*Malaysian Journal of Medicine and Health Sciences (ISSN 1675-8544); Vol. 11 (1) Januay 2015: 27-38*

# Prevalence of Job stress and its Associated Factors among Universiti Putra Malaysia Staff

**Okonkwo Mukosolu,[1] Faisal Ibrahim,1 Lekhraj Rampal,[1] Normala Ibrahim[2]**

*[1]Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia*

*[2] Department of Psychiatry, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang, Selangor, Malaysia*

## ABSTRACT

**Introduction:** Stress in the work place is a global major risk factor to worker's health, which triggers the workers to be poorly motivated and less productive**. Objectives:** The objective of the study was to determine the prevalence of job stress and its associated factors among Universiti Putra Malaysia staff. **Methods:** This is a cross sectional study involving 511 academic and non-academic staff of Universiti Putra Malaysia in Serdang. Probability proportionate to size was used for calculating the required sample size. **Results:** The overall prevalence of stress was 21.7% (21.0% among male and 23.0% among female). The variables found to be significantly associated with stress were: Job demand, coworker support, depression, anxiety, focus and venting of emotion and self-blame ($p<0.05$). The findings revealed that UPM staffs are exposed to a range of specific stressors such as work stressor: job demand, lack of social support such as co-worker support and supervisor support, psychological stressors such as depression and anxiety, coping such as focus and venting of emotion and self-blame. Work stressor such as job demand was the main predictor of stress (p value = 0.001). **Conclusion:** The overall prevalence of job stress was 21.7%. The predictors job stress were job demand, lack of support from co-worker and supervisor, depression, anxiety and use of avoidance focused coping.

**Keywords: Job stress, Prevalence of stress, Stress associated factors, University staff**

## INTRODUCTION

Stress is a condition or feeling experienced when a person perceives that demands exceed the personal and social resources the individual is able to mobilize.[1] It an outcome from inconsistences between demands and pressures on the person, on one hand then their knowledge and abilities on the other, which challenges their ability to cope. This includes not only the situation were the pressure of the work exceeds the person's ability to cope but where the persons knowledge and abilities are not sufficiently utilized and that is a problem for them.[2] It affects different people in different ways; such as causing dysfunctional behavior and contributes to poor physical and mental health. In extreme cases chronic stress can lead to psychological problems, heart diseases, disorders in digestive system, increased in blood pressure and psychiatric disorders.[2] It occurs in a wide range of work circumstances, but it is often worsen, when the employee feel they have little support from supervisors and colleagues, having little or control over work and how they can cope with its demands and pressures.[2]

Stress is a worldwide serious risk factor to the worker's physical and mental condition, as well as to the well-being of the organization. Stress if not managed, may lead to loss of interest among the workers, unfruitful and valueless outputs.[2] WHO estimates that there are 160 million work related illnesses including back pain 16%, hearing loss 10% and depression which accounts for one death in every ten and half minutes.[3] Globally, stress related to the work environment and conditions have become a growing concern for both employees and employers.[4] Global organization for stress statistics, shows that stress continues to be on rise among adults in workplace.[5] It has been acknowledged that the education sector is one of the work settings dominated with stress. Researches from across the globe have indicated that prevalence of stress among university personnel has been escalated up to 2340 cases per 100 000 people, where lack of support, anxiety and depression were the most observed prevalence.[6] Most of these personnel see their work as stressful or extremely stressful.[6, 7] In Malaysia, public academics are also faced with increased stress due to the rapid development in the higher education sector.[8] Study done among Malaysia education officials revealed that lack of clear-cut policies and lack of good working procedures played a significant role in initiating stress.[9] A study on job stress among 300 public university academicians from KlangValley in Malaysia, reported that job stress was one of the significant factors that reduces job satisfaction among staff.[10]

*Corresponding author: Assoc. Prof. Dato Dr. Faisal Ibrahim
faisalupm@upm.edu.my

The number of higher institutions in Malaysia has increased over the years, thereby causing managements to face competitive pressures from each other due to the grwoing demands and with subsequent increase of staff workloads, thus affecting their psychological wellbeing.[11]Academic and non-academic personnel have expressed pressure in building international reputation, funding, and in adhering to key performance indicators to bring Malaysian education to international standard, with a vision of building Malaysia towards a Centre of educational excellence by 2020.[11, 12] In a bid to achieve these goals, the university academic staff need to work harder to bring adequate output such as production of papers for publication in high impact journals, application of research grants, supervision of students, conducting of qualitative and quantitative researches. Likewise non-academic staff are forced to work harder to provide high quality administrative service for their clients, which may incur an adverse effect on their health and wellbeing. Prevalence of stress was found to be 22.2% in a study done among health care workers of a Higher Learning Institution in Kelantan.[13]Equally, a prevalence of 33.3% was found in a study among laboratory technicians in Universiti Sains Malaysia.[14]

Work related Health problems are usually generated by occupational stress and regarded as one of ten leading health problems.[1]The UK's Health and Safety Executive has identified six categories of work related stress, namely demands, control, relationships, change, role and support.[15] The objective of this study is to determine the prevalence of job stress and factors associated among UPM staff in Serdang campus.Work related stress occurs when there is a mismatch between the demands of the job and the individual capabilities.

