

Managerial Stress in Greater China: The Direct and Moderator Effects of Coping Strategies and Work Locus of Control

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La présente étude examine les effets directs et modérateurs des stratégies de défense (contrôle et support) et de la perception de contrôle au travail (extérieure) sur des relations stresseur-tension entre des gestionnaires de la grande Chine (la République populaire de Chine, Hong Kong, et Taiwan). Les données ont été recueillies, via un questionnaire autoadministré, auprès de 876 gestionnaires soit 249 (164 hommes, 85 femmes) en République populaire de Chine, 280 à Hong Kong (159 hommes, 120 femmes, 1 non classifié), et 347 (191 hommes, 151 femmes, 5 non classifiés) au Taiwan. Des effets directs et modérateurs pour les stratégies de défense et pour la perception de contrôle ont été démontrés pour quelques relations stresseur-tension dans les divers échantillons étudiés.

The present study aims at examining the direct and moderator effects of coping strategies (control and support coping) and work locus of control (externality) on the stressor-strain relationships among managers in Greater China (the People's Republic of China [PRC], Hong Kong, and Taiwan). A

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self-administered survey method was employed to collect data from 249 (164 male, 85 female) managers in the PRC, 280 (159 male, 120 female, 1 unclassified) managers in Hong Kong, and 347 (191 male, 151 female, 5 unclassified) managers in Taiwan. The direct and moderator effects of control coping, support coping, and work locus of control on some stressor-strain relationships were demonstrated in the studied samples.

INTRODUCTION

Job stress has been noted as an increasing problem for employees in Western industrialised societies, particularly the US (e.g. Sauter & Murphy, 1995). It has been argued that almost all job stress research and theories were developed and empirically tested in Western industrialised countries (Jamal, 1999; Xie, 1996). However, the problem of occupational stress should also be particularly relevant for countries undergoing enormous economic and social changes. It is therefore important to replicate job stress research in Hong Kong, Taiwan, and the People's Republic of China (PRC), three of the emerging economies in South East Asia, in order to test the generalisability of Western organisational theories.

The present study adopts the structure of the Occupational Stress Indicator (OSI) (Cooper, Sloan, & Williams, 1988) as the theoretical framework of research. Cooper et al. (1988) demonstrated that stressful transactions are seen as a product of two intervening systems: people both exert impact on and respond to their environments. In other words, the process of stress depends on the person's appraisal of the situation which is what determines whether the situation is stressful or not. Stress occurs when the magnitude of the stressor exceeds the individual's capacity to cope. For instance, workload is something that causes a person to feel stressed when he/she thinks that he/she is unable to cope with the large workload. The OSI basically identifies three key elements of the stress process: sources, effects, and individual differences.

Six sources of stress were first categorised as antecedents of stress in the OSI: factors intrinsic to the job, management role, relationships with others, career and achievement, organisational structure and climate, and home/work interface. However, based on data from over 20,000 participants working in over 100 different organisations, Williams and Cooper (1996) revealed eight sources of stress contained in the items of the OSI (see Instrument section). Since many of the multinational organisations use the OSI to study managerial stress across national boundaries (Williams & Cooper, 1998), it is believed that these eight sources of stress are also applicable to Chinese managers.

In the transactional model of the OSI, Cooper et al. (1988) argued that well-being and job satisfaction are the perception of stress outcomes as they are related to the individual's turnover, absenteeism, and job performance.

Many studies based on the OSI conducted in Western societies have demonstrated that sources of stress at work are negatively related to workers' job satisfaction and well-being (Cooper & Payne, 1988; Bogg & Cooper, 1995; Robertson, Cooper, & Williams, 1990; Williams & Cooper, 1998). The present study also used job satisfaction, mental and physical well-being as dependent variables. However, both empirical and theoretical work have underscored the role of control and coping as stress moderators. From an American individualist perspective, there is a strong emphasis on direct, personal control as a means of mitigating the effects of job stress. It is not a foregone conclusion that the American findings would generalise to a collectivist society, such as the PRC, where less emphasis is placed on the individual. Our purpose was to investigate occupational stress among managers in Greater China: the People's Republic of China (PRC), Hong Kong, and Taiwan, and extend American job stress findings concerning control and coping to these three Chinese societies.

ECONOMIC CONTEXT OF GREATER CHINA

Even though the PRC, Hong Kong, and Taiwan are the three largest Chinese societies in the world, there are socioeconomic similarities and variations among them. The three societies are all undergoing fundamental transformations of industrial structures from labor-intensive to high-tech, as well as rapid social modernisation in both work and lifestyles. Since 1979, the PRC has made great progress in economic reforms, in which Hong Kong and Taiwan have contributed so much that the three economies have been termed "Greater China". In the PRC, the average annual real economic growth in 1979–93 was 9.3 per cent. The average annual real growth in Taiwan in 1970–93 was 8.6 per cent; and in the same period Hong Kong achieved 7.4 per cent growth. Recently, the GDP annual growth rates of the PRC, Hong Kong, and Taiwan estimated in 1997 were 8.8 per cent, 5.3 per cent, and 6.5 per cent, respectively. Given this rapid growth it is not surprising that studies have revealed high levels of stress in the PRC (Jamal & Xie, 1991; Siu, Donald, & Cooper, 1997; Xie, 1996; Xie & Jamal, 1993; Yu, Sparks, & Cooper, 1998), Hong Kong (Siu, Cooper, & Donald, 1997; Siu & Cooper, 1998; Siu & Donald, 1996), and Taiwan (Lu, Shiau, & Cooper, 1997; Lu, Tseng, & Cooper, 1999). It was even consistently found that managers in Hong Kong, Taiwan, and the PRC reported higher levels of stress than UK managers (Lu et al., 1999; Siu, Cooper, & Donald, 1997; Yu et al., 1998). The managerial stress estimated for countries such as the UK and US is very high (e.g. Cartwright & Cooper, 1997). It is equally high in the PRC, Hong Kong, and Taiwan which further emphasises the need to examine the stress factors and processes in Chinese managers in these three societies.

