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A Cross-Cultural Study of Psychological Well-being Among British and Malaysian Fire Fighters

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Abstract

Psychological consideration has always been a part of society and it usually relates to values, beliefs, ethnicity and gender. This is the essence of cultural psychology. In recent times, this branch of psychology has developed the new arm of Cross-Cultural Psychology, an extension of psychology covering the influence on behaviour when cultural groups interact. This study is a comparative study of two cultural groups, namely Malaysian and British fire fighters. Sources of occupational stress and their impact on psychological wellbeing were examined in a questionnaire survey of 1053 British and Malaysian fire fighters. The role of coping strategies as moderating factors was also tested. Sources of occupational stress had significant negative correlations with psychological wellbeing. Hierarchical regression analysis was used to examine the moderating effect of coping strategies on psychological wellbeing and found differences between the British and Malaysian fire fighters. Models of psychological wellbeing for both cultures were produced.

Introduction

Psychological consideration has always been a part of society and it usually relates to values, beliefs, ethnicity and gender. This is the essence of cultural psychology. In recent times, this branch of psychology has developed the new arm of Cross-Cultural Psychology, an extension of psychology covering the influence on behaviour when cultural groups interact.

Culture is reflected in the artifacts, roles, language, consciousness, and attitudes of a people (APA, 2001; [Marsella & Yamada, 2000](#)). Nevertheless, the aspect of cross-culture psychology may not have direct effect on certain professions such as fire fighters, military, police and others, which share similar responsibilities and organizational culture. As such, this study attempts to look into the differences between British and Malaysian fire fighters in terms of their job satisfaction, psychological wellbeing and how they employ their coping strategies.

While there is extensive literature on stress in policing (*e.g.* Alexander & Walker, 1994; Brown & Heidenssohn, 2001; Kircaldy, Malek, M.D., Mearns, K. & Flin, R. (2003).), only a few empirical studies have systematically examined the causes and effects of stress in fire fighters' work. Most of these have concentrated on the specific effects of distressing events causing PTSD (Al-Naser & Everly, 1999; Corneil, 1993; Corneil *et al*, 1999) rather than the more general issue of occupational stress and its effects. This article focuses on sources of stress as predictors of psychological wellbeing (anxiety, stress and depression) and job satisfaction among British and Malaysian fire fighters. It also examines the roles of coping behaviour as moderator between exposure

to occupational stressors and its impact on psychological wellbeing and on job satisfaction.

The purposes of the study are: (a) to examine the sources of stress as a predictor of psychological wellbeing (anxiety, stress and depression) and job satisfaction among British and Malaysian fire fighters and (b) to examine the roles of coping behaviour as moderator variable. The current study will be based on the proposed theoretical framework outlined below in Figure 1.