## MATERIALS AND METHODS

This is an analytical cross sectional study, carried out at Universiti Putra Malaysia, Serdang campus. The research was conducted in UPM main campus, Serdang. UPM has two campuses, the main campus, located at Serdang (1108.103 hectares) and another branch at Bintulu (714.717 hectares). The university was established in 1931 and consists of 16 faculties and 9 institutes. UPM is a research intensive public university. Probability proportionate to size (PPS) sampling was used to select participants from a total of 4067 staff of 16 faculties and 9 institutes. Sampling with probability proportionate to size was used for the selection of staff. This is a combination of simple random, cluster and systematic random sampling. The first step was calculating the sample size .The desired cluster size was obtained by getting the mean number of staffs in the faculties and institutes with less than 1000 staffs. The next step was computing the number of clusters (Faculties and Institutes) needed to achieve the calculated sample size which was obtained by dividing the sample size by cluster size to calculate the required 565 sample size based on 95% CI with 0.05 level of significance. Hence number of clusters obtained was 6. A starting point within the sampling interval was identified using table of random numbers. In the final step, the sampling interval was added to the starting point. The process was repeated until all the five faculties and one institute was identified and proportionate allocation of the number of staff to participate in the study from each faculty and institute was done. All Malaysian staff who are employed permanently or on contract basis were selected, staff working in Serdang campus and staff present at time of study were the inclusion criteria, while staff on sabbatical, maternity, study, and sick leave throughout the period of the study and non- Malaysian citizens were excluded from the study.

### Data Collection

The data was collected between July to October 2013.

### Study Instrument

English and Malay version of self-administered questionnairewas pretested and validated for content and face validity and distributed to the respondents. The questionnaire was pretested among 25 university staff from the Faculty of Engineering while the reliability of the questionnaire was tested using the internal consistency approach by checking for the Cronbach alpha of the scale. The questionnaires consisted of seven sections. Section A consisted of eight socio-demographic items including gender, age, ethnicity, religion, marital status, highest educational level, occupation and monthly family income. Section B consisted of 18 items adapted from the Job Content Questionnaire.[16] Role ambiguity/clarity adapted from the Copenhagen Psychosocial Questionnaire for role ambiguity.[17, 18] was also included in this section, which were all in Likert scale. Section C consisted of 12 items measuring the life events of the respondents in the last six months. The response to the scale was expressed as either yes or no. The life events measured self-illness or injury, relative's illness/injury, death of parent/child/spouse, death of close family, marital separation, broken relationship, problem with close friend / neighbour /relative, unemployment, loss of job, financial crisis, police/court problems, and loss of valued property.[19] Section D focused on social support received from the work place, including eight items adapted from the Copenhagen Psychosocial Questionnaire[18], and measured in four

likert scale ranging from strongly disagree to strongly agree. Section E examined the psychosocial characteristics of the respondents, which consisted of twenty-one questions on depression, anxiety and stress (DASS21).[19, 20] Section F measured 18 items on personality of the respondents, adapted from the Temperament and Personality Questionnaire.[21] Two important variables were measured in this section, namely anxious worrying and effectiveness. Section G of the questionnaire accessed the coping skills of the respondents, which comprised of twenty eight items. The questionnaire was adapted from Brief Cope questionnaire.[22]

## Ethical approval

Ethical approval was obtained from Faculty of Medicine and Health Sciences, Universiti Putra Malaysia (UPM) Medical Research Ethics Committee. Prior to conducting this research, written approvals were obtained from the Deans and Directors of the five Faculties and one Institute respectively. Verbal and written informed consent was acquired from each respondent. The confidentiality of the respondent's information was ensured.

## Data analysis

All data were analyzed using Statistical Package for Social Sciences (SPSS) version 21. Transformation and coding of the data was done. The normality tests showed that the data have normal distribution. Categorical variables were tested for associations using the Pearson's chi square for association, and Fisher's exact tests, which were presented as frequencies and percentages. Continuous variables were presented as means with their 95% confidence interval. Multivariate analysis was performed using multiple logistic regression and the result was expressed as odds ratio with 95% confidence interval. The level of significance was set at 5%.

# RESULTS

## Response rate

Table 1 shows that out of 564 respondents selected, 511 participated and completed the questionnaire giving overall response rate of 90.4%.

**Table 1:** Response rates according to Faculties and Institute

| Faculties and Institute | N | % |
|---|---|---|
| Institute of Advanced Technology | 32 | 68.3 |
| Faculty of Design and Architecture | 46 | 72.5 |
| Faculty of Agriculture | 60 | 78.7 |
| Faculty of Engineering | 124 | 90.7 |
| Faculty of Medicine and Health Science | 177 | 98.5 |
| Faculty of Educational Studies | 72 | 88.5 |
| Total | 511 | |

$$\text{Overall response rate} = \frac{\text{Number of completed questionnaire} \times 100}{\text{Number of eligible staff}}$$

$$= 511/565 \times 100 = 90.4\%$$

Majority of the respondents (70.3%) were female while (29.7%) were male. The overall mean age of the respondents was 37.91(95% CI 33.39-34.64) years. As shown in Table 2, majority of the respondents were Malays (91.0%), Muslims (91.0%), and married (84.5%), Academic staff (23.1%). Likewise majority (40.7%) had master and those who earn RM >8000 which is (53.8%).

