

RELIABILITY AND CONSTRUCT VALIDITY OF THE MALAY VERSION OF THE JOB CONTENT QUESTIONNAIRE (JCQ) AMONG SECONDARY SCHOOL TEACHERS IN KOTA BHARU, KELANTAN, MALAYSIA

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Abstract. This study was conducted to assess the reliability and construct validity of the Malay version of Job Content Questionnaire (JCQ) among secondary school teachers in Kota Bharu, Kelantan. A total of 68 teachers consented to participate in the study and were administered the Malay version of JCQ. Reliability was determined using Cronbach's alpha for internal consistency whilst construct validity was assessed using factor analysis. The results indicated that Cronbach's alpha coefficients revealed decision latitude (0.75), psychological job demand (0.50) and social support (0.84). Factor analysis showed three meaningful common factors that could explain the construct of Karasek's demand-control-social support model. The study suggests the JCQ scales are reliable and valid tools for assessing job stress in school teachers.

INTRODUCTION

Occupational stress can no longer be considered as occasional. It is becoming an increasingly global phenomenon, affecting all categories of workers in every country. Harmful physical and emotional responses can happen when there is conflict between job demands of the employee and the amount of control an employee has over meeting these demands. The psychosocial aspects of job stress were evaluated using the Job Content Questionnaire (JCQ) based on Karasek's demand-control model; it has been the most popular instrument designed for the assessment of the psychosocial work environment (Hurrell *et al*, 1998). It is a set of question-

naires designed to measure the "content" of a respondent's work task. The questionnaires focus on psychological and social structure of the work situation. It is currently the most widely used workplace environment questionnaire, and is now available in over 12 languages (Joanna and Michael, 2002).

It has been shown that three cardinal factors – decision latitude, psychological job demand and social support – are important determinants of job stress, which in turn has significant effects on health, in particular cardiovascular health (Theorell and Karasek, 1996). Although the importance of job stress as a major occupational hazard has gained wide awareness in many industrialized countries, few studies have been conducted in the developing world (Karasek *et al*, 1998; Kawakami and Haratani, 1999). Given the fact that the JCQ was developed and tested mostly in Western populations, it remains to be seen whether it also applies to populations in different cultures and backgrounds.

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With permission from the JCQ center, the original questionnaire with 21 selected items from the JCQ were translated into Bahasa Melayu (Malay). The core items were assessment of decision latitude, psychological job demand and social support. The Malay language was used in this study because it is comprehensible to all Malaysians. The reliability and construct validity of the three scales of the Malay version of the JCQ (M-JCQ) were tested in secondary school teachers.

MATERIALS AND METHODS

A cross-sectional study design was used in this study. It was conducted at a secondary school under the authority of the Kota Bharu District Education Office, Kota Bharu, Kelantan. Universal sampling was applied to select the study subjects. All the subjects were recruited at the school office after given written consent. Self-administered Malay versions of the JCQ were distributed to 68 teachers of the school. The teachers were asked to submit the questionnaires three days later. The returned questionnaires were checked on site to assure completeness. The response rate was 100%.

The Job Content Questionnaire (JCQ) 1.7 (Revised 1997) including added scales and extensions of the original scales for the Framingham version (Karasek *et al*, 1998) was used as a research tool. Twenty-one items of the JCQ were selected. These items constituted a set of questions for three major scales of the JCQ: decision latitude (8 items), psychological job demand (5 items) and social support (8 items). For each of the scales of decision latitude, psychological job demand and social support, the scores were calculated using Karasek's recommended formulae. The 21 items of the JCQ were translated into Malay by two trained research officers who were fluent in both Malay and English, and back translated into English by one of the authors who

was not shown the original English text to ensure high face validity. Items in the scales were recorded using the Likert scale, ranging from 1 (strongly disagree) to 4 (strongly agree). Information on socio-demography, duration of working and income were also obtained from the participants.

