job dissatisfaction and poor mental health were 31.6%, 15.4% and 9.9% respectively. Age, gender, years of medical practice, religion, ethnicity and marital status were not significantly associated with job stress ($p > 0.05$). Doctors who were stressed were more likely to be dissatisfied with their jobs (OR=2.33; CI=1.08-4.04) and to have poor mental health (OR=3.82; CI=1.47-9.95) than those who were not stressed.

Conclusion: The prevalence of stress in this study is high, and job dissatisfaction and poor mental health have been implicated as determinants of stress. As such, there should be an improvement in doctors' welfare, health care facilities and delivery.

Keywords: Doctors, Job stress, Job satisfaction, Mental health

INTRODUCTION

Stress as a term came into use from engineering and other physical sciences. These sciences consider stress to involve an application of enough force to an object or system to distort its original structure. The term has been defined in different ways because of the complex nature of stress itself. Seyle in 1936 first coined the word stress and described it as the non-specific response of the body to any demand for change.¹ Job stress has, however been defined by Centres for Disease Control (CDC) as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources or needs of the worker.²

There is good evidence to show that doctors are at higher risk of stress than the general population because being a doctor is physically and emotionally demanding.³ The modern medical workplace is a complex environment, and doctors respond differently to it, some finding it stimulating and exciting, whereas others become stressed and burned out from

the heavy workload.⁴ The medical workplace provides an environment where new skills are continually being learned, both as a result of medical knowledge evolving and because a doctor's work changes, in part due to career development and progression through different jobs.⁴ The medical training process may be promoting an unhealthy lifestyle.⁵ While going through training, physicians are pushed to endure sleep deprivation, which can result in both cognitive impairment and emotional fragility. In addition, during both medical school and residency, physicians become introduced to the medical mentality of distancing from patients, taking on more and more work without complaint, and learning to compartmentalize feelings.⁵ The culture of medicine is one in which perfectionism and "workaholic standards" rule the day and many practice settings reward long hours and self-neglect.⁵ Physicians are encouraged to disregard themselves and deny their own needs. The process of medical education may enhance development of defence mechanisms that make it difficult to ask for help.⁵ Sources of stress for

doctors include night calls, long hours of work, monotony of the job, less time for leisure, poor pay, poor working condition, etc.³

There is growing interest in and awareness of the importance of the psychosocial work environment for the delivery of high quality care. Job stress has been associated with poor mental and physical health.^{6,7} Physicians under stress are more likely to treat patients poorly, both medically and psychologically and are also more prone to make errors of judgment.⁸ Doctors have higher degree of psychological morbidity,⁹ suicidal tendencies and depression than the general population.¹⁰

There is dearth of documented research on the sources of stress among doctors in Nigeria. Eliciting the prevalence and causes of stress among UCH doctors will help in establishing intervention.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted among junior doctors at the University College Hospital, Ibadan. The hospital is located in the ancient South Western Nigerian city of Ibadan. It was established in 1952 to train medical students, undergraduate and postgraduate, provide hospital services and advance the frontiers of medical teaching and research. The hospital has fellowship programmes in all the major clinical disciplines including: internal medicine, surgery, paediatrics, obstetrics and gynaecology, general medical practice, community medicine, otorhinolaryngology, ophthalmology, psychiatry, anaesthesia, radiology, radiotherapy, dentistry and laboratory medicine.

A list of junior doctors (house officers, medical officers and residents) in UCH was obtained from the secretariat payroll records and questionnaires were self administered to all 160 resident doctors and 154 house officers and medical officers. Data was obtained using a structured self-administered one hundred and six-item questionnaire which was adapted from General Health Questionnaire (GHQ-12),¹¹ general practitioner job stress inventory¹² and job satisfaction scale.¹³

The main dependent variable was job stress. Questions on job stress were adapted from an article by Cary Cooper *et al* on job stress among general practitioners using the general practitioner job stress inventory.¹² Stress scores were calculated by assigning numerical values to the responses on a scale of 1-4, with 1 being no stress and 4 being a source of extreme stress. Job stress was dichotomised: scores ≤ 2 were categorized as 'not stressed' while scores ≥ 3 were categorized as 'stressed'. Independent variables were age, gender,

marital status, designation, department, ethnicity, religion, residence, mental health and job satisfaction. Job satisfaction was assessed on a nine-item likert scale using the job satisfaction scale¹³ and scores were dichotomized into 'satisfied with job' and 'not satisfied with job'. Mental health was assessed with the GHQ-12¹⁴ using the scoring format of 0-0-1-1. The GHQ-12 has been validated in Nigeria by Gureje & Obikoya¹¹ and has been widely used in Nigeria.^{15,16} A cut off point of >2 was indicative of poor mental health while scores ≤ 2 was indicative of good mental health.

