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# Relationship Between Occupational Stress and Job Satisfaction: An Empirical Study in Malaysia

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*This study was conducted to measure the effect of occupational stress on job satisfaction using 80 usable questionnaires gathered from academic employees in private institutions of higher learning in Kuching City, Malaysia. Exploratory factor analysis and confirmatory factor analysis were used to assess the survey questionnaire data and found that the measurement scales met the acceptable standards of validity and reliability analyses. Next, a stepwise regression analysis was used to test the research hypotheses and the outcomes of this regression analysis showed two important findings: first, physiological stress significantly correlated with job satisfaction. Second, psychological stress insignificantly correlated with job satisfaction. This result demonstrates that level of physiological stress has increased job satisfaction, and level of psychological stress had not decreased job satisfaction. Further, the study confirms that occupational stress does act as a partial determinant of job satisfaction in the stress models of the organizational sector sample. In addition, implications and discussion are elaborated.*

*Key words: physiological stress, psychological stress, occupational stress, job satisfaction*

*JEL Classification: M1, M12*

## 1. Introduction

Stress is a multi-dimensional concept and may be defined based on language and organizational perspectives. In terms of language, it is originally derived from the Latin word, that is *stringere*, which refers to draw tight, to describe hardships and/or affliction (Cartwright & Cooper, 1997). It often occurs when individuals' physical and emotional do not match or cannot handle their job demands, constraints and/or opportunities (Leka *et al.*, 2004; Ugoji, 2003; Ugoji & Isele, 2009) may establish two major types of stress: eustress (good stress) and distress (bad stress) (Fevre *et al.*, 2003; Sullivan & Bhagat, 1992). Eustress is often defined as individuals who have experienced moderate and low stress levels and distress is frequently defined as individuals who have experienced high stress level. Individuals who experience eustress will be able to meet job demands and this may help them to increase positive work life (*e.g.*, satisfaction and positive moral values). Conversely, individuals who experience distress will not be able to fulfill job demands and this may motivate them to decrease quality of work life (*e.g.*, dissatisfaction and negative moral values) (Fevre *et al.*, 2003; Leka *et al.*, 2004; Millward, 2005; Newell, 2002).

In an organizational context, occupational stress is also known as job stress and/or work stress. These terms are often used interchangeably in organizations, but its meaning refers to the same thing (AbuAlRub, 2004; Larson, 2004). It has two major dimensions: physiological stress and psychological stress. Physiological stress is often viewed as a physiological reaction of the body (headache, migraine, abdominal pain, lethargic, backache, chest pain, fatigue, heart palpitation, sleep disturbance and muscle ache, as well as changes in eating, drinking, sleeping and smoking habits) to various stressful triggers at the workplace (Antoniou *et al.*, 1998; Beehr *et al.*, 2001; Critchley *et al.*, 2004; Mansor *et al.*, 2003). For example, psychological stress is often seen as an emotional reaction (anxiety and depression burnout, job alienation, hostility, depression, tension, anger, anxiety, nervousness, irritability and frustration) as a result of the stimuli at the workplace (Antoniou *et al.*,

2003; Millward, 2005; World Health Organization, 2005). If employees cannot control such stresses this may negatively affect their work attitudes and behavior (satisfaction, commitment, productivity, quality and health) in the workplace (Seaward, 2005; Newell, 2002; World Health Organization, 2005).

In terms of eustress perspective, occupational stress occurs when employees' knowledge, skills, abilities and attitudes can cope with or match to their work demands and pressures in organizations. In this situation, it may increase the ability of employees to manage their physiological and psychological stresses (Adler *et al.*, 2006; Cartwright & Cooper, 1997; Wetzel *et al.*, 2006; World Health Organization, 2005). Conversely, in a distress perspective, occupational stress presents when employees' knowledge, skills, abilities and attitudes cannot cope with or do not match to their work demands and pressures in organizations. Consequently, it may decrease the ability of employees to control and manage physiological and psychological stresses, such as disturb their self-regulatory bodies, and cannot meet their duties and responsibilities as a member of an organization (Cox *et al.*, 2000; Critchley *et al.*, 2004; Fairbrother & Warn, 2003; Mansor *et al.*, 2003).