Data entry and analysis were done using the Statistical Package for Social Sciences (SPSS) version 11.5. Means and standard deviations for normally distributed variables, medians and inter quartile ranges for skewed variables were presented for continuous variables; frequencies and percentages for categorical variables. The construct validity of the instrument was examined using the factor analysis (principal components with Varimax rotation). Factors loaded with measure of sampling adequacy (MSA) values more than 0.3 were presented. The internal consistency was evaluated using Cronbach's alpha coefficients for each scale. Corrected item total correlation was presented for each item.

The study protocol was approved by the Research and Ethics Committee, School of Medical Sciences, Universiti Sains Malaysia in January, 2005.

RESULTS

A total of 68 teachers participated in this study. Table 1 describes the demographic characteristics of the study population. All participants were Malays and females were predominant. The mean age was 40.6 (± 5.8) years. A higher proportion of the teachers were married and with tertiary education. The median income per month was Ringgit Malaysia (RM) 2,400 and the mean duration of working was 14.9 (± 7.1) years.

Table 2 shows the results of factor analysis with all 21 items of the 3 scales of decision latitude, psychological job demand and social support. The first factor was associated with the scales of social support. All items of

Table 1
Socio-demographic characteristics of Malay teachers in a secondary school (n=68).

Characteristics	n (%)	Mean (SD) ^a	Median (i.q.r) ^b
Age (years)		40.6 (5.8)	
Gender			
Male	23 (33.8)		
Female	45 (66.2)		
Marital status			
Married	61 (89.7)		
Single/divorced	7 (10.3)		
Educational level			
Non-Tertiary	3 (4.4)		
Tertiary	65 (95.6)		
Income per month (RM)			2,400.0 (733.00)
Total duration of working (years)		14.9 (7.1)	

^aSD = standard deviation; ^bi.q.r. = inter quartile range

Table 2
Factor analysis of 21-items of the JCQ in Malay secondary school teachers (n=68).

Variable	Item	Factor loading ^a		
		Factor 1	Factor 2	Factor3
Decision latitude	Q3 Learn new things		0.48	
	Q5 Requires creativity		0.66	
	Q6 Allows own decisions		0.57	
	Q7 High skill level		0.68	
	Q8 Little decision freedom		0.51	
	Q9 Variety of work		0.40	0.45
	Q10 Lots of say		0.60	
Psychological job demand	Q11 Develop own abilities		0.63	
	Q19 Work fast		0.70	
	Q20 Work hard		0.52	
	Q22 No excessive work			0.44
	Q23 Enough time			0.30
Social support	Q26 Conflicting demands			0.45
	Q48 Supervisor is concerned	0.64		
	Q49 Supervisor pays attention	0.58		
	Q51 Helpful supervisor	0.69		
	Q52 Supervisor good organizer	0.68		
	Q53 Coworkers competent	0.64		
	Q54 Coworkers interest in me	0.78		
	Q56 Friendly coworkers	0.63		
	Q58 Coworkers helpful	0.79		

^aPrincipal component analysis with Varimax rotation
Only items with factor loading >0.30 were shown

this scale were loaded on this factor with factor loading ranging from 0.58 to 0.79. All items for decision latitude were loaded in factor two. However, two items for psychological job demand were also loaded on factor two whilst the rest were loaded on factor three.

The item-total correlations and Cronbach's alpha coefficients for all 21 items of the JCQ scales were given in Table 3. The Cronbach's alpha coefficients were acceptable for decision latitude (0.75) and social support (0.84); however, it was relatively low for psychological job demand (0.50). Values for all item-total correlations for the social support and decision latitude scales were greater than 0.3 indicating that each scale of the items had good correlation with the overall scale score which comprised other items, as recommended by Nunnally and

Bernstein (1994). However, the values of the psychological job demand scales were not satisfactory – two of the item-total correlations were 0.13 and 0.10, indicating low inter-item correlations.

DISCUSSION

In this study, the three extracted factors corresponded very closely to the theoretical constructs of the JCQ. Some items belonging to the psychological job demand scale (*ie*, "work fast", "work hard") were loaded on the factor for decision latitude, indicating a link between these items. Even though Q19 and Q20 were loaded in factor two (decision latitude), they were taken into account in factor three (psychological job demand) based on the biological factor which explained that these

Table 3
Item-total correlation and Cronbach's alpha coefficients for the JCQ scales in Malay secondary school teachers (n=68).