## Prevalence of stress

The overall prevalence of stress was 21.7%. Out of the 511 respondents, 111(21.7%) had stress where (78.3%) of the staff had no stress, (6.7%) had mild stress, (8.6%) had moderate stress, (5.9%) staff had severe stress, and (0.6%) staff had extreme severe stress.

**Table 2:** Socio-demographic characteristics of respondents' (n = 511)

| Socio demographic Profile | | n | % |
|---|---|---|---|
| Gender | Male | 152 | 29.7 |
| | Female | 359 | 70.3 |
| Age (years) | 20-29 | 79 | 15.5 |
| | 30-39 | 251 | 49.1 |
| | 40-49 | 145 | 28.4 |
| | ≥50 | 36 | 7.0 |
| Ethnicity | Malay | 465 | 91.0 |
| | Chinese | 29 | 5.7 |
| | India | 17 | 3.3 |
| Religion | Islam | 465 | 91.0 |
| | Christianit | 12 | 2.3 |
| | Buddhism | 20 | 3.9 |
| | Hinduism | 14 | 2.8 |
| Marital Status | Single | 70 | 13.7 |
| | Married | 432 | 84.5 |
| | Widowed | 9 | 1.8 |
| Highest Education | SPM/STMP | 57 | |
| Level | Diploma/Bachelor | 159 | 11.2 |
| | Master | 208 | 31.1 |
| | PhD | 87 | 40.7 |
| | | | 17.0 |
| Occupation | | | |
| | Academic | 294 | 57.5 |
| | Non-Academic | 217 | 42.5 |
| Monthly Family Income | <2000 | 55 | 10.8 |
| | 2000 - 3999 | 87 | 17.0 |
| (RM) | 4000 – 5999 | 73 | 14.3 |
| | 6000 – 7999 | 21 | 4.1 |
| | ≥8000 | 275 | 53.8 |

## Factors associated with stress

Table 3 shows that the prevalence of stress was higher among the females (23.0%) than in males (21.2). Those that are 40-49 (23.4%) had the highest prevalence of stress also among ethnicity; Indians had the highest prevalence of stress (29.4%). Likewise in religion Buddhism (40.0%) had the highest prevalence. Staff that are single (24.3%) were more stressed compared to those that were married (21.3%) and widowed (22.2) and academic staff (23.1) had a higher prevalence of stress than non-academic staff (19.8). The prevalence was stress was higher among those that earn RM6000-7999. Meanwhile there was no significant association between stress and socio-demographic characteristics: such as gender, age, ethnicity, religion, marital status, highest educational level, occupation and monthly family income. The prevalence of stress was higher among those with, job decision authority (22.4%) and those with job decision authority had a significantly higher prevalence of stress compared to those with no job decision authority. For job demand, the prevalence of stress among those with job demand was (24.9%) and those with job demand had a significantly higher prevalence of stress compared to those with no job demand. Among those with role ambiguity, those that understand their role to a small extent (19.3%) had significant association with stress compared to those

that understand their role to a large extent. Likewise among those that had one or more life event occurrence, (26.9%) had stress compared to those with no life event occurrence, which had a significant association with stress. For social support, those that were psychologically exposed, (29.9%) were stressed compared to those that were not psychologically exposed, both co-worker and supervisor support had a statistically significant association with stress. Prevalence of stress was higher among those with high score on anxious worrying (38.5%) than those with low score (21.3%) unfortunately it was significant. Meanwhile prevalence of stress was higher among those with low score (33.3%) on effectiveness and those with low score had a significant association with stress than those with high score (15.7%). Among those with anxiety, (63.1%) had stress and those with anxiety had a significant association with stress than those with no anxiety and those with depression had a significant association with stress too. Coping skills shows that only use of instrumental support was significant with for problem focused coping while among emotion focused coping, focus and venting of emotion, behavioral disengagement and positive reinterpretation had a significant association with stress. Among avoidant coping, denial, self-distraction was significant and self-blame were significant with a weak effect on stress.

