

A Study on Organizational Factors That Influence Job Stress Among Medical Laboratory Technologists in Klang Valley Hospitals

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SUMMARY

A cross-sectional study on organizational factors that influences job stress was carried out among Medical Laboratory Technologists (MLT) in Klang Valley's Hospitals. There were three organizational factors that were measured, interpersonal factor, job condition and career development. A total of 249 respondents participated in this study, 126 were from the private hospitals and 123 from the government hospitals. The prevalence of stress was found higher in the private hospitals with the percentage of 16.7% compared to the government hospitals of 15.4%. All three organizational factors were significantly associated with job stress (interpersonal factor $p < 0.001$, job condition $p < 0.001$ and career development $p < 0.001$). Management team in hospitals as well as the laboratory managers should introduce stress prevention programmes to assist MLTs in stress management.

KEY WORDS:

organizational factors, job stress, medical laboratory technologists, Klang Valley Hospitals

INTRODUCTION

Stress is a reaction when someone is faced with unwanted situation that cannot be avoided. The issue of stress is very important because it affects many areas of a person's life primarily on one's health. Nevertheless, it also affects an organizational outcome such as productivity¹. These days, many organizations are facing economic lost due to the cost related with job stress. Many companies are spending billions of dollars for the costs related to job stress such as sick leave as well as hospitalization fees².

There are many effects of job stress in an organization. An organization can experience high absenteeism among their employees, low productivity and also a decrease in decision-making abilities. Stress in an organization can also lead to employees leaving the company for a job that is less stressful and early retirement for those having difficulty coping with stress³.

Organizational factors are the factors related to an organization. There are many organizational factors that can influence job stress among employees in an organization. These factors may come from many sources of an organization. These include the organizations

administrative policies and strategies (i.e downsizing, rotating work shifts, advanced technology), the structure and design of the organization (i.e role ambiguity and conflict, no opportunity for promotion), organizational processes (i.e little performance feedback, only downward communication) and working conditions (ie. crowded work area, noise, polluted air, unsafe, dangerous condition)².

A change in strategy that includes structural and organizational change would be necessary for the good of the employee and the organization if high organizational stress is the reason for employees not performing as expected. Organizations should come up with ways and means to increase workers participation in decision making, redesigning jobs and working environment as well as creating a more supportive working environment through a range of human resources management interactions in order to prevent stress.

The prevalence of job stress among Medical Laboratory technologists in University Sains Malaysia Hospital was 33.3% compared to 26.8%⁵ in Kementerian Kesihatan hospitals throughout Kelantan in 2003. The Canadian Community Health Survey in 2003 reported that medical laboratory technicians was one of the healthcare workers experiencing high job stress and the proportions ranged from 58% to 64%⁶. No previous studies were conducted in private hospitals in Malaysia.

The aim of the study was to measure the prevalence and to identify the organizational factors that influence job stress among the MLTs in selected hospitals (private and government) in the Klang Valley. The Klang Valley area was selected due to the large number of MLT compared to other states.

MATERIALS & METHODS

A cross sectional study was carried out in nine private hospitals and two government hospitals in the Klang Valley. The study was conducted from January 2008 till August 2008.

The sampling population of this study was all the medical laboratory technologists who work in the selected hospitals in the Klang Valley. The hospitals were selected through convenient sampling in view of difficult to get approval

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from the hospital and the respondents. Job stress level of respondents was measured using Health and Safety Tool for Work Related Stress. The organizational factor was measured using Work stress Profile⁴. The quantitative technique was conducted in this study. The validated questionnaire was in English and Bahasa Melayu. The questionnaires were self administered and were separated in three sections namely the respondents' personal information, the measurement of job stress and the organizational factor that influences job stress.

The study has been approved by UKM ethics committee and the consent granted by the hospitals and respondents.

The dependent variable for this study was job stress while the independent variables for this study were gender, ethnicity, educational background, marital status, work experience, job condition, interpersonal factors and career development. Interpersonal factors was defined as a worker experiencing situation such as poor work and social support, political rivalry, jealousy or anger and lack of management towards the worker. Job condition was defined as a worker's inability to cope with working conditions such as work overload, shift work, technological problems, physical dangers as well as making decisions. Career development was defined as worker experiencing under promotion, over promotion, job security and frustrated ambitions.