T-test was used to investigate association between age and job stress. Chi square test was used to investigate associations between categorical variables (gender, marital status, designation, department, ethnicity, religion, residence, job satisfaction and mental health) and job stress. Logistic regression was done to determine factors that significantly contribute to stress. All consenting doctors were included in the study while doctors on leave, outside posting or otherwise unavailable could not be studied.

RESULTS

Characteristics of doctors

Eighty-two percent of house officers and medical officers (126/154) and 79.4% of junior residents (127/160). A total of 253 questionnaires were analysed out

Table 1: Sociodemographic characteristics of the doctors

Variables	N (%)
Sex	
Male	155 (61.3)
Female	98 (38.7)
Total	253 (100.0)
Marital status	
Not married	165 (65.2)
Married	88 (34.8)
Total	253 (100.0)
Ethnicity	
Yoruba	159 (62.8)
Igbo	58 (22.9)
Hausa	10 (4.0)
Other	26 (10.3)
Total	253 (100.0)
Religion	
Christianity	220 (87.0)
Islam	30 (11.8)
Others	3 (1.2)
Residence	
Within UCH	137 (54.4)
Outside UCH	115 (45.6)
Total	252 (100.0)

Table 2: Job characteristics of doctors

Variable	N (%)
Department	
Surgery	124 (49.0)
Medicine	110 (43.5)
Laboratory medicine	8 (3.2)
Radio diagnostic therapeutics	11 (4.3)
Total	253 (100.0)
Designation	
House officer	93 (36.8)
Medical officer	33 (13.0)
Junior resident	127 (50.2)
Total	253 (100.0)
Duration of medical practice	
≤5	201 (79.4)
≥6	52 (20.6)
Total	253 (100.0)

of the 300 questionnaires distributed, giving a response rate of 84.3%. Table 1 shows the socio demographic characteristics of respondents. The mean age of respondents was 29.93 (± 4.11) years. About two-thirds of the respondents (155) were males and majority [220 (87.0%)] were Christians. With regards to marital status, 165 (65.2%) of the doctors were not currently married (i.e. widowed, separated or never married). The number of doctors who lived within the hospital premises [137 (54.4%)] was slightly higher than those who lived outside UCH [115 (45.6%)].

Of all respondents, 127 (50.2%) were resident doctors and 201 (79.4%) had spent less than 5 years in medical practice. The surgery and medicine departments had the highest proportion of doctors: 124 (49.0%) and 110 (43.5%) respectively as shown in Table 2.

Table 3: Factors associated with stress in the work environment

STRESSORS	Number of doctors who reported stress (n)	Percentage of doctors who reported stress (n/N; N=253)
Demands of job and patients' expectations	103	40.7%
Fear of assault during night calls among doctors	65	25.7%
Increased demand by patients and relatives for second opinion from hospital specialists	116	45.8%
No appreciation of your work by patients	80	31.6%
Worrying about patients' complaints	155	61.3%
Finding a locum outside UCH	70	27.7%
Twenty-four hour responsibility for patients' lives	166	65.6%
Taking several samples in a short time	166	65.6%
Unrealistically high expectations by others of your role	187	73.9%
Interruptions	168	68.6%
Coping with phone calls during night and early morning	162	36.0%
Night calls	164	64.8%
Interruption of family life by telephone	152	60.1%
Emergency calls during surgery hours	151	59.7%
Dealing with problem patients	203	80.2%
Remaining alert when on call	190	75.1%
Practice administration	155	65.7%
Hospital referrals and paperwork	160	63.2%
Conducting surgery	114	45.1%
Working environment	184	72.7%
Time pressure	211	83.4%
Work: home interface and social life	131	55.0%
Demands of your job on family life	192	75.9%
Dividing time between spouse and patients	145	57.3%
Demands of your job on social life	199	78.7%
Lack of emotional support at home, especially from spouse	83	32.8%
Dealing with death and dying	194	76.7%
Daily contact with dying and chronically ill patients	189	74.7%
Dealing with terminally ill and their relatives	184	72.7%
Medical responsibility for friends and relatives	158	62.5%
Dealing with friends as patients	150	59.3%
Dealing with relatives as patients	128	50.6%
Exams	210	83.0%
The thought of examination	192	75.9%
Writing examination	192	75.9%
Attitude of my superiors	198	78.3%
Accommodation	178	70.4%
Lack of recreation	183	72.3%