From a different perspective, with the globalisation of the world economy, and the rapid development of the South East Asia economies, Western enterprises are investing more and more into the area. A systematic exploration of work stress and well-being of managers in Greater China would be valuable for the improvement of productivity.

In Sparks et al.'s (1999) study of 22 diverse nations at different stages of economic development, it was found that developing nations scored the highest on sources of pressure, reported the worst mental and physical health, but the greatest job satisfaction of the three economic groups (developed, developing, and under-developed nations were grouped according to their GNP per capita). The poor health of the developing group was attributed to the high stress these managers experienced at work, and the high job satisfaction, to the greater expectations and excitement about the future, and greater autonomy at work that these individuals may experience as a result of rapid changes taking place in their workplace. But both Hong Kong and Taiwan were classified as developed nations in their study. Nevertheless, in terms of GNP per capita, Hong Kong is a developed society, Taiwan can be classified as a developing and the PRC as an under-developed country.

DIRECT AND MODERATOR EFFECTS OF COPING STRATEGIES

As mentioned earlier, stress does not result directly from the source of pressure itself, but rather from the perception of that pressure. Therefore individual differences that might relate to perceptions, such as control and coping, should also be considered. Lazarus and Folkman (1984) emphasised that stress is in part the result of lack of fit between individuals and their environment, and coping strategies can help to reduce strain caused by stress. In general, there are two types of coping: *problem-focused coping* (taking constructive and direct approaches to solving problems) and *emotion-focused coping* (taking steps to mitigate the emotional response to problems; Folkman & Lazarus, 1985).

As criticised by Phillips and Pearson (1996), one major limitation of this theory is its use of urban samples from Western countries. They argued that the Western emphasis on action-oriented coping only applies to relatively affluent communities that value individualism, and strategies that lead to social harmony such as social resources may be more appropriate in more collectively oriented cultures. Some studies demonstrated that the most common coping strategies employed by Chinese subjects in the PRC, Hong Kong, and Taiwan are different from Western subjects (e.g. Chen, 1988; Hwang, 1977; Shek & Mak, 1987). Yet these studies were conducted some time ago and they mainly used students as subjects. As Yang (1986) argued,

social changes in Taiwanese society have brought about a shift in values, such as from collectivism to individualism. We expect this shift in value may have also taken place in China and Hong Kong as well as Taiwan in recent years. This might have led to changes in the coping process in Greater China.

It has been found that the use of coping can improve work satisfaction, reduce tension, lower turnover and absenteeism, and even lead to positive outcomes for both individuals and employers (Nelson & Sutton, 1990; Parkes, 1990). In a review provided by Semmer (1996), people who have the tendency to employ problem-focused coping tend to have better mental and physical health. Similar findings are obtained in Chinese societies. Siu (1999) found that control coping (e.g. plan ahead) was a predictor of job satisfaction, mental and physical well-being among blue-collar workers in China. In a study conducted in the PRC, Yu et al. (1998) reported that 'logic', a kind of problem-focused coping, was a predictor of job satisfaction and mental well-being. In Taiwan, Lu et al. (1999) demonstrated that the use of coping (control and seeking support) was positively related to job satisfaction and well-being.

Recently, it has been found that support coping (e.g. resort to hobbies and pastimes), also called life-work balance by Williams and Cooper (1998), is also a kind of coping strategy to tackle stress (Siu, 1999). As Greater China is a more collectivist society, it is expected that support coping would be more beneficial there. Therefore, we expect both control and support coping to have direct effects in the stress processes among managers in Greater China. That is, greater use of control and support coping will improve job satisfaction and well-being.

Coping has been found to be a stress moderator variable in Western societies. For instance, Cohen and Wills (1985) indicated that support buffers the impact of stressors on well-being. However, research on the role of coping as a stress moderator variable is relatively rare in Chinese societies. Lu et al. (1999) did not find any moderating effect of coping in the stress processes. We will investigate the moderating roles of control and support coping in the stress processes in Greater China.

DIRECT AND MODERATOR EFFECTS OF WORK LOCUS OF CONTROL

During the 1980s, locus of control (Spector, 1982, 1986) was theorised to be a good stress moderator. Work locus of control is a control-related personality variable that has been linked to job strains (Ganster & Fusilier, 1989; Sadri, Marcoulides, Cooper, & Kirkcaldy, 1996). As Spector and O'Connell (1994) defined it, work locus of control "is a personality variable that

concerns people's generalized expectancies that they can or cannot control reinforcements in their lives. People who hold expectancies that they control reinforcements are considered to be internals, and people who hold expectancies that outside forces or luck control reinforcements are considered to be externals" (p. 2). In a meta-analysis, Spector (1986) reported that there are correlations between perceptions of work control in general and job strains (job satisfaction, symptoms, and emotional distress). Likewise, work locus of control has been related to well-being, internals in general reporting better well-being than externals (Spector, 1982). The role of work locus of control as moderator of the stress-strain relationship has been demonstrated in various professions (Rahim, 1996; Roberts, Lapidus, & Chonko, 1997).

The direct and moderating effects of work locus of control have also been demonstrated in Chinese societies. In Hong Kong, it has been found that externals had lower job satisfaction and greater quitting intention among employees; and work locus of control moderated the stressor-strain relationships, in which a negative relationship between stressors and job satisfaction was found significant among externals (Siu & Cooper, 1998). In Taiwan, internal locus of control was found to be related to higher job satisfaction and better psychological well-being among industrial workers (Lu, Cooper, et al., 1997) as well as clinical nurses (Lu, Shiau, & Cooper, 1997). However, no stress moderating effect of internal control has been reported. We expect that work locus of control (externality) has the direct effect of lowering job satisfaction and well-being; and the moderating effect of intensifying the negative stressors–job satisfaction and stressor–well-being relationships among external managers in Greater China.

