

WORK RELATED STRESS AMONG CONTRACTOR MANAGEMENT TEAM AT CONSTRUCTION SITE

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Abstract: In Malaysia, issues related to occupational health, especially in the construction industry is not commonly discussed, but data in other countries have indicated major problems associated with occupational illness. Health problems due to stress can increase the cost of health and their impact to human, family, society and the nation cannot be neglected. In the past, study on stress at work is not comprehensive especially in the construction industry. Research for the stress at work place should be done more since it will provide vital information toward producing a sustainable human resource that can contribute significantly to our country. The aim of the study is to examine the level and extent of work-related stress and the prevalence of health problem among the contractors' management team at construction sites. The study is conducted in the district of Johor Bahru. The respondents involved were from contractors' management teams such as engineers, supervisors and project managers. The number of questionnaire forms sent was 500 sets and only 300 sets were replied by engineers, supervisors and project managers. The questionnaire data were analyzed using frequency analysis method and average index method. The findings showed, about 30 percent of the respondents, a total of 90 respondents, agreed that they underwent and experienced some illness, disability or other physical or mental problems that was triggered or made worse by job or work carried out within the last year. Around 13% of the respondents working in the construction site job roles currently suffered from stress, depression or anxiety which they felt was caused by or made worse by their job or work carried out in the past. Around 7% of the respondents found their job extremely stressful especially when they had to be responsible for the safety of others at work. Other sources of stress were related to time constraint and lack of resources.

Keywords: *Stress, health, safety, disease, illness, construction*

1.0 Introduction

The construction sector normally employs around 800,000 people, which cover about 8% of the employed workforce in Malaysia (Hamid *et al.*, 2013a, 2013b). However, this sector has many issues, especially related to health and safety problems at the

construction site (Abdul Latif, 2006; Rahim *et al.*, 2014). Issues such as high rate of accidents, low wages for high risk jobs, uncondusive work environment, competitive tendering, multi-layered subcontracting system, unskilled foreign workers, high labor turnover, variable hazards, low priority of safety, harsh operating conditions, poor project and site management, low usage of technology, no centralize system to compile the scattered data and lack of relevant accidents data still remain point of concern (Hamid *et al.*, 2008a, 2008b). Normally, the focus on safety hazards within the construction industry is given more compared to health hazards, possibly due to the visible and immediate impact of safety-related issues (Hamid *et al.*, 2003a, 2003b) . Even though the record of work-related stress in the construction industry is not high when compared to other industries, it is still a topic of concern for the industry (Hamid *et al.*, 2014a). The lack of recording system on work-related stress can be the main reason for such a low statistic (Hamid *et al.*, 2014b). The robust nature of construction projects create substantial levels of stress for the construction professionals (Ibem *et al.*, 2011; Janipha *et al.*, 2012; Hashim *et al.*, 2012). There is accruing indication that stress levels among construction professionals are steadily amplified from days to days (Loosemore and Waters, 2004). Also, there is abundant sign and recent research by the Chartered Institute of Building (CIOB, 2006) to advocate that stress may be a worrisome within the construction industry.

Stress can be defined as a state of anxiety produce when events and responsibilities exceed one's coping abilities (Seaward, 2004). From the perspective of workplace, work-related stress as defined by the HSE (1999) is the adverse reaction people have to excessive pressures or other types of demand placed on them at work. NIOSH (1999) defines the job stress as a mismatch between the job demands and expectations of the worker, which result in detrimental physical and emotional reaction. People feel little stress when they have the time, experience and resources to manage a situation and vice versa (Abbe *et al.*, 2011). Stress can be a negative experience which needs to be managed effectively (Choudhry and Fang, 2008).

Health problems which are caused by stress can increase the cost of overall occupational health (Clark, 2002). The costs of stress to the companies or organization include absenteeism, higher medical costs and staff turnover, with the associated cost of recruiting and training new workers (ILO, 2001). In Great Britain, stress at the workplace has caused a loss in working days as much as 13.7 million days a year due to the absence of an employee who is experiencing stress. More than half a million of workers reported to have experienced problems related to stress and resulting in illnesses (Johanna *et al.*, 2007). The impact stress has on an organization in terms of poor working relationship, low morale, reduced quality, low productivity, high absenteeism and lateness, high accident rate, high illness rate, high labour turnover and high numbers of requests for early retirement (Nieuwenhuijsen *et al.*, 2010;. According to CIOB (2006) stress level of the construction industry will continue to increase in 5 years to come. The research shows that the majority of respondents (68%) have suffered from stress,

anxiety or depression as a direct result of working in the construction industry. Four major factors that are obtained from the survey done by CIOB are work overload (64.1%), pressure (59.9%), conflict of demand (52.2%) and a short constraint of time to accomplish tasks (59.7%).