Recent studies in this area show that the ability of employees to manage their physiological and psychological stresses may have a significant impact on job satisfaction (Fairbrother & Warn, 2003; Snelgrove, 1998; Swanson *et al.*, 1998). According to an organizational behavior perspective, job satisfaction is broadly described as a result of employees' perception or appraisal of their jobs that may create a pleasurable or emotional state (Locke, 1976; Locke & Latham, 1990a, 1990b; Kreitner & Kinicki, 2007), a positive reaction (Mathis & Jackson, 2006), and action tendencies toward work (Vecchio, 2000; Vecchio *et al.*, 1998). In an occupational stress model, many scholars think that physiological stress, psychological stress, and job satisfaction are distinct, but highly interrelated constructs. For example, the ability of employees to properly control and manage their physiological and psychological stresses in performing job may lead to higher job satis-

faction in organizations (Antoniou et al., 2003; Fairbrother & Warn, 2003; Stacciarini, 2004). Although the nature of this relationship is significant, little is known about the role of occupational stress as a determinant of job satisfaction in the workplace stress research literature (Fairbrother & Warn, 1993; Guleryuz *et al.*, 2008; Stacciarini *et al.*, 2004).

## 2. Objective of the study

The study has two major objectives: first, to examine the relationship between physiological stress and job satisfaction. Second, to examine the relationship between psychological stress and job satisfaction. This study was conducted in private institutions of higher learning, Kuching, Sarawak, Malaysia. For confidential reasons, the name of the studied organization is kept anonymous.

## 3. Literature review

*Empirical evidence supporting the relationship between occupational stress and job satisfaction*

Many studies about occupational stress were conducted using different samples, such as 68 health visitors, 56 district nurses, and 19 community/psychiatric nurses in one health authority in the UK (Snelgrove, 1998), 547 male and female general practitioners and 449 consultant doctors in Scotland health science (Swanson et al., 1998), 440 Malaysian managers in multinational companies (Mansor *et al.*, 2003), 335 male and female Greek junior hospital doctors in Greater Athens area (Antoniou *et al.*, 2003), 461 nurses recruited from the public health and educational system in the Federal District Brazil (Stacciarini *et al.*, 2004), and 23 nursing teams (Quoidah & Hansenne, 2009). Findings from these studies reported that the ability of employees to cope with physiological stress (*i.e.*, workloads, working conditions, physical health and working hours) and psychological stress (*i.e.*, relationships

at work, support, mental health and positive thinking) had increased job satisfaction in the workplace.

*Theoretical evidence supporting the relationship between occupational stress and job satisfaction*

The notion of these theories is consistent with the notion of occupational stress theory. For example, Harrison's (1978) person-environment (P-E) fit model, and Karasek and Theorell's (1990) job-demand-control model state that individuals who have experienced high work demands with low work-control will have difficulties to meet the job demands, this may lead to increased occupational strains. Lazarus's (1994) transactional stress model explains that inability of individuals' cognitive processes and emotional reactions to manage strain environments may lead to increased occupational tensions. Spector and Goh's (2001) emotion-centered model of occupational stress posits that individuals who feel stressful when exposing with an event in particular environments may experience occupational strains. Cannon-bard theory of emotion (Cannon, 1927) states that a person who experiences physiological stress (*e.g.*, heart attack) may simultaneously experience psychological stress (*e.g.*, mental illness). Then, the concept has been expanded by Mueller and Maluf (2002) to establish a physical stress theory, which posits that the level of one's physical stress will determine the person's predictable biological response. For instance, a person who can habitually reduce his/her level of physical stress will be more experience a positive biological response compared to a person who often has high level of physical stress. This situation may lead to higher job satisfaction (Swanson *et al.*, 1998' Stacciarini *et al.*, 2004).

