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The future of toxicity tests Mutagenicity assessment of chemicals substances by (Quantitative) structure activity relationship

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ABSTRACT— 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. The objective of the study was to determine the prevalence of job stress and its associated factors among Universiti Putra Malaysia staff. 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. 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). 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

1. 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].

2. MATERIAL 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.

3. 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.

4. 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.

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