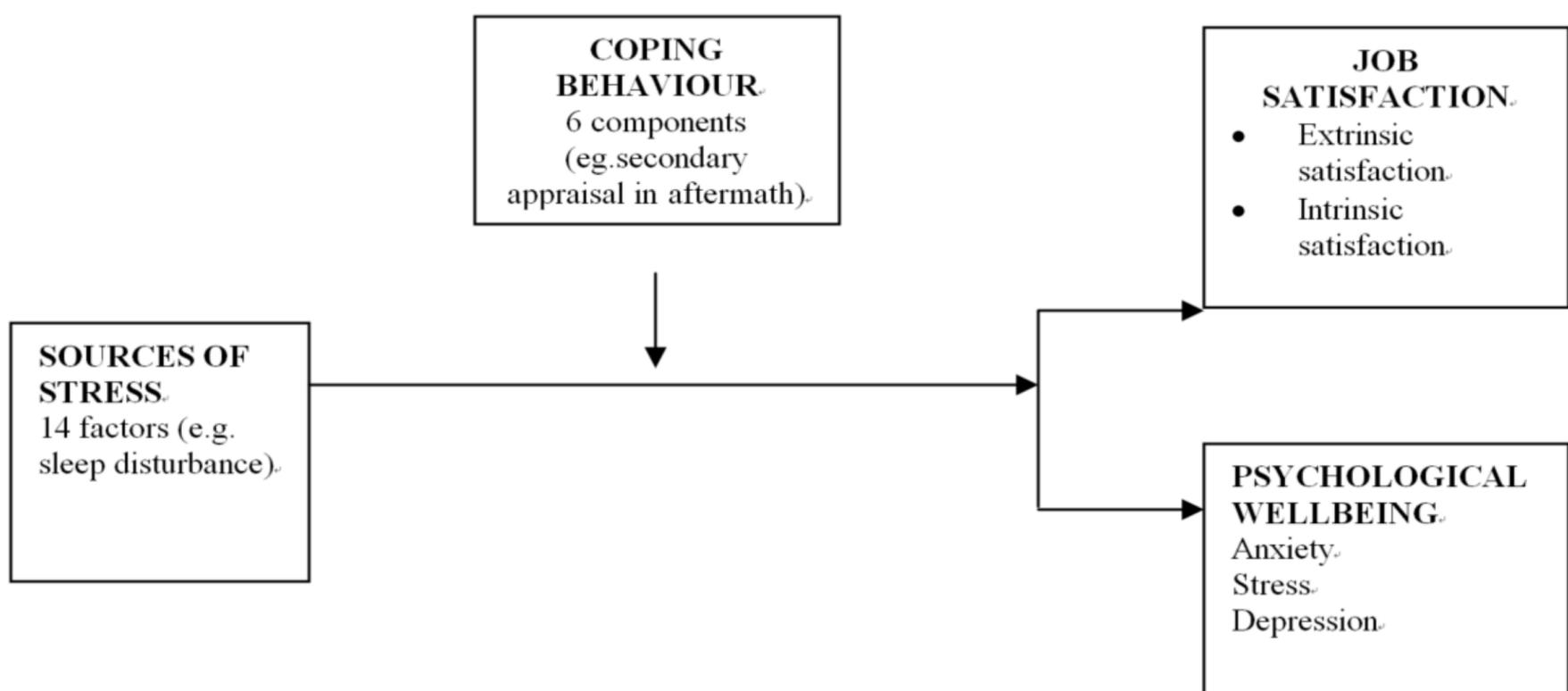


Figure 1

The theoretical framework for the study

In this model, sources of stress are related to job satisfaction and psychological wellbeing, and moderated by coping behaviour. Two samples of fire fighters were tested: a sample of British fire fighters and a second sample from Malaysian fire fighters. While one might normally predict cross-cultural differences, in this case, it was hypothesised that the same pattern of effects would be found. Fire fighters in these two countries have broadly similar organisations (the Malaysian fire brigades having been developed on a British model and their senior officers are often trained at the Fire Service College) and they are exposed to similar types of risks and have similar working conditions.

Hypotheses of the Study

On the basis of the foregoing overview, the following hypotheses were formulated:

Hypothesis 1: It is predicted that fire fighters who report higher levels of pressure arising from sources of stress report lower job satisfaction and poorer psychological wellbeing.

Hypothesis 2: Coping behaviours act as moderating variables between sources of stress and psychological wellbeing (anxiety, stress and depression) and job satisfaction. It is predicted that coping behaviours make a contribution to psychological wellbeing and job satisfaction.

Method

Procedure

The questionnaire was distributed through the officers in charge to five fire brigade zones in Malaysia and four fire brigade zones in the UK. Questionnaires were sent to each station via the internal post of each brigade and were then distributed to individual members.

Measures

Respondents completed a self-report questionnaire containing five scales measuring sources of stress, coping behaviour, psychological wellbeing and job satisfaction. The instruments that were used were the Sources of Occupational Stress in Fire Fighters & Paramedics (SOOS; Beaton & Murphy, 1993) and the Coping Response of Rescue Workers Inventory (CRRWI) that contain a 32 item scale, developed by Corneil (1993) to measure coping behaviours among fire fighters. The Psychological Wellbeing Scale (PWS) was used to measure psychological wellbeing and the Job Satisfaction Scale developed by Warr, Cook and Wall (1979) was used to measure job satisfaction.

Respondents

In Malaysia, questionnaires were distributed to 800 personnel. 617 were returned by the fire fighters (all male) in operational units (77% response rate). Responses were obtained from all ranks. The length of the respondents' service ranged from less than one year (2.8%, $n = 17$) to more than 10 years (54%, $n = 336$). The age of the respondents ranged from 21 to 60 years old and the majority were in the range between 41 to 45 years old.