The literature had suggested that it appears stress related problem at work can cause dangerous disease such as heart attack, headache and others (Bammer and Newberr, 1982). Stress will surely affect health, causes disease and can be fatal (Mattenson and Ivancevich, 1982). This problem can affect the human resource of the organization and affect the productivity of the country (Doby and Caplan, 1995). A lot of stress at work will easily affect the people who have a psychological problem that will eventually cause pensiveness (Cox and Griffith, 1995). Pensiveness can influence the worker focus at work and can subsequently lead to an accident (Minter, 1999). Based on numerous studies, stress at work will result in a multiple of negative impact toward safety and health aspect of workers (Robbins, 2001).

The extent of the problem in this industry is not easy to measure, perhaps due to the hesitancy to admit they are experiencing work-related stress and by the time they realize, it is too late already (Fairbrother and Warn, 2003). As the levels of stress mounts, the pressures on the industry also increase. (Kets de Vries, 1979). The stress levels and sources of stress for different jobs is not easy to compare. (Sutherland and Davidson, 1993). A different job role, gender, age and work terms of construction workers will generate various potential sources of stress (CIOB, 2006).

Research related to stress at work should be exemplified because many new challenges exist in the business world, including construction (Revil, 2003). In Malaysia, issues related to health, especially in the construction industry are not commonly being discussed, but data in other countries have indicated big implication due to health related illness or problems (Hamid *et al.*, 2010). Even, there is no statement about the stress management at work in the safety program. In fact, the compensation claims for the health problems is high compared to accident based on the statistic in another country (Ayers and Kleiner, 2002). Therefore, study related to stress should be widened since in the past, the study on stress at work, especially in the Malaysian construction industry is lacking.

The aim of this study is to examine the occurrence of occupational stress among the contractors' management team at construction sites. The objectives of this study are as follows:

- i. To study the prevalence of health problem among the contractors' management team at a construction site.
- ii. To study the levels and extent of work-related stress among the contractors' management team at a construction site.

- iii. To evaluate the key causal factors of work-related stress among the contractors' management team at a construction site.

The study is conducted in the district of Johor Bahru and the respondents involved are mainly the contractors' management team such as engineers, supervisors and project managers. A literature review is limited to the stress that affect the health and safety at work only.

2.0 Methodology of Study

The main data collection was conducted through literature review and questionnaire surveys. The number of questionnaire sets sent were 50 sets and only 30 sets were replied by engineers, supervisors and project managers. The questionnaire survey data were analyzed using frequency analysis method and average index formula. The data collected was analyzed using the average Index formula as shown below.

Average Index = $\Sigma (a_i)(x_i) / \Sigma x_i$. Whereas, a_i = constant which represent the weight for i , x_i = variable that represents the frequency of respondents to the i ($i = 1, 2, 3, 4, 5$) (Al-Hammad and Assaf, 1996).

The classifications for the rating scale are shown below (Majid and McCaffer, 1997):

- 1.00 ≤ Average Index < 1.50 (none or Not at all stressful),
- 1.50 ≤ Average Index < 2.50 (A little or Mildly stressful),
- 2.50 ≤ Average Index < 3.50 (Moderate or Moderately stressful),
- 3.50 ≤ Average Index < 4.50 (A lot or Very stressful) and
- 4.50 ≤ Average Index ≤ 5.00 (Excessive or Extremely stressful)

3.0 Results and Discussion

Results presented below were brief findings based on the objectives of the study.