**Table 3**: Association between respondents' socio-demographic characteristics and stress (n=511)

| Variables | With stress | | Without stress | | $\chi 2$ | df |
|---|---|---|---|---|---|---|
| P-value | | | | | | |
| | Number | % | Number | % | | |
| Overall | 111 | 21.7 | 400 | 78.3 | | |
| Gender | | | | | | |
| Male | 35 | 21.2 | 283 | 78.8 | 0.216 | 10.642 |
| female | 76 | 23.0 | 117 | 77.0 | | |
| Age | | | | | . | |
| 20 - 29 | 16 | 20.3 | 63 | 79.7 | 0.414 | 30.934 |
| 30 –39 | 53 | 21.1 | 198 | 78.9 | | |
| 40 - 49 | 34 | 23.4 | 111 | 76.6 | | |
| >=50 | 8 | 22.2 | 28 | 77.8 | | |
| Ethnicity | | | | | | |
| Malay | 98 | 21.1 | 367 | 78.9 | 1.292 | 20.524 |
| Chinese | 8 | 27.6 | 21 | 72.4 | | |
| India | 5 | 29.4 | 12 | 70.6 | | |
| Religion | | | | | | |
| Islam | 98 | 21.1 | 367 | 78.9 | 4.225 | 30.262 |
| Christianity | 2 | 16.7 | 10 | 83.3 | | |
| Buddhism | 8 | 40.0 | 12 | 60.0 | | |
| Hinduism | 3 | 21.4 | 11 | 78.6 | | |
| Marital status | | | | | | |
| Single | 17 | 24.3 | 53 | 75.7 | 0 .318 | 20.853 |
| Married | 92 | 21.3 | 340 | 78.7 | | |
| Widowed | 2 | 22.2 | 7 | 77.8 | | |
| Highest education level | | | | | | |
| SPM/STMP | 11 | 19.3 | 46 | 80.7 | 0.487 | 30.922 |
| Diploma/Bachelor | 34 | 21.4 | 125 | 78.6 | | |
| Master | 48 | 23.1 | 160 | 76.9 | | |
| PhD | 18 | 20.7 | 69 | 79.3 | | |
| Occupation | | | | | | |
| Academic | 68 | 23.1 | 226 | 76.9 | 0.806 | 10.369 |
| Non academic | 43 | 19.8 | 174 | 80.2 | | |
| Monthly family income | | | | | | |
| (Rm)<2000 | 11 | 20.0 | 44 | 80.0 | 7.153 | 40.128 |
| 2000-3999 | 13 | 14.9 | 74 | 85.1 | | |
| 4000-5999 | 20 | 27.4 | 53 | 72.6 | | |
| 6000-7999 | 8 | 38.1 | 13 | 61.9 | | |
| >8000 | 59 | 21.5 | 216 | 78.5 | | |

Note: $\chi 2$=chi square, df =degree of freedom,*Significant at p value < 0.05

**Table 4:** Association between respondents' job related factors, live event, social support, personality factors, psychological factors and coping Characteristics with stress (n=511)

| Variables | With stress Number | % | Without stress Number | % | $\chi^2$ | df | p-value |
|---|---|---|---|---|---|---|---|
| **Job decision latitude** | | | | | | | |
| Job decision authority | 70 | 22.4 | 243 | 77.6 | 0.196 | 1 | 0.658 |
| No job decision authority | 41 | 20.7 | 157 | 79. 3 | | | |
| **Job demand** | | | | | | | |
| Job demand | 60 | 24.9 | 181 | 75.1 | 2.703 | 1 | 0.002* |
| No Job demand | 51 | 18.9 | 219 | 81. 1 | | | |
| **Role Ambiguity** | | | | | | | |
| To a small extent | 34 | 19.3 | 85 | 80.7 | 9.6873 | 1 | 0.003* |
| To a large extent | 77 | 44.5 | 315 | 55.5 | | | |
| **Life event** | | | | | | | |
| None | 57 | 26.9 | 155 | 73.1 | 0.5168 | 1 | 0.017* |
| >=1 | 54 | 18.1 | 245 | 81. 3 | | | |
| **Co- worker support** | | | | | | | |
| Psychological work exposure | 60 | 29.9 | 141 | 70.1 | 12.875 | 1 | <0.001* |
| No psychological work exposure | 51 | 16.5 | 259 | 83.5 | | | |
| **Supervisor support** | | | | | | | |
| Psychological work exposure | 39 | 33.1 | 79 | 66.9 | 11.580 | 1 | <0.001* |
| No psychological work exposure | 72 | 18.3 | 321 | 81.7 | | | |
| **Anxious worrying** | | | | | | | |
| Low score | 106 | 21.3 | 392 | 78.7 | 2.1980 | 1 | 0.168 |
| High score | 5 | 38.5 | 8 | 61.5 | | | |
| **Effectiveness** | | | | | | | |
| Low score | 58 | 33.3 | 116 | 66.7 | 20.920 | 1 | <0.001* |
| High score | 53 | 15.7 | 284 | 84.3 | | | |
| **Anxiety** | | | | | | | |
| No anxiety | 70 | 63.1 | 81 | 20.2 | 2.1980 | 1 | <0.001* |
| Anxiety | 41 | 36.9 | 319 | 79.8 | | | |
| **Depression** | | | | | | | |
| No depression | 67 | 44.4 | 84 | 55.6 | 20.920 | 1 | <0.001* |
| Depression | 44 | 12. 2 | 316 | 21. 0 | | | |