In the UK, questionnaires were distributed to 1042 personnel. 436 were returned by the fire fighters (all male) in operational units (42% response rate). Responses were obtained from all ranks, 325 full time fire fighters and 111 retained fire fighters. The length of the respondents' service ranged from less than one year (4%, $n = 16$) to more than 10 years (58%, $n = 251$). The age of the respondents ranged from 21 to 60 years old and the majority were in the range between 36 to 40 years old.

Results

Descriptive statistics

Descriptive statistics for all variables are presented in Table 1. Included are means, standard deviation, correlation coefficients and coefficient alphas. The results show that the internal reliabilities of measures are acceptable. The Cronbach's alphas ranged from 0.86-0.97.

Table 1

Means, Standard Deviation, Cronbach's alpha and Pearson Correlation Coefficients of the study

Variable	M	SD	α	1	2	3	4	5
British fire fighters								
1 Sources of stress	120.7	102.7	.97	-				
2 Coping behaviour	84	14.6	.90	.14**	.30**	-		
3 Psychological Wellbeing	76.8	12.3	.86	.48**	.01	.17**	-	
4 Job satisfaction	66.7	13.6	.89	-.35**	.23**	.21**	-.32	-
Malaysian fire fighters								
1 Sources of stress	206.7	111.4	.97	-				
2 Coping behaviour	86.8	12.6	.87	.13**	.13**	-		
3 Psychological Wellbeing	61.05	9.88	.84	.34**	-.16**	.03		
4 Job satisfaction	72.34	14.73	.92	-.18**	.17**	.10*	-.27**	-

* $p < .05$; ** $p < .01$

Correlations

Inter-correlations among sources of stress, psychological wellbeing, coping behaviour and job satisfaction are also presented in Table 1. The results indicated that overall, the sources of stress had a significant negative correlation with job satisfaction for both British ($r = -.35$, $p < 0.01$) and Malaysian fire fighters ($r = -.18$, $p < 0.01$). The results also indicated that overall, the sources of stress had a significant positive correlation with psychological wellbeing for both British ($r = .48$, $p < 0.01$) and Malaysian fire fighters ($r = .34$, $p < 0.01$). In other words, the higher levels of pressure arising from sources of stress, the lower job satisfaction and the poorer psychological wellbeing among British and Malaysian fire fighters. Therefore, hypothesis 1 is supported by the findings.

Moderation analysis

In order to test statistically the proposed relationships in figure 1 between sources of stress, coping behaviour, job satisfaction and psychological wellbeing, a series of hierarchical regression analyses were conducted to predict psychological wellbeing and job satisfaction separately. Using hierarchical regression, it can be seen how much variance in the dependent variable can be explained by one or a set of new independent variables, over and above that explained by an earlier set. Furthermore, the estimates (b coefficients and constant) can be used to construct a regression equation and generate predicted scores on a variable for further analysis. Multiple regressions can establish whether a set of independent variables explains a proportion of the variance in a dependent variable at a significant level (significance test of R^2), and can establish the relative predictive importance of the independent variables (comparing beta weights).

Sources of stress-Coping Behaviour-Psychological wellbeing

In order to examine the contribution of overall coping behaviour on the interaction between sources of stress and overall psychological wellbeing, a hierarchical regression analysis was conducted to test the following models.

Model 1: Psychological wellbeing = Constant + sources of stress (SOOS)

Model 2A: Psychological wellbeing = Constants+ sources of stress (SOOS) +coping behaviour (CB)

Model 2B: Psychological wellbeing = Constant +sources of stress (SOOS) +coping behaviour (CB) + interaction sources of stress and coping behaviour (SOOS x CB)

The results for British fire fighters can be seen in Table 2. Based on the first step of the equation, overall the sources of stress were a significant predictor of psychological wellbeing, accounting for 23% of the variance R^2 change = .23, $F(1, 422) = 126.02$, $p < .001$. At the final step (step 3), no significant interaction terms were found. The change in R^2 from step 1 to 2 ($\Delta R^2 = .009$) was significant, while that from step 2 to 3 ($\Delta R^2 = .001$) did not reach a significant level. This means, total coping behaviour did not significantly contribute as a moderating variable between total sources of stress and total psychological wellbeing among British fire fighters.