THE PRESENT STUDY

This study is part of the Collaborative International Study of Managerial Stress (CISMS). CISMS is a multinational study involving efforts by a group of international researchers from 24 countries. The purpose of the present study is to replicate the Western stress and well-being framework in Greater China, specifically to examine the direct and moderator effects of coping strategies (control and support coping) and work locus of control (externality) on the stress-strain relationships among managers in the PRC, Hong Kong, and Taiwan.

Hypotheses for the Study

Based on previous literature, a number of specific hypotheses for the study are proposed as follows:

Comparing Well-being and Job Satisfaction among Managers in Greater China.

Hypothesis 1. Taiwanese managers will report higher than the PRC and Hong Kong (which will not differ from one another) on job satisfaction and sources of stress, and Taiwan will be lower on well-being than the PRC and Hong Kong (which will not differ from one another).

Given some variability in economic context it might be expected that managers in the three Chinese societies would differ in their profiles of job pressures, well-being, and job satisfactions. The above hypothesis is based on Sparks et al.'s (1999) findings that developing nations scored the highest on sources of pressure, reported the worst mental and physical health but the greatest job satisfaction of the three economic groups (developed, developing, and under-developed). As mentioned earlier, Taiwan can be classified as a developing country, and it is expected that managers in Taiwan will perceive more sources of stress and score the lowest in mental and physical well-being, but highest in job satisfaction.

Relationship between Sources of Stress and Well-being and Job Satisfaction.

Hypothesis 2. Managers who score a higher level of sources of stress will report worse physical and mental well-being, and lower level of job satisfaction.

This is based on the research findings obtained in Western (e.g. Cooper et al., 1988) and Chinese (e.g. Lu et al., 1999; Siu, Cooper, & Donald, 1997; Yu et al., 1998) societies that sources of stress at work are negatively related to job satisfaction and well-being. We do not expect any difference in the stress–well-being or stress–job satisfaction relationships in the three societies.

Direct Effects of Coping Strategies.

Hypothesis 3. Managers who report more use of coping strategies (either control coping or support coping) will report higher job satisfaction, and better mental and physical well-being; and these relationships are more applicable to Hong Kong and Taiwanese managers who employ control coping.

This is based on the assumption that the use of coping can improve job satisfaction and reduce tension (e.g. Nelson & Sutton, 1990; Parkes, 1990). Nevertheless, there are cultural variations within the three Chinese societies. These may lead to variations in the prevalence of coping strategies and the role of coping in the stress process in Greater China. It is difficult to predict the differential role of control coping and support coping among managers in the PRC. In Chen's (1988) analysis, due to the macro-political environment

in China, people in the PRC are less inclined to depend on the role of friends in the social support network. We therefore expect that control coping (rather than support coping) will be, as found in previous literature (e.g. Yu et al., 1998), related to job satisfaction and well-being. However, since China is a more collectivist country than the other two Chinese communities, we might expect that support coping (which is a kind of social resource) will also have effects on well-being and job satisfaction. Taiwan is a rapidly industrialising society and individualism is more valued than in the past, therefore we expect that control coping will have more beneficial outcomes than support coping in the stress process among Taiwanese managers. As compared to China and Taiwan, Hong Kong is far more urbanised and Westernised. We therefore expect that, like the US samples, control coping among Hong Kong managers will have more direct effects on job satisfaction and well-being than support coping.

Direct Effects of Externality.

Hypothesis 4. Externals will report lower job satisfaction, and lower levels of well-being; and these relationships are more applicable to Hong Kong and Taiwanese managers.

This is based on the literature in Western (e.g. Spector, 1982; Ganster & Fusilier, 1989) and Chinese (e.g. Lu, Cooper et al., 1997; Lu, Shiau, & Cooper, 1997; Siu et al., 1998) societies that workers who believe that they have less control over work (externals) in general report worse well-being than internals. Spector, Cooper, Sanchez, O'Driscoll et al. (2002) studied work locus of control across 24 nations' samples. They found that Asian samples (Japan, Hong Kong, the PRC, and Taiwan) scored higher on externality than samples from a wide variety of regions around the world, including North and South America, and Eastern and Western Europe. Yet, due to economic and cultural variations within Greater China, we expect differential impacts of control on managers' well-being and job satisfaction in Greater China. As stated earlier, Hong Kong is highly urbanised and Westernised and Taiwan is a rapidly developing society. We expect the relationship to be stronger among Hong Kong and Taiwanese managers. We are less certain that results will be similar in the PRC.

Moderator Effects of Coping Strategies.

Hypothesis 5. Both forms of coping will moderate the relation between sources of stress and well-being in that the negative effects of stress on well-being will be greater when coping is low than when it is high. Furthermore, support coping will have more of a moderating effect for the PRC whereas control coping will have more of a moderating effect in Hong Kong and Taiwan.

This is based on the assumption that coping reduces the negative impact of job stressors on job strains. Since China is a more collectivist country, we expect support coping will be more likely to moderate the perception of stressors on well-being or job satisfaction among managers in the PRC. As argued earlier, Hong Kong and Taiwan are more urbanised and Westernised, and we expect control coping will be a significant stress moderator in the stress–well-being or stress–job satisfaction relationships among Hong Kong and Taiwanese managers.

Moderator Effects of Externality.

Hypothesis 6. Internal managers specifically in Hong Kong who perceive more sources of stress will report higher job satisfaction and better well-being than external managers.

This is based on the literature that internal locus of control is a positive buffer of stress-strain relationships. Work locus of control was found to be a stress moderator in Hong Kong (e.g. Siu & Cooper 1998), but no evidence of the moderating role of work locus of control was found in Taiwan or China. Moreover, Hong Kong is a more an individualistic society like the US. Hence we expect the moderating effect of externality to be more prevalent in the Hong Kong sample.

METHODS

A self-administered questionnaire survey method was used to collect data.