**Table 5**: Association between respondents' coping skills and stress (n=511)

| Coping skills | With Stress Number | % | Without stress Number | % | χ2 | df | p-value |
|---|---|---|---|---|---|---|---|
| **Problem focused** | | | | | | | |
| **Active coping** | | | | | | | |
| Have been doing this | 94 | 23.1 | 236 | 76.9 | 0.418 | 1 | 0.518 |
| Have not been doing this | 17 | 20.2 | 164 | 79.8 | | | |
| **Use of instrumental support** | | | | | | | |
| Haven been doing this | 30 | 18.8 | 130 | 81.2 | 1.210 | 1 | <0.001* |
| Have not been doing this | 81 | 23.1 | 270 | 76.9 | | | |
| **Planning** | | | | | | | |
| Have been doing this | 82 | 20.6 | 317 | 79.4 | 1.467 | 1 | 0.226 |
| Have not been doing this | 29 | 25.9 | 83 | 74.1 | | | |
| **Emotion focused** | | | | | | | |
| **Focus and venting of emotion** | | | | | | | |
| Have been doing this | 39 | 35.8 | 70 | 64.2 | 9.332 | 1 | <0.001* |
| Have not been doing this | 72 | 17.9 | 330 | 82.1 | | | |
| **Behavioral disengagement** | | | | | | | |
| Have been doing this | 25 | 44.6 | 31 | 55.4 | 9.432 | 1 | |
| Have not been doing this | 86 | 18.9 | 369 | 81.1 | | | <0.001* |
| **Emotion support** | | | | | | | |
| Have been doing this | 77 | 21.8 | 276 | 78.2 | 0.016 | 1 | 0.941 |
| Have not been doing this | 34 | 21.5 | 124 | 78.5 | | | |
| **Positive reinterpretation** | | | | | | | |
| Have been doing this | 94 | 23.2 | 311 | 76.8 | 2.542 | 1 | 0.035* |
| Have not been doing this | 17 | 16.0 | 89 | 84.0 | | | |
| **Humor** | | | | | | | |
| Have been doing this | 33 | 26.7 | 63 | 73.3 | 1.534 | 1 | 0.216 |
| Have not been doing this | 88 | 20.7 | 337 | 79.3 | | | |
| **Acceptance** | | | | | | | |
| Have been doing this | 70 | 19.3 | 292 | 80.7 | 0.601 | 1 | 0.741 |
| Have not been doing this | 41 | 27.5 | 108 | 72.5 | | | |
| **Avoidant coping** | | | | | | | |
| **Self-distraction** | | | | | | | |
| Have been doing this | 91 | 23.9 | 290 | 76.1 | 4.118 | 1 | 0.042* |
| Have not been doing this | 20 | 15.4 | 110 | 84.6 | | | |
| **Denial** | | | | | | | |
| Have been doing this | 21 | 34.4 | 60 | 65.6 | 6.575 | 1 | 0.010* |
| Have not been doing this | 90 | 20.0 | 360 | 80.0 | | | |
| **Substance use** | | | | | | | |
| Have been doing this | 1 | 50.0 | 1 | 50.0 | 0.944 | 1 | 0.331 |
| Have not been doing this | 110 | 21.6 | 399 | 78.4 | | | |
| **Self-blame** | | | | | | | |
| Haven been doing this | 69 | 17.8 | 318 | 82.2 | 5.000 | 1 | <0.001* |
| Have not been doing this | 42 | 33.9 | 82 | 66.1 | | | |

Note: χ2=chi square, df = degree of freedom,*Significant at p value < 0.05

## Logistic regression

A multivariate regression was carried out to determine the predictors of stress, while controlling for cofounders, a Univariate Analysis using simple logistic regression was carried out. Out of 21 variables 16 were selected as been the most important variable to be entered in the logistic model because they showed statistical significance. All variables that had (p< 0.25), which was recommended by Hosmer-Lemshow.[23] Which was found that the uses of p< 0.05 sometimes are unsuccessful in recognizing some important variables. Table 6 shows the final logistic regression model. The variables that were retained in the final model were job demand, coworker support, depression, anxiety, focus and venting, and self-blame. Mostly staff are 2 times likely to have stress due to job demand (AOR= 2.410. 95%CI 1.417- 4.098). The odds of developing stress is 1.9 times higher in those that do not get support from there coworker than those that do get support from there coworker (OR = 1.973, 95% CI = 1.201, 3.243, *p*< 0.007). Those who were depressed are 2.6 times more likely to develop stress than those with no depression (OR = 2.555, 95% CI = 1.398, 4.672, *p*< 0.002). Those that had anxiety are 2.6 times more likely to develop stress than those with no anxiety (OR = 2.578, 95% CI = 1.409, 4.718, *p* <0.002.). Those that cope using focus and venting emotion which is emotion coping and have been doing it a lot are 3.6 times likely to develop stress compared to those that have not been doing it at all (OR = 3.685, 95% CI = 2.040, 5.659, *p* <0.027). Those that cope using self-blame which is avoidant coping are 2.9 times more likely to develop stress compared to those that do not do this at all (OR = 2.997, 95% CI = 0.948, 4.381, p <0.03). Goodness of fit was assed using the Hosmer-Lemshow test which shows that at p-value is 0.723 which is greater than 0.05, so therefore the model is fit, also the classification table, the overall percentage was 81.8% which shows a good model and area under roc curve which was 0.824(95%CI: 0.782, 0.866). The model can accurately discriminate 0.824% of the cases.