Table 2

Hierarchical regression analysis of the relations between overall sources of stress and overall coping behaviour on psychological wellbeing of the British fire fighters

Predictors	β	R	R^2	T	ΔR^2
Step 1					
SOOS	.480	.480	.230	11.22**	.230**
Step 2					
CB	.097	.489	.239	2.25*	.009*
Step 3					
Interaction term					
SOOS x CB	.023	.489	.239	.08	.001

* $p < .05$; ** $p < .01$

SOOS-sources of stress; CB-coping behaviour

Table 3

Summary hierarchical multiple regression analysis of the relations between overall sources of stress and overall coping behaviour on overall psychological wellbeing of the Malaysian fire fighters

Predictors	β	R	R ²	T	ΔR^2
Step 1					
SOOS	.323	.323	.104	7.93**	.104**
Step 2					
CB	-.011	.323	.104	-.27	.000
Step 3					
Interaction term					
SOOS x CB	.557	.334	.111	2.08	.007*

* $p < .05$; ** $p < .01$

SOOS-overall sources of stress; CB-overall coping behaviour

Table 3 shows the results of the hierarchical moderated multiple regression analysis on overall psychological wellbeing of the Malaysian fire fighters. The change in R^2 step 1 ($\Delta R^2 = .104$) and 3 ($\Delta R^2 = .007$) reaches a significant level. Therefore, the hypothesis that there is a significant influence of overall coping behaviour as a moderating variable between sources of stress on overall psychological wellbeing is supported for the Malaysian fire fighters.

Sources of stress-Coping Behaviour-Job Satisfaction

The result in table 4 indicates that the overall coping behaviour had a significant influence on the overall job satisfaction for the British fire fighters $F(6, 413) = 11.3, p = .001$. About 54.2% of the variance in the criterion variable was explained by the first (12.7%), second (20%) and third (21.5%) predictor variables. Therefore, there is significant influence of coping behaviour as a moderating variable on job satisfaction. Table 4 also shows the results of the hierarchical regression analysis on job satisfaction. At step 1, higher sources of stress were significantly associated with lower work motivation. The change in R^2 from step 1 to 2 ($\Delta R^2 = .128$) and step 2 to 3 ($\Delta R^2 = .008$) reached a significant level. Therefore, there is a significant influence of motivation as a moderating variable on job satisfaction among British fire fighters.

Therefore the hypothesis work motivation and coping behaviour act as moderating variables between sources of stress and psychological wellbeing (anxiety, stress and depression) was not supported. However, the results support the hypothesis that work motivation and coping behaviour act as moderating variables between sources of stress and job satisfaction.

Table 4

Hierarchical regression analysis of the relations between sources of stress and coping behaviour on job satisfaction for British fire fighters

Predictors	β	R	R ²	T	DR ²
Step 1					
SOOS	-.356**	.356	.127	-7.8**	.127**
Step 2					
CB	.274**	.447	.200	6.2**	.073**
Step 3					
Interaction term					
SOOSxCB	.830**	.464	.215	2.8**	.015**

*p<.05; **p<.01

SOOS-overall sources of stress; CB-overall coping behaviour.

Table 5 shows the results of the hierarchical multiple regression analysis of the relationship between overall sources of stress and coping behaviour on overall job satisfaction for the Malaysian fire fighters. The change in R² from step 1 (DR² = .036) and 2 (DR² = .018) reaches a significant level but not for step 3 (DR² = .003). Therefore, the hypothesis that there is significant influence of coping behaviour as a moderating variable on job satisfaction is not supported by the findings.