3.1 Respondents Background

Section A of the questionnaire form captured some basic demographic of the respondents as shown in Figure 1 to 7. Figure 1 and 2 showed that the majority of the respondents (87%) were male working at construction sites in the Johor Bahru district (83%). The rest of respondents sites were located in Batu Pahat (13%), Segamat (10%), Mersing (3%), Muar (3%), Tangkak (3%), Yong Peng (3%) and Kota Tinggi (3%). The respondent's position was recorded as engineers (40%), supervisors (33%) and project managers (27%) as shown in Figure 3. Respondents age range from 16 to 64 years old

as shown in Figure 4. About 10% of them were in the age bracket of 16 to 24 years old, 27% (25-34 years old), 33% (35-49 years old), 17% (50-59 years old) and 13% (60-64 years old). Respondents job sector were from building and civil engineering works (31%), residential construction (26%), commercial building construction (23%), industrial building (9%) and other construction (11%) as shown in Figure 5. Respondents spent, on average, more than 40 hours per week at the workplace as shown in Figure 6. Almost 47% of them spent between 38 to 48 hours and the rest 17% (49-55 hours), 13% (19-37 hours), 13% (more than 75 hours) and 10% (55-74 hours) per week at their workplace. On average the group of project managers spent more time per week at their workplace (57 hours) than engineers (56 hours) and supervisors (45 hours).

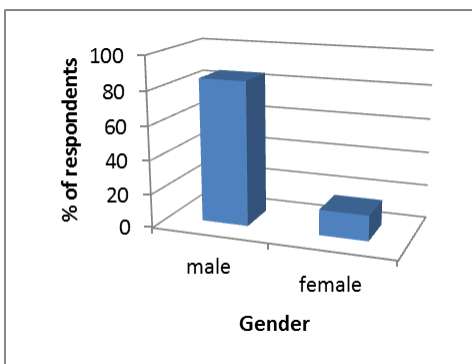


Figure 1: Percent respondents based on gender

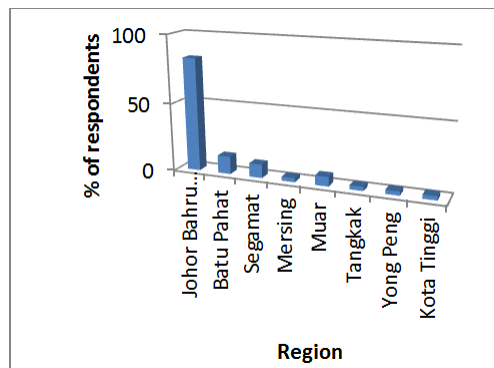


Figure 2: Percent respondents based on construction site location.