Ursin & Eriksen's cognitive arousal theory of stress states that a person's feelings of hopelessness, helplessness and inability to cope in stressful situations can trigger lower emotional health, which can potentially lead to feelings of frustration, deprivation or discontentment

(Ursin & Eriksen, 2002). For example, if a person feels that he/she is not able to cope with stressful conditions this may invoke his/her feelings of dissatisfaction with job. Bandura's (1977) self-efficacy theory proposes that if a person has high self-efficacy (*i.e.* belief to his/her ability in executing a course of action) this will not invoke his/her negative cognitive thoughts. Application of this theory in a occupational stress model shows that if a person has high self-efficacy (*i.e.* belief to his/her ability to manage emotions) this will effectively decrease his/her job stressors, and increase his/her emotional health and lower level of psychological stress. This situation can potentially result in higher job satisfaction (Antoniou *et al.*, 2003; Mansor *et al.*, 2003; Zhong *et al.*, 2006).

The literature has been used as foundation of developing a conceptual framework for this study as shown in Figure 1.

**Figure 1: Conceptual Framework**



Based on the framework, it can be hypothesized that:

Ha1: There is a significant relationship between physiological stress and job satisfaction.

Ha2: There is a significant relationship between psychological stress and job satisfaction.

#### 4. Methodology

This study used a cross-sectional method which allowed the researchers to integrate the occupational stress research literature, the in-depth interview, the pilot study and the actual survey as a main procedure to collect data. The use of such methods may gather accurate, less bias and high quality data (Cresswell, 1998; Sekaran, 2003). In the first step of data collection, in-depth interviews were conducted involving four experienced academic employees, namely two female lecturers and two male lecturers who have working experienced from 3 to 20 years. This interview was used to understand the nature of occupational stress features, and job satisfaction characteristics, as well as the relationship between such variables in the organizational sector. The information gathered from such interviews was recorded, categorized according to the research variables, and constantly compared to the related literature review in order to clearly understand the particular phenomena under study and put the research results in a proper context. Further, the results of the triangulated information were used as a guideline to develop the content of survey questionnaires for a pilot study. Next, pilot study was done by discussing pilot questionnaires with the lecturers. Information gathered from such participants was used to verify the content and format of survey questionnaire for an actual study. Back translation technique was used to translate the content of questionnaires in Malay and English in order to increase the validity and reliability of the instrument (Hulland, 1999; Wright, 1996).

Table 1 shows the validated items used in the actual survey questionnaires where it has three sections: physiological stress, psychological stress, and job satisfaction. All items used in the questionnaires were measured using a 5-item scale ranging from “never/does not meet” (1) to “always/exceeds all expectation” (5). Demographic variables were used as controlling variables because this study focused on employee attitudes.

**Table 1**  
**Survey Questionnaire Items**

<b>Variable</b>	<b>Item</b>	<b>Source of Information</b>
Physiological stress	1) Indigestion and/or abdominal pain. 2) Weight loss or weight gain 3) Breakouts of pimples and/or acne 4) Excessive sweating 5) Colds and/or flu 6) Slower recovery from illnesses.	A 6-item scale adapted from Seaward's (2005) physiological stress scale
Psychological Stress	1) Feel unable to cope in my work. 2) Feel angry/fearful/anxious/depressed about workload. 3) Find it difficult to control emotions. 4) Feel confuse and/or cannot concentrate.	A 5-item scale developed based on psychological stress literature (Beehr et al., 2001; Cox et al., 2000; Newell, 2002).
Job Satisfaction	1) My basic salary is sufficiently paid according to my daily working hours and workload. 2) I am satisfied with my chances for salary increases. 3) The work I do is appreciated. 4) I believe those that do well on the job have a fair chance of being promoted.	A 7-item scale developed based on job satisfaction literature (Dua, 1994; Fairbrother & Warn, 2003; Smith et al., 1969; Sullivan & Bhagat, 1992; Tett & Meyer,