Factors associated with stress

Table 3 shows the factors associated with stress. A high proportion of doctors [211 (83.4%)] stated time pressure as the commonest source of stress, followed by dealing with problem patients [203 (80.2%)], demand of job on social life [199 (78.7%)], attitude of superiors (198; 78.3%), the thought of exams and writing exams [192 (75.9%)], demand of job on family life (192; 75.9 %) and remaining alert when on call [190 (75.1%)]. An almost equal number of doctors reported stress in having daily contact with dying and

chronically ill patients [189 (74.7%)] and in having to deal with the terminally ill and their relatives [184 (72.7%)]. Many of these junior doctors [187 (73.9%)] also reported that the unrealistically high expectations by others of their role was a source of stress for them. Similar proportion of doctors reported stress about the working environment [184 (72.7%)] and the lack of recreation [183 (72.3%)]. Quite a number of the doctors [178 (70.4%)] reported securing an accommodation as a source of stress. Some doctors also reported stress on some job demands such as

Table 4: Bivariate analysis of sociodemographic characteristics against stress

Sociodemographic characteristics	Stressed n (%)	Not stressed n (%)	Total n (%)	X ²	p value
Mean age (years)	29.39 (±3.81)	30.16 (±4.23)		t-test value= 1.359	0.175
Sex					
Male	45 (29.0)	110 (71.0)	155 (100)	1.240	0.266
Female	35 (35.7)	63 (64.3)	98 (100)		
Marital status					
Single	51 (30.9)	114 (69.1)	165 (100)	0.111	0.739
Married	29 (33.0)	59 (67.0)	88 (100)		
Ethnicity					
Yoruba	50 (31.4)	109 (68.6)	159 (100)	5.608	0.132
Igbo	19 (32.8)	39 (67.2)	58 (100)		
Hausa	6 (60.0)	4 (40.0)	10 (100)		
Others	5 (19.2)	21 (80.8)	26 (100)		
Religion					
Christianity	69 (31.4)	151 (68.6%)	220 (100)	0.341	0.559
Islam	11 (36.7)	19 (63.3)	30 (100)		
Residence					
Within UCH	43 (31.4)	94 (68.6)	137 (100)	0.018	0.894
Outside UCH	37 (32.5)	78 (67.8)	115 (100)		

Table 5: Bivariate analysis of job characteristics and stress

Job characteristics	Stressed n (%)	Not stressed n (%)	Total n (%)	X ²	p value
Department					
Surgery	45 (36.3)	79 (63.7)	124	2.834	0.242
Medicine	31 (28.2)	79 (71.8)	110		
Laboratory disciplines & Radio diagnostic therapeutic	4 (21.1)	15 (78.9)	19		
Designation					
House officer	33 (35.5)	60 (64.5)	93	4.289	0.117
Medical officer	14 (42.4)	19 (57.6)	33		
Resident doctor	33 (26.0)	94 (74.0)	127		
Number of years of practice					
≤5	67 (33.3)	134 (66.7)	201	1.327	0.249
≥6	13 (25.0)	39 (75.0)	52		

Table 6: Bivariate analysis of job satisfaction and mental health against job stress

Variable	Stressed n (%)	Not stressed n (%)	Total n (%)	X ²	p value
Satisfied with job					
Yes	58 (27.1)	156 (72.9)	214 (100)	13.104	<0.001
No	22 (56.4)	17 (43.6)	39 (100)		
Mental health					
Good	63 (27.6)	165 (72.4)	228 (100)	16.980	<0.001
Poor	17 (68.0)	8 (32.0)	25 (100)		