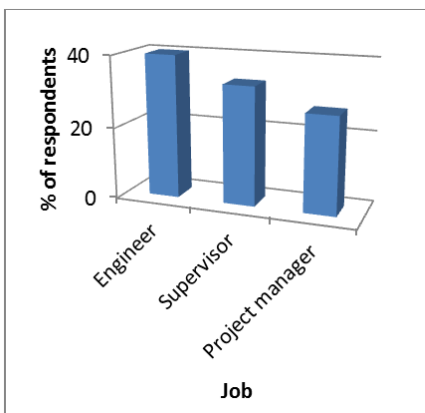


Figure 3: Respondent position

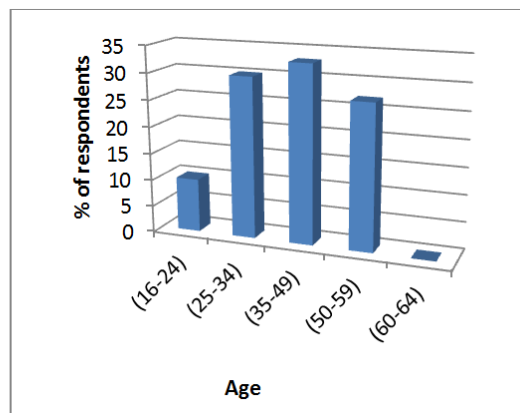


Figure 4: Respondents age

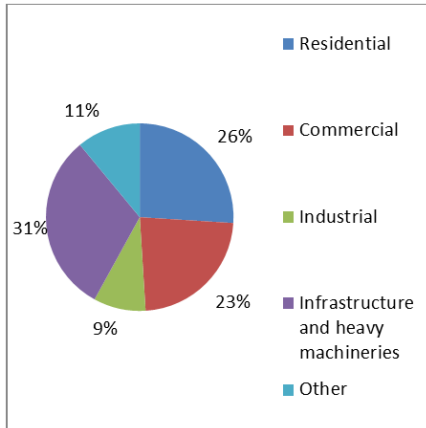


Figure 5: Area of work

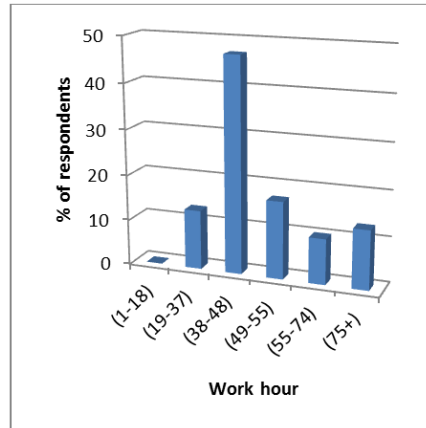


Figure 6: Hours worked in the past 7 days

3.2 Respondents Health Problem

Figure 7 showed the results on the prevalence of health problem among contractor management team at construction sites. Thirty percent respondents agreed that within the past 12 months they suffered from some illness, disability or other physical or mental problems that were caused or made worse by job or work done in the past while 70 percent respondents disagreed. Respondents indicated 4 diseases such as bone, joint or muscle problems (7%), breathing or lung problem (7%), stress, depression or anxiety (13%) and heart disease/attack or other circulatory system (10%) which they suffered were caused by job or work done within the past 12 months as shown in Figure 8.

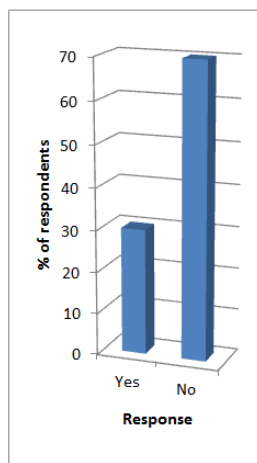


Figure 7: Percentage of illness suffered

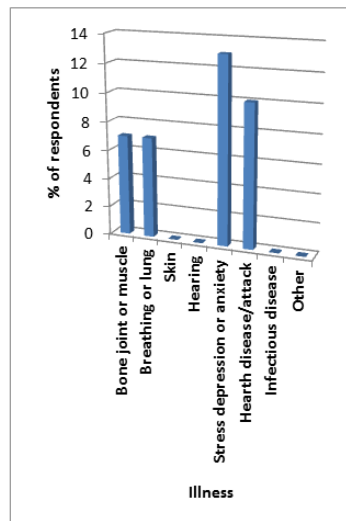


Figure 8: Type of illness within 12 months

3.3 Levels and Extent of Work-related Stress

It was found that 13% of the respondents said they currently experienced stress, depression or anxiety in their job roles, about 7% of them found their job very stressful. The rest of respondents mentioned their job was moderately stressful (50%), mildly stressful (23%) and not stressful at all (20%) as shown in Figure 9. Almost 60% of respondents who were currently experiencing stress, depression or anxiety in their job roles, were managing a smaller number i.e. less than 30 workforces. The rest (17%) managed between 30 to 59 employees and (23%) managed more than 60 employees.

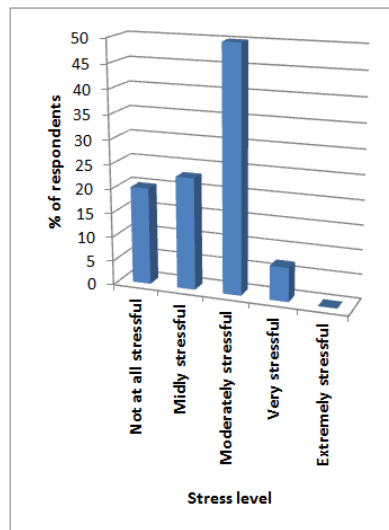


Figure 9: Respondents' job stress level

3.4 Source of Work-related Stress

The data shown in Table 1 to 4 below compiled the overall point of view of the analyzed questionnaires from the engineers, supervisors and project managers. The number of questionnaires distributed were 500 sets and only 300 sets were replied by the engineers, supervisors and project managers from 50 construction sites. The stressful aspects of work for respondents were divided into 5 categories which were working with others, working and home and life, responsibilities, demand of the job and other sources of the stress as shown in Table 1. The moderately stressful aspects of work for respondents was being responsible for the safety of others at work, followed by inflexible deadlines given by clients and balancing between tasks and resources as shown in Table 2. A lot of work to be done in the available time, frequent travel or commute to work and insufficient labour or skills workers were definitely causing stress to develop. On average, the results did not indicate excessive stress were caused by

those factors. However, 7% and 7.5% of respondents did agree that those factors had given them excessive stress respectively. The very tight time constraint was the most common factor that affects individual in all job categories as shown in Table 3 and 4.