	5) It is possible to get promoted fast in my job.	1993; Terry et al., 1993).
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The number of private institutions of higher learning actively operating in Kuching, Sarawak is 36 (Ministry of Higher Education, Malaysia, 2008). Out of those, 9 private institutions agreed to participate in this study. The targeted population for this study is academic employees who work in the studied organizations. In the first step of data collection, the researchers met HR managers of the studied organizations to get their opinions about the rules for distributing survey questionnaires in their organizations. Considering the organizational rules, a quota sampling was used to determine the number of sample size based on the period of study and budget constraints, that is 200 academic employees. After that, a convenient sampling was chosen to distribute survey questionnaires because the list of registered employees was not given to the researchers and this situation did not allow the researchers to choose randomly respondents in the organizations. Therefore, 200 survey questionnaires were distributed to employees who were willing to answer the questionnaires. Of that total, 80 usable questionnaires were returned to the researchers, yielding 40 percent response rate. The number of this sample exceeds the minimum sample of 30 participants as required by probability sampling technique, showing that it may be analyzed using inferential statistics (Sekaran, 2003). The survey questionnaires were answered by participants based on their consents and a voluntarily basis.

A Statistical Package for Social Science (SPSS) version 16.0 was used to analyze the questionnaire data. Firstly, exploratory factor analysis (varimax rotation) and confirmatory factor analysis (*i.e.*, Kaiser Meyer Olkin, Bartlett's test of sphericity, eigenvalues, variance explained and reliability) were used to assess the validity and reliability of measurement scales (Hair *et al.*, 2006). Secondly, analysis of variance, Pearson correlation analysis and descriptive statistics were conducted to assess

the research variables and the usefulness of the data set (Foster *et al.*, 1998; Yaacob, 2008). Finally, Stepwise regression analysis was undertaken to assess the magnitude of each independent variable, the relationship between many independent variables and one dependent variable, and the contribution and influence of each independent variable on dependent variable (Baron & Kenny, 1986; Foster *et al.*, 1998; ). In this regression analysis, standardized coefficients (standardized beta) were used for all analyses (Jaccard *et al.*, 1990).

## 5. Findings

Table 2 shows that the majority respondents were female lecturers (60%), lecturers' aged between 26 – 30 years old (40%), bachelor degree holders (71.2%), lecturers (85%), specialized in computer science / information technology (28.8%), served between 2 and 5 years (41.2%), permanent and confirmed staff (51.2%), and taught between 10 and 15 hours per week (37.5%).

**Table 2**

### **Respondent Characteristics (N=80)**

Respondents' Characteristics	Cha- Sub-Profile	Percentage (%)
Gender	Male	40.0
	Female	60.
Age	Less Than 25 Years Old	25.0
	26-30 Years Old	40.0
	31-35 Years Old	23.8
	36-40 Years Old	7.5
	41-45 Years Old	2.5
	More Than 46 Years Old	1.2
Qualification	Diploma	1.2
	Bachelor	71.2

	Master	25.0
	Doctorate	2.5
Position	Senior Lecturer	2.5
	Lecturer	85.0
	Others	12.5
Field of Specialization	Accounting, Finance, Banking	7.5
	Arts	16.2
	Business, Commerce, Economics	28.8
	Communication	13.8
	Computer Science, Information Technology	6.2
	Engineering	2.5
	Linguistics	2.5
	Pure Sciences	1.2
	Social Sciences	1.2
	Others	1.2
	Business & Law	1.2
	Communication & Social Science	1.2
	Communication, Linguistic & Social Science	1.2
	Business Management, Law & Social Science	1.2
	Education & Information Technology	1.2
	Business & Social Science	1.2
	Business & Linguistic	1.2
	Business & Information Technology	1.2
	Multimedia – Visual Education – Vocational Plantation	