Sample

China. The sample in China was drawn from an institute of shipping manufacturing company and a large state-owned tractor plant. The former included 120 managers, the latter 300 managers. Each of the managers identified was sent an anonymous questionnaire by the unit's personnel division and asked to return it in a prepaid envelope. A total of 249 questionnaires were returned, of which 82 were from the institute, and 167 from the plant. The response rate was 68.33 per cent and 55.67 per cent, respectively, and the total response rate was 59.29 per cent. The survey in the tractor plant was conducted in November 1996, and the managers in the institute were surveyed in April 1997.

Hong Kong. The data collection in Hong Kong occurred from March to May 1997, and was drawn from three groups ('Garment and Footwear', 'Finance, Insurance and Real Estate', and 'Industrial, Commercial and

Trading Services') in the *Members' Business Directory of the Chinese General Chamber of Commerce 1997* by a random sampling method. The return rate of this mail survey was 22.4 per cent, and 93 managers were successfully recruited. The low response rate was attributed to the incomplete questionnaires and the closing down of several units in the 'Garment and Footwear' industry.

Some other managers participating in the study were recruited from employed students who were taking part-time courses at universities in Hong Kong, and from five other firms. A total of 187 managers were successfully recruited with response rates ranging from 20 per cent to 100 per cent. The total number of respondents in Hong Kong was 280 (93 + 187), with a total response rate of 54.5 per cent.

Taiwan. The data collection in Taiwan was conducted from December 1996 to July 1997. Participants were contacted through (1) social organisations such as the Rotary Clubs ($N = 125$), (2) commercial associations such as the Associations of the Import and Export Dealers ($N = 125$), (3) educational classes offered to managers by universities in Taiwan ($N = 52$), (4) personal networks ($N = 51$). By discarding the incomplete ones, the final sample consisted of 347 managers who were all based in central and southern Taiwan, making a response rate of 98 per cent.

Instrument

The reliability and validity of the scales of the OSI measuring job satisfaction, mental and physical well-being, and sources of stress have been demonstrated in previous studies in Western (Bogg & Cooper, 1995; Rees & Cooper, 1991; Robertson et al., 1990; Williams & Cooper, 1996) and Chinese societies (Siu, Cooper, & Donald, 1997; Lu, Cooper et al., 1997; Siu & Cooper, 1998). Five scales of the shortened and revised version of the OSI (Williams & Cooper, 1996) were used in the questionnaire. Recently, Williams and Cooper (1998) have concluded that their Pressure Management Indicator, which consists of these five scales, is a standardised, reliable, compact, and comprehensive second-generation instrument. A detailed description of the questionnaire is presented below:

Section 1—Job Satisfaction (12 items measuring Job itself and the Organisation; high scores indicate greater satisfaction); Section 2A—Mental well-being (12 items measuring Contentment, Resilience, and Peace of Mind; high scores denote greater well-being); Section 2B—Physical well-being (6 items measuring Calmness and Energy; high scores indicate better physical health); Section 4—Sources of Stress (40 items measuring workload, relationships, home/work balance, managerial role, personal responsibility, hassles, recognition, and organisation climate; high scores indicate

more sources of stress); and Section 5—Coping Strategies (6 items measuring control coping, 4 items measuring support coping; high scores denote more frequent use of coping strategies).

Spector's (1988) Work Locus of Control Scale was used to measure locus of control. It consists of 8 items measuring "internal" and 8 items measuring "external" control over work specific issues (high scores indicate externality).

Single items were included to measure level in the organisation (low score denotes high position), organisation tenure, age, gender, and marital status.

The questionnaire was originally written in English. All of the items in the questionnaire were translated into Chinese by one Chinese author in the PRC, Hong Kong, and Taiwan independently and back-translated into English by professional translators to assure equivalence. Words that were improperly translated were retranslated and retested until the Chinese version matched the original English.

ANALYSIS AND RESULTS

Sample Distribution

Table 1 shows some of the demographic characteristics for the three samples from Greater China. Concerning gender, there are more males than females

TABLE 1
Sample Distributions in Greater China

| | <i>China</i> (N = 249) | | <i>Hong Kong</i> (N = 280) | | <i>Taiwan</i> (N = 347) | |
|--|---------------------------|------|-------------------------------|------|----------------------------|------|
| | N | % | N | % | N | % |
| <i>Gender</i> | | | | | | |
| Male | 164 | 65.9 | 159 | 57.0 | 191 | 55.8 |
| Female | 85 | 34.1 | 120 | 43.0 | 151 | 44.1 |
| <i>Marital status</i> | | | | | | |
| Married | 231 | 92.8 | 132 | 47.3 | 254 | 73.2 |
| Single | 14 | 5.6 | 138 | 49.5 | 86 | 24.8 |
| Others (divorced, separated, cohabiting) | 4 | 2.6 | 9 | 3.2 | 7 | 2.0 |
| <i>Job level</i> | | | | | | |
| Top Management | 14 | 5.6 | 48 | 17.1 | 60 | 17.4 |
| Senior Management | 15 | 6.0 | 43 | 15.4 | 39 | 11.3 |
| Middle Management | 100 | 40.2 | 91 | 32.5 | 86 | 25.0 |
| Junior Management | 74 | 29.7 | 90 | 32.1 | 159 | 46.2 |
| Others | 46 | 18.5 | 8 | 2.9 | 0 | 0.0 |

in the China sample; whereas there is virtually no gender difference in the other two samples. As far as marital status is concerned, there are more married managers than their single counterparts in the China and Taiwan samples; but there is no difference in marital status in the Hong Kong sample. In all of the three samples, the majority of the respondents are in middle and junior management level. The respective mean age of the China, Hong Kong, and Taiwan sample is 39.3, 34.61, and 37.87 years old. These differential age patterns might help to explain the differences in tenure in the three groups, where the tenure of the China sample is the longest (mean = 15.9 years), and that of the Hong Kong sample is the shortest (mean = 7.1 years). The average tenure of the Taiwan sample is 10.2 years. Nevertheless, in strong economic times, Hong Kong people tend to job hop very frequently, and this may also be true in China.