Table 5

Hierarchical regression analysis of the relations between sources of stress and coping behaviour on job satisfaction for Malaysian fire fighters

Predictors	β	R	R ²	T	ΔR^2
Step 1					
SOOS	-.189	.189	.036	-.4.4**	.036**
Step 2					
CB	-.206	.231	.050	3.1**	.018**
Step 3					
Interaction term					
SOOS x CB	-.333	.237	.051	-1.2	.003

*p<.05; **p<.01

SOOS-overall sources of stress; SOOS-overall sources of stress; CB-overall coping behaviour

Discussion

Overview

The overall aim of this study was to examine the relationship of sources of stress, job satisfaction and wellbeing among British and Malaysian fire fighters. First, the result was found to be consistent with Beaton and Murphy (1993), where the overall Source

of Stress scale was found to have a significant negative correlation with job satisfaction. The present finding also showed that the “Past critical incidents” component was the top ranked for the source of stress among British fire fighters, whereas the lowest component was “Discrimination”. This finding was different from the norm data of the US fire fighters where the top ranked of the SOOS was “Sleep disturbance”. However the lowest ranked item was similar to the norm data of US fire fighters. Besides that, the results indicate that the item ‘Reduction in force, manpower, wages, and/or benefits; real or threatened’ achieved the top ranked score and the lowest ranked mean score for the SOOS was the item ‘Harassment based on gender, ethnicity, or age’. The results present a picture of sources of stress in British fire fighters, which is different from that in other countries, for example the U.S., Canada, Finland and Malaysia.

The results indicated that “Job skill concerns” component was the top ranked for the sources of stress and the lowest component was “Discrimination” the same as the norm data ranking for the US sample among Malaysian fire fighters.

British fire fighters also reported high levels of depression compared to levels of anxiety and levels of stress (which was lowest). Levels of anxiety and depression among British fire fighters can be considered at an intermediate level; but their levels of stress can be considered lower (12-23=lower, 24-35=intermediate and 36-48=high). The overall wellbeing of the British fire fighters was also intermediate to the maximum score (Min=36, Max=144). The result also indicated that the level of depression among Malaysian fire fighters was highest, whereas the level of anxiety was slightly lower and the level of stress was lowest. Compared to the scoring criteria (36-71=lower, 72-108=intermediate and 109-144=high), the overall psychological wellbeing of the Malaysian fire fighters is in the lower category range (range: 36-144), so this shows that overall the fire fighters have a good level of psychological wellbeing compared to norm data.

The results indicated that the mean score for the sub scale ‘Accomplishment Striving’ was higher than for the other two compared to the sub scale ‘Status Striving’ and ‘Communion Striving’. This is different with Malaysian fire fighters since the sub scale Status Striving was higher than for the other two sub scales Accomplishment Striving and Communion Striving. Our results also suggested that there is a significant positive correlation between communion striving, status striving and accomplishment striving and overall job satisfaction. The results are consistent with Barrick et.al. (2002) who suggested that accomplishment striving may affect performance through communion and status striving. In fact, our results suggested that there is a significant connection between accomplishment striving and job satisfaction, but not between accomplishment striving and psychological wellbeing among British fire fighters.

The result also indicated that overall coping behaviour has a significant influence on overall job satisfaction for both Malaysian and British fire fighters, which means that there is a significant influence of coping behaviour as a moderating variable on job sat-

isfaction. This finding also found that 'Foster positive attitudes' was the most frequently used coping strategy by the British fire fighters. This finding was different from a previous study by Corneil (1993) which found that 'Secondary appraisal in the aftermath' was the most frequently used coping strategy by Canadian fire fighters.

However, the results show that for the Malaysian fire fighters 'Cognitive positive self-talk' had the highest mean score, and 'Cognitive behavioural avoidance and numbing' had the lowest mean score. This finding was different from the norm data where the top ranked the CRRWI component for US sample was "Foster positives attitudes'. The lowest component of both the Malaysian and US sample were similar (Cognitive behavioural avoidance and numbing). However, the results indicated that the Malaysian fire fighters generally used more coping behaviour compared to US fire fighters.

Furthermore, the results of the British fire fighters corroborated a previous study (Lou Lu, 1999), which suggested that coping behaviour and work motivation are one of the potential moderating variables between sources of stress and job satisfaction. The study of how the fire fighters cope with their stress at work is very important since Lusa *et al.* (2002) reported that the opportunities to study how fire fighters cope their stressful situation are rare. Our results suggested that the ways in which fire fighters cope with their stressful work situation at work are more important than how motivated they are.

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