Table 1: Source of stress

No	Source of stress	Average Index	Classification of Stress
Working With Others			
1	Insufficient support from the boss	1.26	None
2	No feedback on the work from the boss	1.00	None
3	Duties and responsibilities are not fully understood	1.00	None
4	Lack of support from co-workers	1.77	A little
5	Poor relations with co-workers	1.77	A little
6	No communication with the boss	1.33	None
Home and Work and Life			
7	Work over the weekends and or nights	2.30	A little
8	Frequent travel or commute to work	2.40	A little
9	Work away from family or home	1.83	A little
10	Lack of job security	1.67	A little
11	Work long hours	2.17	A little
Responsibilities			
12	Responsible for other peoples' safety	2.87	Moderate
13	Difficulty in complying with rules	1.67	A little
14	Dealing with public disorder	1.77	A little
15	Insufficient labour or skills workers	2.40	A little
Demands of the Job			
16	A lot of work to do in the available time	2.44	A little
17	Balancing between tasks and resources	2.50	Moderate
18	Inflexible deadlines given by clients	2.50	Moderate
Other Sources of the Stress			
19	Dangerous works	1.63	A little
20	Lack of training	1.60	A little
21	Lack of control on how to do at work	1.53	A little
22	Lack of control on what to do at work	1.50	A little
23	Change at work at not being informed	1.47	None

Note: The results were based on a Likert scale attributes 1 = None; 2 = A little; 3 = Moderate; 4 = A lot and 5 = Excessive; stress caused by those factors.

Table 2: Source of stress based on ranking

Source of stress	Average Index	Ranking
<i>Moderately Caused Stress</i>		
Responsible for other peoples' safety	2.87	1
Inflexible deadlines given by clients	2.50	2
Balancing between tasks and resources	2.50	3
<i>A little Caused Stress</i>		
A lot of work to do in the available time	2.44	4
Frequent travel or commute to work	2.40	5
Insufficient labour or skills workers	2.40	6
Work over the weekends and or nights	2.30	7
Work long hours	2.17	8
Work away from family or home	1.83	9
Lack of support from co-workers	1.77	10
Poor relations with co-workers	1.77	11
Dealing with public disorder	1.77	12
Lack of job security	1.67	13
Difficulty in complying with rules	1.67	14
Dangerous works	1.63	15
Lack of training	1.60	16
Lack of control on how to do at work	1.53	17
Lack of control on what to do at work	1.50	18

Table 3: Most stressful aspects of respondents

Source of stress	Average Index	Job
Responsible for other peoples' safety	2.87	Supervisor
Inflexible deadlines given by clients	2.50	Engineer Project manager
Balancing between tasks and resources	2.50	Supervisor
Too much work to do in the available time	2.44	All
Frequent travel or commute to work	2.4	Supervisor Engineer

Table 4: Top three stressors for selected job titles

Source of stress	Job
1. Too much work to do in the available time 2. Responsible for other peoples' safety 3. Work long hours	Project Manager
1. Responsible for other peoples' safety 2. Frequent travel or commute to work 3. Too much work to do in the available time	Supervisor
1. Too much work to do in the available time 2. Frequent travel or commute to work 3. Work long hours	Engineer

4.0 Conclusions

The conclusions based on the objectives of the study above are shown below:

1. Based on the prevalence of health problem among contractor management team at construction site, 30 percent of the respondents agreed that they suffered from some illness, disability or other physical or mental problems that were caused or made worse by job or work done within the past 12 months.
2. Around 13% of the respondents working at the construction sites surveyed mentioned experiencing stress, depression or anxiety which they felt was caused by or made worse by their job or work done within the past 12 months. About 7% of the above respondents considered their job to be very stressful.
3. The top five stressful aspects of work for respondents were:-
 - a) Responsible for other peoples' safety
 - b) Inflexible deadlines given by clients
 - c) Balancing between tasks and resources
 - d) A lot of work (heavy workload) to do in the available time
 - e) Frequent travel or commute to work

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