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J.P. MAXWELL

The University of Hong Kong

Oi Ling SIU

Lingnan University, Hong Kong

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Recommended Citation

Maxwell, J. P., & Siu, O. L. (2008). The Chinese Coping Strategies Scale: Relationships with aggression, anger, and rumination in a diverse sample of Hong Kong Chinese adults. *Personality and Individual Differences*, 44(5), 1049-1059. doi: 10.1016/j.paid.2007.10.006

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The Chinese Coping Strategies Scale: Relationships with aggression, anger, and rumination in a diverse sample of Hong Kong Chinese adults

J.P. Maxwell ^a, O.L. Siu ^b

^a *Institute of Human Performance, University of Hong Kong, Pokfulam, Hong Kong*

^b *Department of Sociology and Social Policy, Lingnan University, Tuen Mun, Hong Kong*

Abstract

The intensity of angry emotions, frequency of vengeful cognitions, and propensity for aggressive behaviours are likely influenced by the types of coping strategies adopted by the individual. There is a paucity of research in Chinese populations examining the strength of the relationships amongst these variables. Therefore, a cross-sectional survey of Chinese adults was conducted. Participants (N = 630) completed several questionnaires related to anger, aggression, rumination, and coping strategies. Results suggest that an active coping strategy is moderately effective for the control of anger ($r = .20$), aggression ($r = .13$ to $.23$), and vengeful thinking ($r = .22$). In addition, males scored lower than females for measures of active coping (Cohen's $d = .30$) and social support ($d = .43$), but higher for measures of physical aggression ($d = .40$), and anger rumination ($d = .31$ – $.57$). Active coping appears to be the best strategy to adopt for the control of anger and aggression, but is contrary to some common philosophical traditions used in Chinese populations.

Keywords

Anger; Aggression; Coping; Rumination; Chinese

Introduction

Negative emotional and behavioural outcomes are a possible consequence of stress (Lazarus & Lazarus, 1994). A person's ability to avoid negative emotions depends, in part, on his or her ability to cope effectively with stress. Coping consists of "cognitive and behavioural efforts to master, reduce or tolerate the internal or external demands that are created by the stressful transaction" (Folkman, 1984, p. 843). Lazarus and Folkman (1984) proposed two types of coping: problem-focused coping (i.e., active coping: taking constructive and direct approaches to solving problems, such as defining the problem) and emotion-focused coping (i.e., avoidant, social, or passive coping: taking steps to mitigate the emotional response to problems, such as avoidance or seeking emotional support). Active coping and social support have been associated with ameliorative effects on health problems normally resulting from psychological trauma or stress; avoidant or passive coping, on the other hand, has been linked to a number of poor health outcomes in a number of diverse populations (e.g., Billings & Moos, 1984; Chan et al., 2006; Hart, Wearing, &