	Plantation	
	General Studies	
	Tourism & Forestry	
Length of Service	Less Than 1 Year	37.5
	2 – 5 Years	41.2
	6-9 Years	17.5
	More than 10 Years	3.8
Employment Status	Permanent & Confirmed	51.2
	Permanent & Probation	16.2
	Contract	32.5
Teaching Hours Per Week	Less than 15 Hours	37.5
	16 – 20 Hours	36.2
	21 – 25 Hours	16.2
	More than 26 Hours	10.0

Table 3 shows the results of validity and reliability analyses for measurement scales. A factor analysis with the varimax rotation was first done for three variables with 15 items. After that, Kaiser-Mayer-Olkin Test (KMO) which is a measure of sampling adequacy was conducted for each variable and the results indicated that it was acceptable. Relying on Hair et al., (2006) and Nunally and Bernstein's (1994) guideline, these statistical analyses showed that (1) the value of factor analysis for all items that represent each research variable was 0.5 and more, indicating the items met the acceptable standard of validity analysis, (2) all research variables exceeded the acceptable standard of Kaiser-Meyer-Olkin's value of 0.6, were significant in Bartlett's test of sphericity, (3) all research variables had eigenvalues larger than 1, (4) the items for each research variable exceeded factor loadings of 0.50 (Hair et al., 2006), and (5) all research variables exceeded the acceptable standard of reliability analysis of 0.70 (Nunally & Bernstein, 1994). These statistical analyses confirm that measurement scales have measured the

same constructs and met the acceptable standard of construct validity and reliability analyses as shown in Table 3.

**Table 3**

**The Results of Validity and Reliability Analyses for Measurement Scales**

Variable	It e m	Factor Load- ing	K M O	Bar- lett's Test of Sphe- ricity	Ei- gen val- ue	Va- rian ce Ex- plai ned	Cron bach Al- pha
Physiological Stress	6	.58 - .72	.78	138.59	3.02	50.35	.80
Psychological Stress	4	.63 - .74	.78	159.51	2.90	72.58	.87
Job Satisfac- tion	5	.77 - .82	.74	264.64	3.36	67.24	.87

Analysis of variance techniques are used to compare the mean scores between two or more groups in the studied organization. In this case, independent samples t-tests are used to compare two different (independent) groups of people (i.e., gender) and ANOVA is used to compare three and more different (independent) groups of people (i.e., age) (Hair et al., 2006; Yaacob, 2008). The results of one-way ANOVA showed that age was found to have a significant difference ( $F=3.77$ ,  $p<0.01$ ), signifying that physiological stress was differently perceived by age structures. While, field of specialization was found to have a significance difference ( $F=1.81$ ,  $p<0,05$ ), showing that job satisfaction was differently viewed by field of specialization.

Table 4 shows the result of Pearson correlation analysis and descriptive statistic. The means for the variables are from 2.32 to 4.23 signifying that the level of physiological stress, psychological stress, and job satisfaction are ranging from moderately high (2) to highest level (5). The correlation coefficients for the relationship between the independent variable (*i.e.*, physiological stress and psychological stress) were less than 0.90, indicating the data were not affected by serious collinearity problem (Hair *et al.*, 2006). The measurement scales that had validity and reliability were used to test research hypotheses.

**Table 4****Pearson Correlation Analysis and Descriptive Statistics**

Variable	Mean	Standard Deviation	Pearson Correlation Coefficients			
			1	2	3	4
Physiological Stress	2.32	.8	1			
Psychological Stress	2.77	.8	.48**	1		
Job Satisfaction	4.23	1.4	.01	-.23*	.10	1

Note: Significant at \* $p < 0.05$ ; \*\* $p < 0.01$

Table 5 shows the results of testing hypotheses using a stepwise regression analysis. These tables show that demographic variables were entered in Step 1 and then followed by entering independent variable (occupational stress) in Step 2. Job satisfaction was used as the dependent variable. An examination of multicollinearity in the Table 4 shows that the tolerance values for the relationships: (1) between physiological stress and job satisfaction was .83, and (2) between psychological stress and job satisfaction was .83. These tolerance values were more than tolerance value of .20 (as a rule of thumb), indicating the

variables were not affected by multicollinearity problem (Fox, 1991; Tabachnick *et al.*, 2001).