**Table 6**: Multiple logistic regression final model showing adjusted odd ratio of predictors of stress

| Factors | B coefficient | Standard error | Adjusted OR | 95% CI | | P = value |
|---|---|---|---|---|---|---|
| **Job demand** | | | | | | |
| No demand | | | 1 | | | |
| job demand | 0.880 | 0.271 | 2.410 | 1.417 | 4.098 | < 0.001* |
| **Life event** | | | | | | |
| No life event | | | 1 | | | |
| life event | 0.420 | 0.250 | 1.522 | 0.932 | 2.486 | 0.093 |
| **Co-worker support** | | | | | | |
| No Psychological work | | | | | | |
| Exposure | | | 1 | | | |
| psychological work exposure | 0.680 | 0.253 | 1.973 | 1.201 | 3.243 | 0.007* |
| **Supervisor support** | | | | | | |
| No Psychological work exposure | | | 1 | | | |
| Psychological work exposure | 0.682 | 0.255 | 1.977 | 1.205 | 3.248 | 0.007* |
| **Depression** | | | | | | |
| No depression | | | 1 | | | |
| Depression | 0.938 | 0.308 | 2.555 | 1.398 | 4.672 | 0.002* |
| **Anxiety** | | | | | | |
| No anxiety | | | 1 | | | |
| Anxiety | 0.947 | 0.308 | 2.578 | 1.409 | 4.718 | 0.002* |
| **Focus and venting emotion** | | | | | | |
| Have not been doing this | | | 1 | | | |
| Have been doing this | 0.789 | 0.382 | 3.685 | 2.040 | 5.659 | 0.027* |
| **Self-blame** | | | | | | |
| Have not been doing this | | | 1 | | | |
| Have been doing this | 0.689 | 0.379 | 2.997 | 0.948 | 4.381 | 0.003* |

Significance at p value<0.05 Hosmer-Lemshow test, p-value = 0.723; overall percentage = 81.8%, Area under Roc curve = 824(95%CI: 0.782-0.866).

## DISCUSSION

The overall prevalence of stress from this study was 21.7% where 6.5% reported mild stress, 8.6% reported moderate stress, 5.9% reported severe and 0.7% reported having extreme severe stress. This is similar with a study done among dental workers in Kelantan where the reported prevalence was 22.2%, 1.9% experienced severe stress while 20.4% experienced mild to moderate stress. [13] The difference is probably due to the respondents and setting of where the studies were carried out. There was no significant association between stress and socio-demographic factors. Meanwhile female had a higher prevalence of stress than men. This is in accordance with the hypothesis of differential vulnerability which states that, women would be more responsive than men to work stressors.[13] Similar findings of females reporting more stress than males was reported in Universiti Malaysia Pahang.[24] Prevalence of stress was higher among the academic compared to non-academic staff. Most of the academic staff reported not having enough time to get their work done and not having control of decision at work could lead to depression and anxiety. This is supported by Karasek's Demand–Control Theory, which states that, the most adverse reactions of psychological strain (anxiety, depression, fatigue and physical illness) occur when the psychological demands of the job are high and the worker's decision latitude in the task is low.[25]

Furthermore there was a significant association between role ambiguity and stress. 19.3% who understand their role to a small extent reported lack of unclear objective in their work which could indicate that role ambiguity will be a risk factor for stress.[26] A similar finding on role ambiguity being a risk factor for stress was reported in Pakistan, indicating that higher ambiguity may also arise due to lack of clarity regarding how to juggle different roles at work.[27] This study found that job demand was the main predictor of stress, which indicates that staff had stress due to high demand in their job such as learning new things, working hard and not being free from conflicting demands of others. The finding is supported by study done among university staff in Malaysia and Tanzania which found association between stress and job demand ($p < 0.003$)[13] and ($p < 0.005$) respectively.[28] Likewise in Australian universities, academic staff has been subjected to additional job demand to attract external funding through research grants or research consultancies. A research done in London by health and safety executive in higher education, found significant strong effects for job demands which was due to too many students, not enough staff and no time to think.[29] The study showed no significant association between stress and decision latitude. Similar finding was revealed in a study done in Canada among university staff.[30] This study indicated that 29.9% and 331.1% reported been psychologically exposed due to lack of coworker and supervisor support which had a significant association with stress.

In a study done among academicians in East Malaysia public University, showed that coworker support acts as a moderating effect in relationship with work stress. The study also revealed that coworker social support moderated the effect of role ambiguity in their job.[31] Likewise studies done in US among government workers showed coworker support, significantly predicted work stress.[32, 28] Likewise job demand and lack of support from coworker as having risk of developing stress was reported from studies done in government agencies in US, and Universities College Union (UCU), London.[32,29] There was a significant association between personality and stress which shows that personality is a moderating factor for role stress.[5] This study indicated that depression and anxiety had a significant association with stress, which might be due too much worrying, workload and job demand. A similar finding was reported in Australia among 1,188 employed professionals which showed significant association of job strain with depression (OR = 3.49, 95%CI=1.90 to 6.41) and anxiety (OR = 3.29, 95%CI=1.71 to 6.33).[33] Likewise, National Health Worksite Agency for Healthcare Research and Quality in US, found that 80% of the workers had depression and anxiety and this caused them serious difficulties at work which had negative effect on productivity.[34]

Also Melchior in his study reported that work stress predicted the first onset of depression and anxiety among individuals with no prior history of these disorders.[35] This study found that staff cope with stress, using emotion focused such as focus and venting of emotion which is the tendency to focus on whatever distress or upset they are experiencing and to ventilate those feelings and avoidant coping such as self- blame which they had significant association with stress. Research done in Brunei among Trainee teachers shows most of them use emotion and avoidance coping to cope with stressful situation.[36] Avoidant coping has also been associated with increased psychological distress in the general population and university samples.[37] Found in their university study that participants experienced greater depressive symptoms when they engaged in an avoidant coping style such as wishful thinking [38] study also revealed strong positive associations between avoidant coping and psychological distress. Participants were shown to have increased symptoms of anxiety and depression when they engaged in avoidant coping. The positive association between avoidant coping, emotion focused coping and stress, anxiety and depression may occur because avoidant coping and emotion coping fails to remove stressors.[39] As stressors are allowed to fester and grow, they can become more stressful, resulting in an individual experiencing increased anxiety and depression. The coping strategies that focus on negative emotions and thoughts appear to increase psychological distress (e.g. venting of emotions). On the other hand, avoidant strategies have been generally found to increase emotional exhaustion and decrease work achievement.[40]