Table 7: Logistic regression analysis of job stress against job satisfaction and mental health

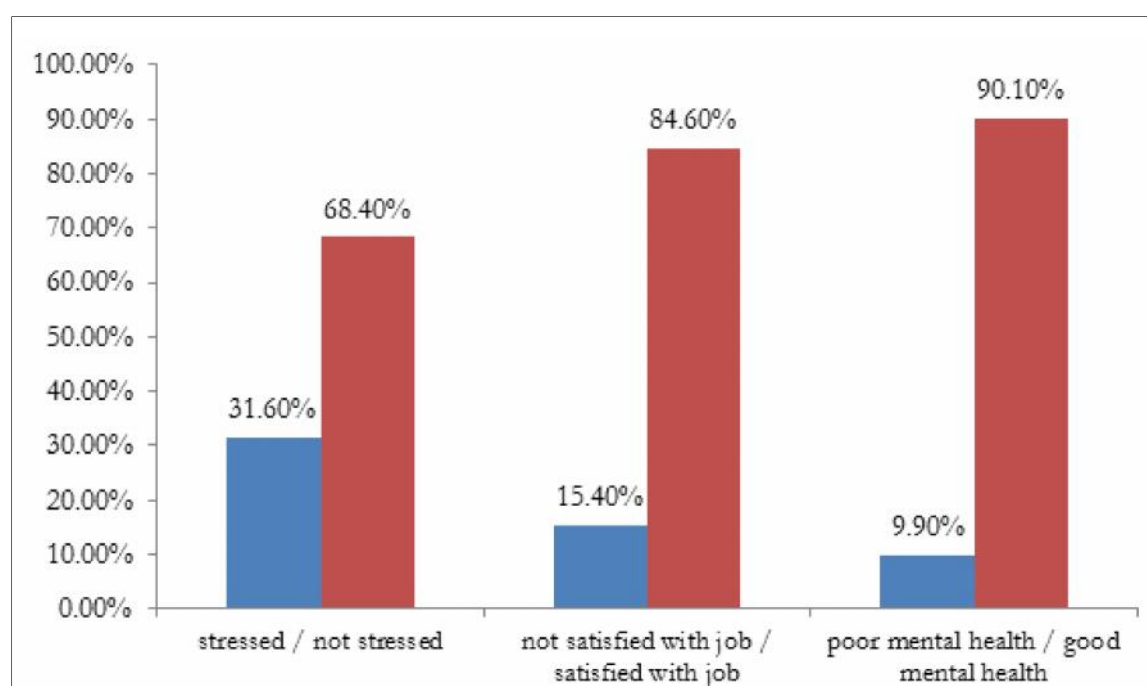
Variables	Odds Ratio	95% CI for exp(B)		p value
		lower	upper	
Satisfied with job				
Yes*	1			
No	2.33	1.08	5.04	0.032
Mental health				
Good*	1			
Poor	3.82	1.47	9.95	0.006

taking several samples in a short time [166 (65.5%)], 24-hour responsibility for patients' lives [166 (65.5%)] and taking night calls [164(64.8%)].

Much fewer doctors reported stress about fear of assault [65 (25.7%)], finding a locum [70 (27.7%)], non-appreciation of their work by patients [80 (31.6%)] and lack of emotional support at home especially from spouse [83 (32.8%)].

About 80 (31.6 %) doctors were classified as stressed. However only 39 (15.4%) were not satisfied with their job. When mental health scores were computed, about 25 (9.9%) of doctors were classified as having poor mental health status. This is shown in Fig. 1.

Table 4 shows the bivariate analysis of sociodemographic characteristics and job stress. Age of respondents, gender, marital status, religion, ethnicity and residence were not significant predictors of job stress ($p>0.05$).

**Fig. 1:** Proportion of doctors with job stress, job dissatisfaction and poor mental health

The department a doctor belonged to, his designation and number of years of practice did not significantly affect stress status ($p > 0.05$) as shown in Table 5.

A higher proportion of doctors (56.4%) who reported that they were not satisfied with their job reported being stressed ($p < 0.001$) and a higher proportion who had poor mental health (68.0%) also reported being stressed ($p < 0.001$).