Reliability of Scales

Table 2 depicts the reliability alphas, number of items, and range of main variables in the study. It seems that the internal consistencies were maintained across most translations. These provide evidence of scale equivalence of measures across cultural groups (Riordan & Vandenberg, 1994). However, the 4-item "support coping" scale had internal consistency that was below the generally accepted minimum in the PRC and Taiwan samples (Nunnally, 1978). In fact, this has been a problem in the past. Some individual differences measures of the OSI are criticised as problematic in the UK and US studies, including coping strategies (e.g. Kirkcaldy, Cooper, Eysenck, & Brown, 1994). Furthermore, the alphas for mental well-being and work locus of control in the PRC sample also fell below the alpha of 0.70 recommended by Nunnally. But we assume that these are borderline reliabilities.

Since there are gender differences in the sample distribution in the China group, a number of *t*-tests were conducted to see if there was any difference in any of the main variables between genders. The results showed that there was only a marginal difference in work locus of control, with females scoring higher in externality than males ($t [1,2] = -1.99, P < 0.05$). As there were more married managers in the China and Taiwan samples, a number of *t*-tests were also conducted to see if there was any difference in any of the main variables between married and single managers. There was no difference in any of the main variables in the China sample, but married managers had higher job satisfaction ($t [1,2] = 2.99, P < 0.01$), better mental well-being ($t [1,2] = 3.35, P < 0.001$), and physical well-being ($t [1,2] = 3.51, P < 0.001$), and used more control coping ($t [1,2] = 2.63, P < 0.01$) than single managers in the Taiwan sample. Therefore the results obtained from the Taiwanese managers should be interpreted with caution.

TABLE 2
Reliability Alphas of Main Variables in the Study

| <i>Variable</i> | <i>n</i> | <i>China</i> | | | | <i>Hong Kong</i> | | | | <i>Taiwan</i> | | | |
|----------------------------------|----------|--------------|-----------|--------------|--------------|------------------|-----------|--------------|--------------|---------------|-----------|--------------|--------------|
| | | <i>Mean</i> | <i>SD</i> | <i>Range</i> | <i>Alpha</i> | <i>Mean</i> | <i>SD</i> | <i>Range</i> | <i>Alpha</i> | <i>Mean</i> | <i>SD</i> | <i>Range</i> | <i>Alpha</i> |
| Sources of Stress | 40 | 136.37 | 24.71 | 70–219 | 0.88 | 153.32 | 25.34 | 40–236 | 0.93 | 159.00 | 24.69 | 67–218 | 0.94 |
| Job Satisfaction | 12 | 44.67 | 10.65 | 16–70 | 0.83 | 42.77 | 9.70 | 13–68 | 0.91 | 47.42 | 9.24 | 22–71 | 0.92 |
| Mental Well-being | 12 | 48.04 | 8.59 | 27–72 | 0.62 | 46.44 | 8.76 | 22–71 | 0.84 | 47.62 | 8.47 | 21–71 | 0.81 |
| Physical Well-being | 6 | 24.24 | 5.48 | 12–36 | 0.72 | 22.91 | 4.90 | 7–34 | 0.74 | 25.14 | 5.49 | 11–36 | 0.82 |
| Control Coping | 6 | 23.30 | 4.14 | 7–35 | 0.71 | 25.26 | 4.30 | 6–36 | 0.82 | 26.86 | 3.52 | 14–36 | 0.79 |
| Support Coping | 4 | 14.59 | 3.24 | 6–23 | 0.60 | 15.78 | 3.18 | 4–24 | 0.68 | 16.68 | 2.61 | 8–24 | 0.51 |
| Work Locus of Control (external) | 16 | 53.62 | 8.57 | 23–80 | 0.66 | 47.88 | 9.02 | 20–72 | 0.78 | 49.67 | 5.78 | 29–72 | 0.73 |

Note: *n* = number of items.

TABLE 3
Comparisons of Means of Main Variables

| | <i>Mean</i> | | | <i>F-ratio</i> |
|-------------------------------------|---------------------|---------------------|---------------------|----------------|
| | <i>China</i> | <i>Hong Kong</i> | <i>Taiwan</i> | |
| Sources of Stress | 136.36 ^a | 153.32 ^b | 159.00 ^c | 60.770*** |
| Mental Well-being | 48.96 ^a | 46.44 ^b | 47.62 ^{ab} | 5.55** |
| Physical Well-being | 24.24 ^a | 22.91 ^b | 25.14 ^a | 13.52*** |
| Control Coping (high score is more) | 23.30 ^a | 25.26 ^b | 26.86 ^c | 58.27*** |
| Support Coping (high score is more) | 14.59 ^a | 15.78 ^b | 16.68 ^{ab} | 35.19*** |
| Job Satisfaction | 44.67 ^a | 42.77 ^a | 47.42 ^b | 16.63*** |
| Work Locus of Control | 53.62 ^a | 47.88 ^b | 49.67 ^b | 66.77*** |

Note: ** $P \leq 0.01$; *** $P \leq 0.001$.

Superscript letters a–c indicate significant differences among means as indicated with Scheffe tests.

Testing Hypotheses

Comparing Main Variables between Three Chinas. A series of one-way analyses of variance (ANOVA) with Post Hoc Multiple Comparison-Scheffe tests were conducted to compare the main variables in the study between the three samples of managers. Table 3 shows that Hong Kong and Taiwan managers reported significantly more sources of stress than China managers; but Taiwan managers reported significantly more sources of stress than Hong Kong managers.

Table 3 also shows that Hong Kong managers reported lower job satisfaction, and worse mental and physical well-being than the other two samples. Further, Taiwanese managers reported significantly higher job satisfaction than Chinese managers, but there was no significant difference in mental and physical well-being between them. Therefore, Hypothesis 1 was partially supported.

Concerning coping strategies, Taiwanese managers reported more use of coping (in particular control coping) than Hong Kong managers; and they reported significantly more often use of coping strategies than Chinese managers. The results depicted in Table 3 show that both Taiwanese and Hong Kong managers are of higher internality than Chinese managers; yet there was no significant difference in internality between Hong Kong and Taiwanese managers.