Variable	Item	Corrected item-total correlation	Cronbach's alpha
Decision latitude	Q3 Learn new things	0.39	0.75
	Q5 Requires creativity	0.46	
	Q6 Allows own decisions	0.42	
	Q7 High skill level	0.46	
	Q8 Little decision freedom	0.38	
	Q9 Variety of work	0.36	
	Q10 Lots of say	0.50	
	Q11 Develop own abilities	0.57	
Psychological job demand	Q19 Work fast	0.30	0.50
	Q20 Work hard	0.13	
	Q22 No excessive work	0.10	
	Q23 Enough time	0.40	
	Q26 Conflicting demands	0.40	
Social support	Q48 Supervisor is concerned	0.59	0.84
	Q49 Supervisor pays attention	0.55	
	Q51 Helpful supervisor	0.58	
	Q52 Supervisor good organizer	0.65	
	Q53 Coworkers competent	0.53	
	Q54 Coworkers interest in me	0.66	
	Q56 Friendly coworkers	0.49	
	Q58 Coworkers helpful	0.67	

variables were more concerned with psychological job demand. It suggested that these two items might contribute to the control of job stress among those teachers. This was also found in a Japanese study (Kawakami *et al*, 1995) and a French study (Niedhammer, 2002). With the development of the sciences, technical and skills are more and more required from workers, therefore, skill discretion may also be an aspect of psychological job demand. Cheng *et al* (2003) found more complex factor patterns among women workers where some items belonging to the psychological job demand scale were loaded negatively on the factor for supervisor support, indicating a link between these items and a lack of supervisor support. They also found one of the items for supervisor support was loaded onto the factor for decision latitude scale, suggesting the supervisor's attention may also contribute to the perception of job control in the workers.

The psychometric properties of the three scales of the JCQ were examined in this study. Cronbach's alpha coefficients for decision latitude and social support were generally acceptable, but it was low for the psychological job demand scale. The internal consistency for the psychological job demand scale was the lowest (Cronbach's alpha = 0.50) in our study when compared to other studies from the United States, Canada, the Netherlands, Japan and Taiwan (Cronbach's alpha = 0.59-0.71; Kawakami *et al*, 1995; Karasek *et al*, 1998; Cheng *et al*, 2003). This indicates that some items in the Malay version need to be re-phrased. Two items in particular (Q20 and Q22) were found to correlate poorly with other items in the psychological job demands scale. We suspect Q20 "work hard" may appear to many teachers as an assessment of work value rather than the psychological job demand within the context of the Malay culture. Item Q22 "no excessive work" contained a negative term in Malay, which might be difficult for the teachers to interpret. Thus, this five-item version may not

be a sufficient measure of various types of psychological job demands that teachers encounter in the workplace, similar to that found in a study among workers in Taiwan (Cheng *et al*, 2003).

In this study, all the subjects were ethnic Malays. Ethnic differences may play a role in creating discrepancy in the factor pattern as well as reproducibility of the questionnaire. Perez (1998) investigated the issues of occupational stress and ethnic diversity by examining Karasek's demands-control model of job strain in a sample of White and Hispanic working women. The study did not support the inclusion of ethnicity as an additional moderator in the demands-control framework.

The major limitation of this study was that the subjects were from restricted categories of occupation and race and the sample size was small. It is desirable to examine the validity and reliability of the M-JCQ scales in a broader range of occupations, ethnic groups and industries. In addition, more effort should be placed on the two scales of decision latitude and psychological job demand for the development of a further version of JCQ.

In conclusion, this study demonstrated that the three scales of JCQ were reliable and valid for assessing the psychosocial work condition of secondary school teachers, although further study needs to perform to improve the psychological job demand scale. Ethnic differences should also be considered if our findings are to be generalized to the teacher population in other settings.

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