The results are as shown in Table 7. The study found that doctors who were not satisfied with their job were about twice as likely as those who were satisfied with their job to report stress (OR=2.33; CI=1.08-4.04). Also, doctors with poor mental health were almost four times as likely as those with good mental health to report stress (OR=3.82; CI=1.47-9.95).

DISCUSSION

Approximately 32% of doctors in this study reported job stress. Higher prevalences of 48% and 55% have been reported among doctors in Karachi, Pakistan¹⁷ and among Dutch specialists¹⁸ respectively. A higher proportion of doctors also reported job satisfaction similar to that found among Dutch specialists.¹⁸ However, lower prevalences of job satisfaction were reported in studies done among doctors in tertiary hospitals in Benin, Nigeria¹⁹ and Karachi, Pakistan¹⁷ respectively. The prevalence of poor mental health in this study was 9.9%. A higher prevalence of 14.9% was reported by Issa *et al.* among doctors in a tertiary hospital in Nigeria.¹⁵

Although, some studies reported that older doctors, single and female doctors have higher levels of stress,^{20, 21} this study found no significant associations between job stress and sociodemographic characteristics. Higher proportions of non-indigenes reported job stress in this study but this was not statistically different from indigenes; this may be due to the fact that they are away from home.

The major sources of stress in this study were time pressure, dealing with problem patients, the attitude of superiors, dealing with death and dying patients and the thought of examinations. This could be attributed to the fact that the doctors in this study are young in the medical profession and are still in training, and therefore, write examinations, are prone to superiors' wrong attitude and are also yet to get used to dealing with death and dying patients. Although interruptions with family life, lack of recreation, accommodation and work environment were also reported as sources of stress they did not rate very high in this study unlike some other studies that implicated demands of the job and patients'

expectations, interference with family life, constant interruptions at work and home, financial constraints and practice administration as the major sources of job stress.^{20,22,23}

Overall, this study revealed that the significant predictors of stress in the study population were job dissatisfaction and poor mental health. Doctors who were not satisfied with their job were twice as likely to be stressed as those who were satisfied. Surprisingly, this study showed a low proportion of doctors who were not satisfied with their job. This may be due to the general resilience of Nigerians to adverse environmental and social conditions.

Poor mental health was also associated with job stress, similar to reports by other studies.^{24,25} The perception of "heavy" work load was associated with psychiatric morbidity among doctors in a tertiary hospital in Nigeria.¹⁵ Doctors are known to conceal poor mental health for fear of stigma or of losing a medical career.²⁶ The culture within the medical profession that doctors can cope with strenuous situations also promotes this attitude of concealing poor mental health.²⁶

CONCLUSION

It has been shown that job stress is common among doctors. Majority of doctors reported some form of stress about the attitude of their superiors, and so, superiors in the medical field should be educated on the effect their attitude may have on their subordinates and therefore, show some understanding.

In order to combat negative stressors in the physicians' work environment, enhancement initiatives should be considered both at the individual, group, and structural level. There needs to be a culture change within the profession for doctors and their employers to pay closer attention to how doctors deal with the demands of the job, how they look after their own mental health and attain wellbeing and a sense of balance between their working and personal lives. There is a great need to offer personally targeted competence development plans. Successful resources used by physicians to manage the stress of everyday medicine should be identified. Institution of stress management clinics may be utilised as control measures. Doctors are a key group to ensure a well-functioning health care system and therefore, need to be paid attention to.

REFERENCES

1. **Selye H.** A syndrome produced by diverse nocuous agents. *Nature*. 1936 July, 4; 138: 32.
2. The National Institute for Occupational Safety and Health N. Stress at work. Centre for Disease Control and Prevention; 2014.