Stress-Strain Relationships. Table 4 shows that sources of stress were negatively related to job satisfaction (except the China group), and mental and physical well-being in Greater China. Therefore Hypothesis 2 was partially supported.

TABLE 4
Intercorrelations between Main Variables

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|--------------------------|----------------------|-------------------|--------------------|---------|----------|-------|---|
| <i>China</i> | | | | | | | |
| 1. Sources of Stress | 1 | | | | | | |
| 2. Job Satisfaction | -0.10 | 1 | | | | | |
| 3. Mental Well-being | -0.21*** | 0.29*** | 1 | | | | |
| 4. Physical Well-being | -0.18** | 0.00 | 0.31*** | 1 | | | |
| 5. Control Coping | 0.28*** ^t | 0.05 ^t | 0.13* ^t | -0.00 | 1 | | |
| 6. Support Coping | 0.15* | 0.05 | 0.08 | 0.05 | 0.52*** | 1 | |
| 7. Work Locus of Control | 0.14* | -0.28*** | -0.14* | 0.01 | -0.09 | 0.14* | 1 |
| <i>Hong Kong</i> | | | | | | | |
| 1. Sources of Stress | 1 | | | | | | |
| 2. Job Satisfaction | -0.23*** | 1 | | | | | |
| 3. Mental Well-being | -0.24*** | 0.42*** | 1 | | | | |
| 4. Physical Well-being | -0.18** | 0.20*** | 0.39*** | 1 | | | |
| 5. Control Coping | 0.03 | 0.26*** | 0.33*** | 0.16** | 1 | | |
| 6. Support Coping | 0.16** | -0.10 | -0.04 | -0.01 | 0.38*** | 1 | |
| 7. Work Locus of Control | 0.20** | -0.40*** | -0.33*** | -0.14* | -0.15* | -0.04 | 1 |
| <i>Taiwan</i> | | | | | | | |
| 1. Sources of Stress | 1 | | | | | | |
| 2. Job Satisfaction | -0.20*** | 1 | | | | | |
| 3. Mental Well-being | -0.33*** | 0.30*** | 1 | | | | |
| 4. Physical Well-being | -0.18** | 0.24*** | 0.59*** | 1 | | | |
| 5. Control Coping | 0.07 | 0.21*** | 0.21*** | 0.12* | 1 | | |
| 6. Support Coping | 0.04 | -0.00 | -0.03 | -0.03 | 0.40*** | 1 | |
| 7. Work Locus of Control | 0.03 | -0.26*** | -0.24*** | -0.17** | -0.20*** | -0.01 | 1 |

Note: * $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.

^tcorresponding correlations significantly different using a chi square test for independent samples at $P < 0.05$.

Direct Effects of Coping. A series of correlational analyses were conducted to test the direct effects of coping on stress outcomes (see Table 4). Table 4 shows that in both Hong Kong and Taiwan samples, managers who reported more frequent use of control coping would report higher job satisfaction and better mental and physical well-being. In the China sample, “control coping” was marginally and positively related to mental well-being. Yet support coping had no direct effect on job satisfaction or well-being in any of the three groups. Therefore Hypothesis 3 was partially supported.

Direct Effects of Externality. Table 4 also shows the correlational analyses of the direct relations of external locus of control on stress outcomes. In all of the three samples of managers, external work locus of control was negatively related to job satisfaction and mental well-being. Yet externality in locus of control was only statistically negatively related to physical

well-being in Taiwanese managers. Therefore Hypothesis 4 was supported for two of the three well-being measures, and partially supported for the third.

Moderator Effects of Coping Strategies. In order to test the moderator effects of control coping in the sources of stress–job satisfaction and sources of stress–well-being relationships, a hierarchical regression procedure (Cohen & Cohen, 1983; Stone & Hollenbeck, 1989) was used to demonstrate the statistical significance and form of the main and interaction terms. By controlling the effects of demographic factors, the following were entered in a hierarchical regression: Step 1: age, gender, marital status, and tenure; Step 2: sources of stress, control coping; Step 3: sources of stress \times control coping. These procedures were repeated using support coping as moderator.

Support coping was found to be a moderator of the relationships between sources of stress and physical well-being in the China and Hong Kong samples (see Fig. 1 and Tables 5 and 6). Fig. 1 shows that the relationship between work stress and physical well-being was positive among managers in China and Hong Kong who employed more support coping. Nevertheless, neither control coping nor support coping was a moderator of stress in the Taiwan sample. Therefore Hypothesis 5 was only partially supported.

TABLE 5
Hierarchical Regression Analysis with Support Coping as
Moderator in the China Sample

| | <i>Physical Well-being</i> | | |
|---|----------------------------|----------|----------|
| | <i>B</i> | <i>B</i> | <i>B</i> |
| Step 1: Age | 0.03 | 0.04 | 0.06 |
| Gender | 0.91 | 1.05 | 0.95 |
| Marital status | 0.22 | -0.02 | -0.38 |
| Tenure | 0.01 | 0.01 | -0.01 |
| Step 2: Sources of Stress | | -0.05** | -0.21*** |
| Support Coping | | 0.12 | -1.59** |
| Step 3: Sources of Stress \times Support Coping | | | 0.01*** |
| R^2 | 0.014 | 0.05 | 0.10 |
| ΔR^2 | – | 0.09 | 0.05 |
| <i>F</i> | 0.85 | 2.30* | 3.79*** |
| Constant | 21.99*** | 26.32*** | 49.13*** |

Note: For gender, male = 1, female = 0.

For marital status, married = 1, single = 0.

B = estimated regression coefficient.

* $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.