Data analysis was done using "Statistical Package for Social Sciences" (SPSS) Version 12. Significant level P value < 0.05 was used. Descriptive analysis was presented in term of frequency, percentage and median. Bivariate analysis was carried out to identify the factors of stress among MLTs.

RESULTS

A total of 249 MLTs participated in this study with a response rate of 83%. The mean age of respondents was 30.2 ± 8.7 years of age. The majority of MLTs that answered the questionnaires were female (77.9%). The majority were Malays (68.3%) followed by the Chinese (18.5%), Indians (9.6%) and others (3.6%). A percentage of 57.4 were single.

Education levels among the MLTs were also varied, diploma holders (60.2%) and the remaining 39.8% were degree holders. Majority (59.0%) have working experience less than 3 years and 41.0% have more than 3 years working experience in this field.

Table I shows that the overall prevalence of job stress was 16.1%. The prevalence of job stress among MLTs from the private hospitals was 16.7%. This percentage was higher compared to the prevalence of job stress found among MLTs from the government hospitals which was 15.4%. There was no significant difference in the prevalence of job stress among MLTs in private and government hospitals (p=0.79).

Table II shows job stress among MLT by socio demographics. Out of 55 male respondents, 12.7% had stress compared to 17% among the female MLTs. The difference was found not significant (p=0.45). From the total of 143 single respondents, 11.2% of them had stress. The prevalence of stress among married respondents was found significantly higher as compared to the single respondents (22.6% ; p=0.02).

The prevalence of job stress was significantly higher (24.5% ; p=0.003) among MLTs who have experienced more than 3 years as compared to those who have less than 3 years experience.

Table I: Distribution of job stress among MLTs in private and government hospitals in Klang Valley

	Job stress(n=249)				*P value
	Yes		No		
	no	%	no	%	
Private	21	16.7	105	83.3	0.79
Government	19	15.4	104	84.6	
Total	40	16.1	209	83.9	

* Significant level p value < 0.05

Table II: Distribution of job stress among MLTs in hospitals in Klang Valley according to sociodemographic characteristics

Characteristics	N	Job stress(n=249)				*p value
		Yes		No		
		n	%	n	%	
Gender						
Male	55	7	12.7	48	87.3	0.45
Female	194	33	17.0	161	83.0	
Marital status						
Single	143	16	11.2	127	88.8	0.02
Married	106	24	22.6	82	77.4	
Education						
Degree	99	16	16.2	83	83.8	0.98
Diploma	150	24	16.0	126	84.0	
Working Experience						
Less than 3 years	147	15	10.2	132	89.8	0.003
More than 3 years	102	25	24.5	77	75.5	

*Significant level p value < 0.05

Table III shows the distribution of interpersonal factor that influences job stress among 249 MLTs in hospitals in Klang Valley. There was no significant difference in the distribution of those who agreed that interpersonal factors influence job stress among female and male MLTs ($p=0.61$). There was also no significant difference in the association between education level and agreement that interpersonal factors influenced job stress ($p=0.76$). However, there was a significant difference among MLTs who agreed that interpersonal factors influences job stress between those who have working experience more than 3 years and less than 3 years ($p < 0.05$).

Table IV shows there was no significant differences in the proportion who agreed that job condition influences job stress among males and females ($p=0.45$). In terms of marital status, 92.7% of the single respondents disagreed that job condition influences job stress and among the married respondents 80.2% also disagreed. The difference was found to be significant ($p=0.02$). There was no significant difference in the proportion of respondents who agreed that job condition influences job stress among diploma holders

compared to degree holders ($p=0.15$). The prevalence among respondents with working experience more than 3 years was significantly higher. (20.6% ; $p=0.01$)

Table V shows among the male respondents, only 27.3% of them agreed that career development influences job stress while among the female respondents, the prevalence was slightly higher where 26.8% of them agreed. This was found to be not significant ($p=0.95$). Among 143 single respondents who participated in this study, 25.9% of them agreed that career development influences job stress. The prevalence of married respondents who agreed that career development was a factor that influences job stress has slightly low percentage of 28.3%. This difference was found to be not significant ($p=0.67$).