3. **Wong J.** Doctors and Stress. 6 ed: The Hong Kong Medical Diary; 2008.
4. **McManus IC,** Keeling A, Paice E. Stress, burnout and doctors' attitudes to work are determined by personality and learning style: A twelve-year longitudinal study of UK medical graduates. *BMC medicine*. 2004 Aug 18; 2: 29.
5. **Miller N,** McGowen K. The painful truth: Physicians are not invincible. *Southern Medical Journal*. 2000 June; 93:10.
6. **Stansfeld S,** Head J, Marmot M. Work related factors and ill-health: The Whitehall II Study 2000: Available from: www.hse.gov.uk/research/crr_pdf/2000/crr00266.pdf.
7. **Michie S,** Williams S. Reducing work related psychological ill health and sickness absence: a systematic literature review. *Occupational and environmental medicine*. 2003 Jan; 60 (1): 3-9.
8. **Maslach C,** Schaufeli WB, Leiter MP. Job burnout. *Annu Rev Psychol*. 2001; 52:397-422.
9. **Burbeck R,** Coomber S, Robinson SM, Todd C. Occupational stress in consultants in accident and emergency medicine: a national survey of levels of stress at work. *Emerg Med Journal*. 2002; 19: 234-238.
10. **Andrew LB,** Brenner BE. Physician Suicide. *Medscape* [serial on the Internet]. 2015: Available from: emedicine.medscape.com/article/806779-overview.
11. **Gureje O,** Obikoya B. The GHQ-12 as a screening tool in a primary care setting. *Social psychiatry and psychiatric epidemiology*. 1990 Sep; 25(5):276-280.
12. **Cooper CL,** Rout U, Faragher B. Mental health, job satisfaction, and job stress among general practitioners. *British Medical Journal*. 1989; 298:366-370.
13. **Peter W,** John C, Toby W. Scales for the measurement of some work attitudes and aspects of psychological well-being. *Journal of Occupational Psychology*. 1979; 52:129-148.
14. **Goldberg DP,** Williams P, inventors; A user's guide to the General Health Questionnaire. Windsor, UK 1988.
15. **Issa BA,** Yussuf AD, Olanrewaju GT, Abiodun OA. Mental health of doctors in a tertiary hospital in Nigeria. *The Pan African medical journal*. 2014; 19: 178.
16. **Makanjuola AB,** Daramola TO, Obembe AO. Psychoactive substance use among medical students in a Nigerian university. *World psychiatry: official journal of the World Psychiatric Association*. 2007 Jun; 6 (2): 112-114.
17. **Khuwaja AK,** Qureshi R, Andrades M, *et al.* Comparison of job satisfaction and stress among male and female doctors in teaching hospitals of Karachi. *Journal of Ayub Medical College, Abbottabad: JAMC*. 2004 Jan-Mar; 16 (1):23-27.
18. **Bratt MM,** Broome M, Kelber S, Lostocco L. Influence of stress and nursing leadership on job satisfaction of pediatric intensive care unit nurses. *American journal of critical care: an official publication, American Association of Critical-Care Nurses*. 2000 Sep; 9 (5):307-317.
19. **Ofilo AN,** Asuzu MC, Isah EC, Ogbeide O. Job satisfaction and psychological health of doctors at the University of Benin Teaching Hospital. *Occupational medicine*. 2004 Sep; 54 (6): 400-403.
20. **Ndom RJ,** Makanjuola AB. Perceived stress factors among resident doctors in a Nigerian teaching hospital. *West African journal of medicine*. 2004 Jul-Sep; 23 (3):232-235.
21. **Shimizu T,** Hiro M, Mishan N, Nagata S. Job Stress among Japanese Full-Time Occupational Physicians. *J Occup Health*. 2002; 44 (5): 348-354.
22. **Sehlen S,** Vordermark D, Schafer C, *et al.* Job stress and job satisfaction of physicians, radiographers, nurses and physicists working in radiotherapy: a multicenter analysis by the DEGRO Quality of Life Work Group. *Radiation oncology*. 2009; 4:6.
23. **Arnetz BB.** Psychosocial challenges facing physicians of today. *Soc Sci Med*. 2001 Jan; 52 (2): 203-213.
24. **Godin I,** Kittel F, Coppieters Y, Siegrist J. A prospective study of cumulative job stress in relation to mental health. *BMC public health*. 2005; 5:67.
25. **Erdur B,** Ergin A, Turkcuier I, *et al.* A study of depression and anxiety among doctors working in emergency units in Denizli, Turkey. *Emerg Med Journal*. 2006; 23:759-763.
26. Health UKDo. Mental health and ill health in doctors, Health Do; 2008