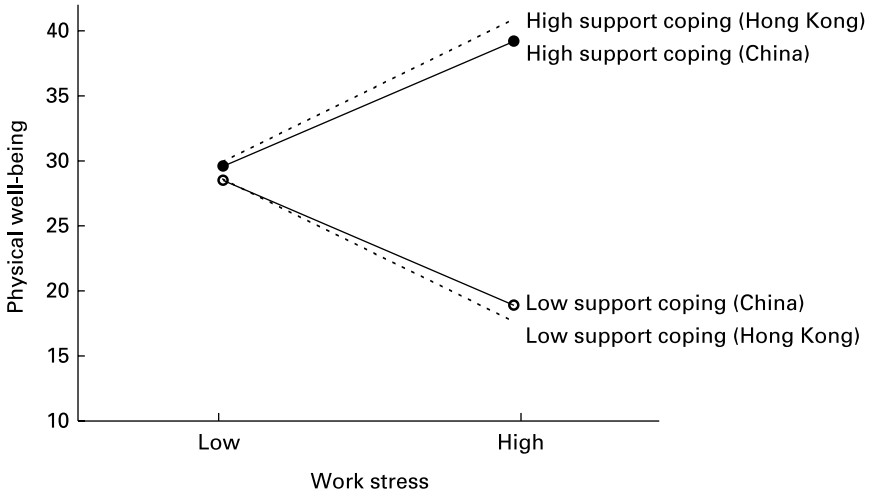


FIGURE 1. The moderating effect of support coping on work stress–physical well-being nexus in China and Hong Kong.

TABLE 6
Hierarchical Regression Analysis with Support Coping as
Moderator in the Hong Kong Sample

| | | <i>Physical Well-being</i> | | |
|---------|------------------------------------|----------------------------|----------|----------|
| | | <i>B</i> | <i>B</i> | <i>B</i> |
| Step 1: | Age | 0.16*** | 0.16*** | 0.15** |
| | Gender | 1.86** | 1.35* | 1.39* |
| | Marital status | -0.49 | -0.69 | -0.55 |
| | Tenure | -0.01 | 0.01 | -0.00 |
| Step 2: | Sources of Stress | | -0.02 | -0.15** |
| | Support Coping | | 0.14 | -1.16* |
| Step 3: | Sources of Stress × Support Coping | | | 0.01* |
| | R^2 | 0.16 | 0.16 | 0.19 |
| | ΔR^2 | – | 0.00 | 0.03 |
| | F | 11.21*** | 6.89*** | 6.96*** |
| | Constant | 16.59*** | 18.27*** | 38.08*** |

Note: For gender, male = 1, female = 0.

For marital status, married = 1, single = 0.

B = estimated regression coefficient.

* $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.

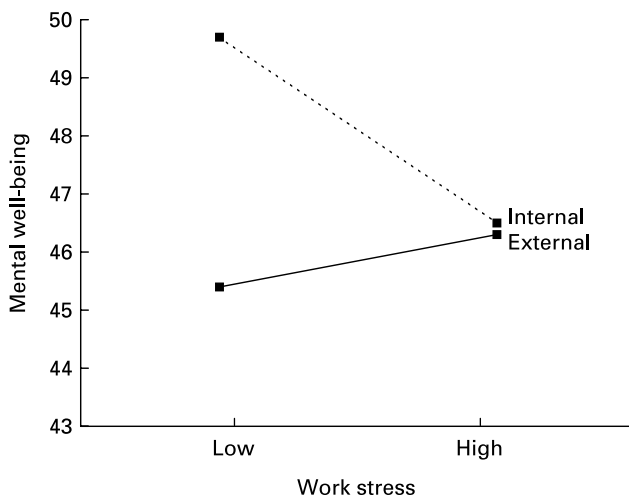


FIGURE 2. The moderating effect of work locus of control on work stress-mental well-being nexus in Taiwan.

TABLE 7
Hierarchical Regression Analysis with Work Locus of Control as Moderator
in the Taiwan Sample

| | | <i>Mental Well-being</i> | | |
|---------|---|--------------------------|----------|----------|
| | | <i>B</i> | <i>B</i> | <i>B</i> |
| Step 1: | Age | 0.18* | 0.14 | 0.16 |
| | Gender | -0.80 | -0.26 | -0.23 |
| | Marital status | 2.29 | 3.61** | 3.61** |
| | Tenure | 0.01 | -0.01 | -0.01 |
| Step 2: | Sources of Stress | | -0.11*** | 0.28 |
| | Work Locus of Control | | -0.28*** | -1.28* |
| Step 3: | Sources of Stress × Work Locus of Control | | | 0.01* |
| | R^2 | 0.06 | 0.22 | 0.23 |
| | ΔR^2 | - | 0.16 | 0.01 |
| | F | 4.28** | 11.03*** | 10.13*** |
| | Constant | 39.37*** | 39.98*** | -22.89 |

Note: For gender, male = 1, female = 0.

For marital status, married = 1, single = 0.

B = estimated regression coefficient.

* $P \leq 0.05$; ** $P \leq 0.01$; *** $P \leq 0.001$.

Moderator Effects of Work Locus of Control. A hierarchical regression procedure (Cohen & Cohen, 1983; Stone & Hollenbeck, 1989) was also used to demonstrate the statistical significance and form of the main and interaction terms using work locus of control (externality) as moderator by controlling demographic factors. The following were entered in a hierarchical regression: Step 1: age, gender, marital status, and tenure; Step 2: sources of stress, work locus of control; Step 3: sources of stress \times work locus of control. Externality in locus of control was found to be a positive buffer of mental well-being in the Taiwan sample only (see Fig. 2 and Table 7). Fig. 2 shows that the relationship between work stress and mental well-being was positive among external managers in Taiwan. Nevertheless, externality in locus of control was not a moderator of any of the sources of stress-strain relationships in the China or Hong Kong sample. Therefore Hypothesis 6 was only partially supported in Taiwan.

DISCUSSION

Managerial Stress in Greater China

It was found in managers in Greater China that, in general, sources of stress was negatively related to job satisfaction, mental and physical well-being (see Table 4). These results corroborated previous studies in Western and Chinese studies (e.g. Bogg & Cooper, 1995; Robertson et al., 1990; Sauter & Murphy, 1995; Siu, Cooper, & Donald, 1997; Yu et al., 1998).