In terms of education level, the prevalence of respondents who agreed that career development was a factor that influenced job stress was higher among the degree holders with a percentage of 26.3% compared with the diploma holders with only a percentage of 27.3%. This distribution was also found not significant ($p=0.85$).

Table III: Distribution of interpersonal factor that influences job stress among MLTs in hospitals in Klang Valley.

Characteristics	Interpersonal factors(n=249)				*p value
	Yes		No		
	no	%	no	%	
Gender					
Male	7	12.7	48	87.3	0.61
Female	20	10.3	175	89.7	
Marital status					
Single	11	7.7	132	92.3	0.06
Married	16	15.1	90	84.9	
Education					
Degree	10	10.1	89	89.9	0.76
Diploma	17	11.3	133	88.7	
Working Experience					
Less than 3 years	9	6.1	138	93.9	0.004
More than 3 years	18	17.6	84	82.4	

*Significant level p value < 0.05

Table IV: Distribution of job condition factor that influences job stress among MLTs in hospitals in Klang Valley.

Characteristics	Job condition(n=249)				*p value
	Yes		No		
	no	%	no	%	
Gender					
Male	6	10.9	49	89.1	0.45
Female	29	14.9	165	85.1	
Marital status					
Single	14	9.8	129	92.7	0.02
Married	21	19.8	85	80.2	
Education					
Degree	10	10.1	89	89.9	0.15
Diploma	25	16.7	125	83.3	
Working Experience					
Less than 3 years	14	9.5	133	90.5	0.01
More than 3 years	21	20.6	81	79.4	

*Significant level p value < 0.05

Table V: Distribution of career development factor that influences job stress among MLTs in hospitals in Klang Valley.

Characteristics	Career development(n=249)				*p value
	Yes		No		
	no	%	no	%	
Gender					
Male	15	27.3	40	72.7	0.95
Female	52	26.8	142	73.2	
Marital status					
Single	37	25.9	106	74.1	0.67
Married	30	28.3	76	71.7	
Education					
Degree	26	26.3	73	73.7	0.85
Diploma	41	27.3	109	72.7	
Working Experience					
Less than 3 years	37	25.2	110	74.8	0.46
More than 3 years	30	29.4	72	70.6	

*Significant level p value < 0.05

Table VI: Predictors of organizational stress among MLTs in hospitals in Klang Valley

Independent variable	Odds ratio	95% CI	P value
Interpersonal factors [No]	1.00		
Yes	2.567	1.323 ; 5.252	<0.001
Job condition [No]	1.00		
Yes	2.151	1.241 ; 6.325	<0.001
Career development [No]	1.00		
Yes	1.547	1.003; 3.563	<0.001
Working experience Less than 3 years	0.707	0.321 ; 3.251	0.691
[> 3 years]	1.00		
Marital status [Married]	1.00		
Single	0.742	0.235 ; 2.694	0.732
Constant	0.015		0.027

P<0.05 statistically significant
[] reference

Table VI shows the logistic regression test that was carried out to further identify the predictor of job stress among MLTs. It is shown that the p value for all three organizational factors was less than 0.001. Therefore it can be concluded that interpersonal factor, job condition and career development were predictors of job stress among MLTs in this study.

DISCUSSION

There are not many studies conducted on job stress among Medical laboratory technologists. The prevalence of job stress in the private hospitals in the Klang Valley was 16.7%. In the government hospitals the prevalence was found slightly lower with a percentage of only 15.4%. The prevalence of job stress found in this study was lower compared to a similar study done by Aziah BD *et al*, where prevalence of job stress among Medical Laboratory technologists in Hospital University Sains

Malaysia was found to be at 33.3% and at Kementerian Kesihatan hospitals in Kelantan it was found to be at 26.8%⁵. MLTs from the private hospitals were found to be more stressful than the MLTs from the government hospitals due to the small numbers of MLTs in private hospitals than government hospitals and therefore the MLTs in the private hospitals have to cope with a greater workload.

A report from the Canadian Community Health Survey in 2003⁶, stated that medical laboratory technicians was one of the healthcare workers experiencing high job stress where the proportions ranged from 58% to 64%. This percentage was higher compared to the percentage of job stress among medical laboratory technicians that was found from this study.