**Table 5**  
**Results for Stepwise Regression Analysis**

Variable	Dependent Variable (Job Satisfaction)	
	Step 1	Step 2
<u>Controlling Variable</u>		
Gender	-.03	-.05
Age	.16	.24
Qualification	.16	.15
Position	.13	.23
Field of Specialization	.37***	.30**
Length of Service	-.17	-.24
Employment Status	.04	-.02
Teaching Hours Per Week	-.20	-.24*
<u>Independent Variable</u>		
<b>Physiological Stress</b>		<b>.27*</b>
Psychological Stress		-.24
R <sup>2</sup>	.24	.29
Adjusted R Square	.15	.19
R Square Change	.24	.05
F	2.78**	2.84**
F Change R Square	2.78**	2.60

Note: Significant at \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; \*\*\*  $p < 0.001$

Table 5 shows the result of stepwise regression analysis were summarised in the two models. Firstly, Model 1 showed that field of specialization was found to be a significant determinant of job satisfaction ( $\beta = .37$ ,  $p < 0.001$ ), accounting for 24 percent of the variance in depen-

dent variable. Secondly, Model 2 displayed that physiological stress ( $\beta=.27$ ,  $p<0.05$ ) was found to be a significant determinant of job satisfaction, and psychological stress ( $\beta=-.24$ ,  $p>0.05$ ) was found not to be a significant determinant of job satisfaction, accounting for 29 percent of the variance in dependent variable. Statistically, the result demonstrates that the level of physiological stress has decreased job satisfaction, and the level of psychological stress has not decreased job satisfaction. Further, the study confirms that occupational stress does act as a partial determinant of job satisfaction in the occupational stress models of the organizational sector sample.

## 6. Discussion and implications

The findings of this study confirm that physiological stress acts as an important determinant of job satisfaction in the organizational sector sample. In the studied organizations, management teams have changed and implemented challenging jobs for academic employees to sustain and achieve their organizational strategies and goals. Majority academic employees perceive that their levels of occupational stress in performing job are high. In terms of correlation, high level of physiological stress may lead to lower job satisfaction in the workplace.

The study presents three major implications: theoretical contribution, robustness of research methodology, and practical contribution. In terms of theoretical contribution, the results of this study confirm that physiological stress as an important determinant of job satisfaction in the studied organizations. This result is consistent with the studies by Antoniou et al. (2003), Quidah and Hansenne (2009), Snelgrove (1998), and Starcciarini et al. (2004). Conversely, psychological stress is not an important determinant of job satisfaction in the studied organizations. A careful observation of the interview results reveals that psychological stress does not increase job satisfaction this may be caused by several external factors. Firstly, the majority of academic employees who work in the organizations love academic works. Secondly, majori-



ty academic employees have good knowledge about dangerous of psychological stress, and take proactive action plans to control and/or prevent psychological stress in performing job. Finally, majority academic employees have good academic qualifications recognized by the government of Malaysia may properly schedule their time, energies and resources to achieve job targets. The above factors will help academic employees to properly cope with psychological stress in performing job, and this cannot lead to lower job satisfaction in the organizations.

With respect to the robustness of research methodology, the survey questionnaires that were developed based on the information gathered from the occupational stress literature, the in-depth interviews and the pilot study had exceeded a minimum standard of validity and reliability analysis. Thus, it could lead to the production of accurate and reliable findings.