In comparing the level of perceived sources of stress among managers in Greater China, as expected, Taiwanese managers reported that they perceived more sources of stress. This can be attributed to the fact that Taiwan is a developing, industrialising, and technological country; and in most Taiwanese organisations traditional authoritarian rather than democratic, and paternalistic rather than egalitarian, culture prevails (Lu et al., 1999). In this sample of Taiwanese managers, because a majority are in junior management levels (see Table 1), they might have perceived the non-participative management style from the top management, which led to a higher level of sources of stress than their counterparts in Hong Kong and China. As Jamal and Xie (1991) found from a study of 300 managers and workers in Beijing and Wuhan, respondents who saw their superiors as participative reported more satisfaction, more job involvement, and less role stress.

Hong Kong is a financial center in the world and is very densely populated with a lot of daily hassles. Therefore, as expected, the results showed that Hong Kong managers perceived more sources of stress than their counterparts in China.

Even though the Chinese managers perceived the lowest level of sources of stress in this study, workplace stress has recently received attention from

managerial executives in China as well. China is undergoing enormous economic and social changes, with the transformation of its industrial structure from being labor-intensive to highly technological. However, organisational and management processes are still conducted in very autocratic ways, such as decision making behind closed doors, top-down communications, and emphasis on policy implementation rather than employee consultations. All these features inherent in China's organisations and management processes may lead to heavier psychological workload and lower decision latitude. Yet, China is more collectivist, so a certain amount of autocratic management is accepted, or even expected, by managers because authoritarian control is a legitimate paternal attribute. Therefore managers in the PRC perceived less pressure than Taiwanese managers, even though the managers in both places might have perceived autocratic management as a source of stress.

One thing to keep in mind about the sources of pressure scales is that they ask the respondents to indicate the extent to which each item is a source of pressure, so they are really post appraisal. They are not exactly job stressors because they ask the respondents the extent to which they produce strain (that is pressure). It is possible that the effects of coping and personality (locus of control) are hidden, as successful coping or internality in locus of control will produce a report of little pressure (as well as there being low levels of stressors). High pressure implies lack of good coping or externality of locus of control and therefore a high level of job stressors. These will be discussed in more detail in the next section.

Concerning personal health, Hong Kong managers scored statistically significantly lower in mental well-being and physical well-being than Chinese managers (see Table 3). Perhaps this is the price of working in an affluent society, as suggested by Sparks et al. (1999), that Hong Kong managers are under greater stress than managers in China.

Direct and Moderator Effects of Coping and Work Locus of Control

Role of Coping Strategies. The positive direct effects of control coping on job satisfaction and well-being were demonstrated across the three samples. These results corroborated previous studies (e.g. Cooper et al., 1988; Parkes, 1990). Taiwanese managers reported more frequent use of control coping and support coping than Hong Kong managers, and they reported more frequent use of these coping strategies than Chinese managers (see Table 3). These can be attributed to the fact that Taiwanese and Hong Kong managers perceived more sources of pressure that they need to employ more coping strategies in order to tackle stress. Furthermore, Hong Kong and Taiwan are more Westernised so, as expected, the managers there, like the US samples, adopt more control coping than managers in the PRC.

The results of the study also revealed that support coping was a moderator of the relationships between stressors and physical well-being for both Chinese and Hong Kong managers. The implication of these results is that it is advisable for Chinese and Hong Kong managers who perceive sources of stress at work to take the initiative to achieve more life-work balance by resorting to hobbies and pastimes and expand their interests and activities outside work, in order to achieve good physical health. The non-significant role of support coping in Taiwanese managers may be due to the poor reliability of this scale, which was lowest in the Taiwan sample (see Table 2).

Role of Work Locus of Control. The results of the present study show that external locus of control was negatively related to job satisfaction and mental well-being across the three samples of managers. These results corroborated previous studies (e.g. Ganster & Fusilier, 1989; Sadri et al., 1996).

Nonetheless, the present study did not provide strong support for the moderating effect of work locus of control. These results are different from a previous study conducted in Hong Kong (Siu & Cooper, 1998) and some studies conducted in Western societies (Rahim, 1996; Roberts et al., 1997). The moderating effects of external locus of control can only be found in the Taiwan sample: it was a positive buffer of stressor-mental well-being among Taiwanese managers. The autocratic style of management in Taiwanese organisations can be used again here as a possible explanation. If nothing drastic happens (when work stress is low), internal control may serve to safeguard one's personal confidence and psychological well-being. However, if work stress is high, preserving one's beliefs in personal control and actually striving for it, as people with internal control habitually do, internality in locus of control may be counterproductive in a paternalistic and autocratic work scene like that of Taiwan.

Limitations and Conclusions

It should be kept in mind that these data all came from a cross-sectional self-report design. One cannot draw causal conclusions, and there is the concern about possible percept-percept bias. Arguing against this possibility are the findings that about a third of the correlations across all three samples, as shown in Table 4, were non-significant. This suggests that there was not a pervasive underlying bias inflating these correlations. Of course, it is conceivable that there were biases that affected only certain variables, so one should be cautious in interpreting these data, as well as data from other studies using similar designs.

Our results showed some differences across our three Chinese samples, but to a great extent these results parallel those from Western countries such as the US. With the exception of job satisfaction in the PRC, sources of

stress related as expected with job satisfaction and job strains. With two exceptions (physical well-being in the PRC and job satisfaction in Taiwan), externality was associated with lower job satisfaction and higher strain. Some differences were found across the three Chinas in relations of coping with sources of stress and strains. Control coping showed smaller relations with sources of stress and stronger relations with strains in the more developed Hong Kong and Taiwan than in the PRC, but support coping showed little relation with sources of stress or strains. To date, there is no cross-national study on coping in Greater China. Replication of these findings is needed in order to draw more confident conclusions about differences among the three Chinas. Furthermore, as the results on the moderating effects of coping and work locus of control obtained are not so strong as found in previous studies, more studies should be conducted in Chinese societies in order to contribute to occupational health psychology literature.

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