When compared with other healthcare workers, the prevalence of job stress that was found in this study among the Medical Laboratory Technologist was still low. According to a study conducted among nurses in the Hospital Kuala Lumpur⁷, the prevalence of job stress among them was 49.5%. This prevalence was found much higher compared to the prevalence that was found in this study where both studies were carried out in the Klang Valley.

This study found that female medical laboratory technologists were more stressed compared to the male medical laboratory technologists. The study conducted by Aziah *et al*⁵, among laboratory technicians in HUSM hospital also showed similar finding whereby more than two third of females were experiencing high job stress. The study in Kementerian Kesihatan Malaysia also shows that prevalence of job stress among the female laboratory technicians were higher compared to the male.

From this study it was also found that medical laboratory technologists who were married experienced higher stress levels. A similar finding was seen in a study conducted by psychologist Roxanne Gervais of the Health and Safety Laboratory, UK in 2001 among 4000 nurses working in Yorkshire hospitals⁸. A study among medical laboratory technologists in HUSM in Kelantan and in the KKM hospitals also found the prevalence of stress among married

technicians was higher compared to those who were single⁵. However in a study on stress among Chinese nurses in Hong Kong, the prevalence of stress was higher among the single nurses compared to the married nurses⁹. According to Callaghan *et al*, married people benefit from being able to express their job dissatisfaction with their spouse.

The prevalence of stress among medical laboratory technologists was higher among degree holders compared to diploma holders and this is similar to the finding from the study conducted in HUSM hospital in Kelantan and in the KKM hospitals⁵.

Organizational factors within an organization can influence job stress. Problems from an organization such as political conflict and communication breakdown among employees and employers can be a source of stress to a person¹⁰. This study focuses on 3 organizational factors and they were interpersonal factors, job condition and career development. From this research, among the government and private hospitals, a majority of medical laboratory technologists disagreed that interpersonal factors influenced job stress. However many studies showed interpersonal factors have caused stress among health workers. Some of the identified interpersonal stressors that caused stress among public human service professionals were poor communication among workers, supervisors and managers¹¹. In a study conducted among laboratory technicians in HUSM and KKM hospitals, interpersonal factors such as coworker, supervisor and social support were found not to be significant with job stress⁵.

From this study it was also found job conditions influenced job stress. Many studies have shown that job conditions such as work overload, physical danger, routine work and shift work were factors for job stress. According to a report produced by the British Medical Association Health Policy and Economic Study Unit in June of 2002, it was stated that the main factor of job stress for consultants and general practitioners was workload¹². Another study conducted among healthcare professionals with cancer patients in Turkey showed that job conditions such as long and tiring work hours and inadequacy of equipment were the factors that influenced stress among them¹³.

According to US Bureau of Labor Statistics, the workplace characteristics that have been identified in laboratory technicians causing stress were job conditions such as monotonous and repetitive work, work overload and involuntary overtime¹⁴. In a study conducted among nurses in a psychiatric institute in Taiwan, it was found that low workplace support was one of the risk factors for perceived job stress¹⁵. In this study we found that career development influences job stress. In a study carried out among laboratory technologists in HUSM, job insecurity or the fear of being laid off was found to be significantly associated to job stress⁵. According to another study by Foot DK *et al*, there was a strong relationship between career development and job stress¹⁶.

The findings from this study are, all organizational factors that have been studied namely interpersonal, job condition and career development factors have significantly associated with stress. Further studies and qualitative approach of the study such as in depth interview and focus group discussion (FGD) should be carried out among MLTs to identify more

organizational factors that influence stress and detail discussion in managing the stress in order to improve job satisfaction among them.

CONCLUSION AND RECOMMENDATION

As a conclusion the prevalence of job stress among medical laboratory technologists was low in both government and private hospitals. There were two socio demographic characteristics, working experience and marital status that were found to be significantly associated with job stress. All organizational factors that were studied, interpersonal factors, job condition and career development influenced job stress among MLTs. Management team and the laboratory manager should design stress prevention programmes to the MLTs to identify and recognize work-related stressors.

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