In terms of practical contributions, the findings of this study can be used as a guideline by the management to overcome occupational stress problems in organizations. The objective may be achieved if management considers the following suggestions: firstly, update the content and training method. For example, the content of training programs need to emphasize more on soft skills, especially emotional intelligence. Exposing employees with the concept and principles of emotional intelligence will increase their capabilities in using, regulating and managing emotions to control physiological and psychological stress symptoms in performing job. The content of such trainings will be easily implemented if employees are trained using proper case studies and role play techniques. Secondly, management should encourage employee participation in teamwork. For example, involving employees in teamwork planning and administration will help them to increase positive socialization, improve career and increase psychosocial well-being. Third, promote work-life balance initiatives. For example, to reduce the employee occupational stress, such as organize company trips for the employee to relax their minds and bodies, as

well as initiate physical fitness and sport games. Finally, encourage employee assistance program through professional consultants or internal counseling and guidance unit. For example, the willingness of managers to provide moral and material support to employees who have experienced social and financial problems may help them to decrease daily job problems and increase their satisfaction in performing the job. If organizations heavily consider these suggestions this may strongly motivate their employees to perform job targets effectively.

## 7. Conclusion

This study formulated the research model based on compensation research literature mostly published in Western settings. The valid and reliable measurement scales were used to measure the relationship between occupational stress and job satisfaction. Outcomes of stepwise regression analysis revealed that the level of physiological stress had decreased job satisfaction, therefore hypothesis 1 (H1) was supported. Conversely, the level of psychological stress had not decreased job satisfaction, therefore hypothesis 2 (H2) was not supported. Statistically, the findings have partially supported and extended occupational research literature mostly published in Western settings. Therefore, current research and practice within occupational stress needs to consider physiological and psychological stresses as critical elements of the workplace stress. This study further suggests that properly manage physiological and psychological stresses in performing job will strongly increase the capability of employees to cope with occupational stress, and this may lead to higher positive attitudinal and behavioural outcomes (*e.g.*, performance, satisfaction, commitment, and positive moral values). Thus, these positive outcomes may lead to sustained and achieved organizational strategy and goals.

This study acknowledges several limitations. First, a cross-sectional research design was used to gather data at one point within the period of study. This may not be able to capture the developmental issues

and/or causal connections between variables of interest. Second, this study did not specify the relationship between specific indicators for the independent variable, and dependent variable. Third, the outcomes of stepwise regression analysis focused on the level of performance variation explained by the regression equations (Tabachnick & Fidell, 2001), however, a number of unexplained factors need to be incorporated to identify the causal relationship among variables and their relative explanatory power. Fourth, the survey questionnaires relied heavily on the respondents' self-responses that were selected based on convenient sampling technique. Finally, the samples were taken from one organizational sector that allowed the researchers to gather data via survey questionnaires. These limitations may decrease the ability of generalizing the results to other organizational settings.

Future studies should be expanded to all public service agencies in Malaysia. On that same note, the study can also be replicated in the private sector to see if the findings hold in different contexts. The conceptual and methodological limitations should be considered when designing future research. Firstly, several organizational (*e.g.*, type, ownership and size) and personal (*e.g.*, age, education and type of pay) characteristics should be further explored, this may provide meaningful perspectives of how individual similarities and differences affect pay systems within an organization. Secondly, other research designs (*e.g.*, longitudinal studies) should be used to collect data and describe the patterns of change and the direction and magnitude of causal relationships between variables of interest. Thirdly, to fully understand the effect of occupational stress on job satisfaction, few organizations need to be used in future studies. Fourthly, other theoretical constructs of occupational stress, such as role ambiguity, role conflict and role overload need to be considered because they have widely been recognized as an important link between occupational stress and many aspects of employee attitudes and behaviors, such as performance, emotional intelligence and health (AbulAIRub, 2004; Antoniou *et al.*, 2003; Guleryuz *et al.*, 2008; Sy *et al.*, 2006). Fifthly, other individual at-

titudes and behaviours such as satisfaction, performance, commitment, health and social support should be considered because they are given more attention in the workplace stress research literature (AbulALRub, 2004; Sy *et al.*, 2006; Wetzel *et al.*, 2006; Zhong *et al.*, 2006). The importance of these issues needs to be further elaborated in future study.

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