In contrast, emotion-focused strategies as well as escape-oriented or avoidant actions are generally associated with poor mental health and unwell-being.[41] To realize how serious stress can affect us, the 10th Conference on Occupational Stress and Health in Los Angeles, California, May 2013, revealed that, stress, if not handled can lead to heart attack and even death.[42] Immediate measures should be applied to help staff cope well with stress. Six factors were found to be predictors of stress in this study, namely; job demand, co-worker and supervisor support, anxiety, depression, focus and venting of emotion and self-blame. The university authorities should implement stress management programmes such as; providing opportunity for interaction among staff, support groups to improve social support among coworker and supervisors, individual focused intervention should applied, which aims to increase individual psychological resources and responses such as coping, depression and anxiety. Organization focused intervention which aims to improve stressful work factors and environment such as job demand and role ambiguity.

## CONCLUSION

In conclusion, prevalence of stress was 21.7%, which was higher among females compared to males. Stress predictors were job demand, coworker support, depression, anxiety, focus and venting emotion, and self-blame. These six predictors need to be addressed to mitigate the prevalence of stress among the staff. Coworker and supervisor support need to be encouraged. Practicing exercise, rescheduling of school activities and stress management programs should be put in place.

## REFERENCES

1. Ahmad U, Zulfiqar A, Ishfaq A, Zeeshan A. Work Stress Experienced by the Teaching Staff of University of the Punjab, Pakistan: Antecedents and consequence *International Journal of Business & Social Science* 2011; 2(8): 202.

2. Ahsan N, Abdullah Z, Fie GYD, Alam SS. A Study of Job Stress on Job Satisfaction Among University Staff in Malaysia: Empirical Study. *European Journal of Social Sciences* 2009; 8(1):121-131.

3. American Institute of Stress. People are disturbed not by a thing, but by their Perception of a thing 2013. Retrieved January 31, 2013, from http://www.stress.org/daily-life/.

4. American psychological association. Work, Stress and Health Protecting and Protecting And Promoting Total Worker Health 2013. Retrieved June 2013, from http:// www.apa.org.wsh.

5. Aziah BD, Rusli BN, Winn T, Naing L and Tengku MA. Prevalence and risk factors of job strain among laboratory technicians in Hospital. *Singapore Med Journal* 2004; 45(4): 170-175.

6. Crockett, LJ, Iturbide MI, Torres Stone RA, McGinley M, Raffaelli M, Carlo G.Acculturative stress, social support, and coping: Relations to psychological adjustment among Mexican American college students. *Cultural Diversity and Ethnic Minority Psychology* 2007; 13(4): 347-355.

7. Ismail A, Mohamed AH, Sulaiman ZA, Ismail Z, Mahmood WNW. Relationship Between Work Stress, Coworker's Social Support, Work Stress and Work Interference With Family Conflict: An Empirical Study in Malaysia. *International Business Management, Medwell Journal* 2010; 4(2):76-83.

8. Biron JP, Brun H, Ivers H. Extent and sources of occupational stress in university staff. *Journal of Prevention, Assessment and Rehabilitation*, 2008; 30(4): 511-522.

9. Black Dog Institute. Temperament & Personality (T&P) Questionnaire Information.Retrived 22, February 2013 from http://www.blackdoginstitute.org.au/docs/TemperamentandPersonalityQuestionnaire.

10. Blaud R, Kenyon A, Lekhi R. Stress at work: A report prepared for the Work Foundations' principal partners. London. The Work Foundation 2006. Retrieved July 2013, from http://www.theworkfoundation.com/downloadpublication/report/69_69_stress_at_work.pdf

11. Brugha TS, Bebbington P, Tennant C, Hurry J. The List of Threatening Experiences: a subset of 12 life event categories with considerable long- term contextual threat. *Psychol Med* 1985; 15(1):189-194.

12. Carver CS. You want to measure coping but your protocol's too long.Consider the Brief Cope. *International Journal of Behavioral Medicine* 1997; 4:92-100.

13. Court S, Kinman, G. Tackling stress in higher education.London:UCU.2009. Retrieved July 11, 2013 from, http://www.ucu.org.uk/media/pdf/d/0/ucu_hestress_dec08.pdf

14. DeLongis A, Holtzman S. Coping in Context: The Role of Stress, Social Support, and Personality in Coping. *Journal of Personality* 2005; 73(6): 1633-1656.

15. Fauziah N, Quek KF, Agus SMB. Validity-Reliability Study of the Malay Version of Copenhagen Psychosocial Questionnaire (COPSOQ) in Assessing Psychosocial Status in Relation to Nature of Work among Workers. *Journal of Occupational Safety and Health* 2005; 2(1):10-18

16. Health and Safety Executive. Investigation of the links between Psychological ill health, stress and safety 2006.

17. Health and Safety Executive. Stress and Psychological Disorders in Great Britain 2013. Retrieved from July 8 2013, from http://www.hse.gov.uk/statistics/causdis/stress/stress.pdf

18. Holahan CJ, Holahan CK, Moos RH, Brennan PL, Schutte, K. K. Stress Generation, Avoidance Coping, and Depressive Symptoms: A 10-Year Model. *Journal of Consulting and Clinical Psychology* 2005; 73(4): 658-666.

19. Hosmeh DW, Lemeshow S. Applied logistic regression (second edition).A Wiley- interscience publication, John Wiley and sons Inc.2000.

20. Joan B. World Health Organization .WHO healthy workplace framework and model 2010 February. Retrieved February 2013 from http://www.who.int/occupational health/healthy_workplace_framework.pdf

21. Karasek R, Brisson C, Kawakami N, Houtman I, Bongers P, Amick B. The JobContent Questionnaire (JCQ): An instrument for internationally comparative assessments of psychosocial job characteristics. *Journal of. Occupational Health Psychology* 1998; 3(3): 22-355.

22. Katherine T, McCalister, Christyn L, Dolbier, Judith A, Webster, Mark W., Mallon, Mary A. Steinhardt. Hardiness and Support at Work as Predictors of Work Stress and Job Satisfaction, *American Journal of Health Promotion* 2006; 20(3): 183-191.

23. Kitila M. Prevalence of and Factors Associated with Work Stress in Academia in Tanzania. *Journal of Higher Education* 2014; 3(1):1

24. Kristensen T, Hannerz H, Hogh A, Borg V. The Copenhagen psychosocial Questionnaire: A tool for the assessment and improvement of the psychosocial work environment. *Journal of Work, Environment and Health* 2005; 6 (31): 438-449

25. Lovibond SH, Lovibond PF. Manual for the Depression Anxiety Stress Scales. Sydney: Psychology Foundation.1995.

26. Melchior M,Caspi A, Milne BJ, Danese A, Poulton R, Moffitt T.E. Work stress precipitates depression and anxiety in young, working women and men. *Psychological Medicine* 2007; 37(8): 1119-1129.

27. Ministry of Higher Education (MOHE). Education Malaysia: Ministry of Higher Education MOHE). Retrieved January 2, 2014 from hhtp://www.mohe.gov.my/educationmsia /index.php?article=mohe

28. Moen BEG. Wieslander JV, Bakke D Norbäck. Subjective health Complaints and psychosocial environment among university personnel. *Journal of Occupational Medicine* 2013; 63 (1): 38-44.

29. Kamel MI. Occupational stress in academic life: A study on Academics of Malaysian Public Universities.PhD Thesis. The University of Waikato.2009.

30. Myrtle RC GlogowE, Glogow, CD . Stress among Malaysian education officials: causes and coping methods 2010. Retrieved June 2013 http://portal.min.org.my/resources/MMR/8812/881207.Htm

31. Ng CG, Amer Siddiq AN, Aida SA, Koh OH, Nor ZZ (2009). The Reliability of Malay Version of List of Threatening Experiences Questionnaire: A Study on a Group of Medical Students in Malaysia. *Malaysian Journal of Psychiatry* 2009;18(2): 0 – 0.

32. Penland, E, Masten W , Zelhart, P , Fournet G, Callahan T . Possible selves, depression, and coping skills in university students. *Journal of Personality and Individual Difference* 2000; 29: 963-969.

33. Ramli M, Ariff MF, Zaini, Z. Translation, validation and psychometric properties of Bahasa Malaysia version of the Depression Anxiety and Stress Scales (DASS). *ASEAN Journal of Psychiatry* 2007; 8(2):82-89.

34. Robbins, SP, Judge, T A, & Sanghi, S. Organizational Behavior, Mumbai, IN: Dorling Kindersley 2009.

35. Rusli, BN, Edimansyah BA, Naing L. Prevalence and associated factors of stress in dental healthcare workers of a higher institution of learning in Kelantan. Archives of Orofacial Sciences 2006; 1: 51-56..

36. Schaufeli WB, Job stress coping with. International Encyclopedia of the social and behavirol sciences 7984–7987.

37. Singh JKN, Schapper J, MaysonS.The impact of economic policy on reshaping higher education in Malaysia: In M. Devlin, J. Nagy and A. Lichtenberg (Eds.). Research and Development in Higher Education: Reshaping Higher Education 2010; 33:585–595.

38. StavroulaL,Griffithis A,CoxT. Protecting workers health series No3.Work organization and stress. Systematic problem approaches for employers managers and trade union representatives 2003: ISBN : 92 4 159047 5.

39. Tenibiaje DJ. Work Related Stress .European Journal of Business and Social sciences 2013; 1(10): 73-80.

40. Othman C, Triantoro S, Nubli M, Wahab A. Gender, Academic Rank, Employment Status, University Type and Job Stress among University Academic Staffs in Pahang, Malaysia and Jogjakarta, Indonesia Context. *International Journal of Technology Management* 2012;1(18):57-70.

41. Wijndaele K, Matton L, Duvigneaud, N, Lefevre J, De Bourdeaudhuij I, Duquet, W. Association between leisure time physical activity and stress, social support and coping: A cluster-analytical approach. *Psychology of Sport and Exercise* 2007; 8(4), 425-440.

42. Winefield AH, Jarrett R. Occupational stress in university staff. *International Journal of Stress Management* 2001; 8(4): 285–298.