Headey, 1995). For example, in a sample of HIV-infected persons in Hong Kong, Chan et al., found that active coping (positive thinking) was indicative of better psychological health than was avoidance, which was associated with higher levels of anxiety. It appears that the Chinese are more likely to adopt an emotion-focused (or passive) coping strategy, based on culturally specific norms of behaviour, than are the majority of Westerners (e.g., Molassiotis, Callaghan, Twinn, & Lam, 2001; Spector, Sanchez, Siu, Salgado, & Ma, 2004). For instance, Spector et al. (2004) found that primary (active) coping strategies were most effective for alleviating stress in a sample of Hong Kong Chinese workers, but, also demonstrated that secondary (emotion-focused or passive) coping strategies were also effective, but to a lesser degree. The latter finding is consistent with the traditional Chinese philosophy of Tao, which has the basic tenets of dao (way) and wuwei (non-intervention). This philosophy advocates following the way of nature and not letting ambition lead to unrealistic effort. The Chinese Culture Connection (1987) identified another important social virtue of Confucianism as "forbearance", which advocates taking control of one's emotions (e.g., anger) or other psychological impulses. The ultimate goal of forbearance is to maintain harmonious relationships in stressful situations, such as avoiding interpersonal conflict. Yet, forbearance may have negative consequences for health and well-being. Instead of venting anger, one may bear negative emotions internally, and eventually, feel anxious, worried or develop a sense of despair (Fernandez-Ballesteros, Ruiz, & Garde, 1998). Unfortunately, the possibility of integrating such Taoist and Confucian philosophies with mainstream psychology has been largely overlooked. In a three-phase study using Chinese adults from Hong Kong, Taiwan, and mainland China, Siu, Spector, and Cooper (2006) demonstrated that coping strategies typically utilized by the Chinese could be classified into four basic styles: active positive coping, passive adaptive coping, social support, and hobbies/relaxation. Active coping referred to engaging in positive steps to resolve a problem or maintaining a positive frame of mind. Passive adaptive coping denoted accepting the reality of the situation and letting fate have its way, a construct that was designed to be consistent with Taoist philosophy. Social support and relaxation/hobbies signified talking to family and friends or engaging in distracting activities, respectively. Active positive coping, social support, and hobbies/relaxation had a beneficial impact on work well-being (job satisfaction, 1050 J.P. Maxwell, O.L. Siu / Personality and Individual Differences 44 (2008) 1049–1059 physical and behavioural symptoms of ill-health), whereas passive adaptive coping had a relatively maladaptive effect. Therefore, behaviours based on Taoist beliefs could be criticized as rather unrealistic, escapist or passive; bringing their adoption into question. It is believed that the intensity of angry emotions, frequency of vengeful cognitions, and propensity for aggressive behaviours are also likely influenced by the types of coping strategies adopted by the individual (e.g., Spielberger, 1999). Chinese culture typically disapproves of extreme emotional expression, such as the expression of anger through aggressive behaviour, because extreme emotions are seen as pathogenic, disrupting the body's natural harmony (Chen, Cheung, Bond, & Leung, 2005). Thus, it is possible that a passive style of coping, or engagement in physical activity to vent angry

emotions (i.e., catharsis; Freud, 1920/1959), may be desirable when coping with threat or provoked anger, rather than an active, possibly confrontational coping style. However, research on coping with anger, anger rumination and aggression in Chinese societies is rare. Studies examining anger in Chinese culture have generally found results that are consistent with findings from Western cultures, but with some important idiosyncrasies. For example, Eid and Diener (2001) reported lower frequency and intensity of anger in Chinese relative to Americans and Australians, partially supporting the common belief that the Chinese tend to restrain their emotions. In addition, Bishop and Quah (1998) reported significantly lower hostility for Chinese as measured by the Buss–Durkee Hostility Inventory (Buss & Durkee, 1957). Maxwell and colleagues found a higher tendency to ruminate about anger experiences (a maladaptive coping strategy) in Hong Kong Chinese relative to British participants (Maxwell, Moores, & Chow, 2007; Maxwell, Sukhodolsky, Chow, & Wong, 2005), but a slightly lower tendency to express anger as aggression (Maxwell, 2007). However, it remains unclear which coping strategies, typically adopted by the Chinese, are effective for controlling anger and aggression. Therefore, in this study we examined the relationships amongst coping, anger, aggression, and rumination in a sample of Hong Kong Chinese males and females. It was predicted that males would demonstrate higher levels of physical aggression and anger rumination than females, consistent with previous research examining Chinese populations (Maxwell, 2007; Maxwell et al., 2005). No gender differences were expected for anger, hostility, or verbal aggression (Maxwell, 2007). Gender differences for the coping scale were not reported in previous research (Siu et al., 2006), but based on the general coping literature females were expected to report higher scores than males for active coping, passive coping, and social support, but not relaxation/hobbies. In addition to coping, anger, and aggression measures, amount of physical activity in the previous week was also measured. This variable was expected to correlate only with relaxation/hobbies.

Method

Participants

Community residents (N = 630 following deletion of cases with missing data, <5%) were recruited from diverse geographical regions in Hong Kong (e.g., Kowloon Peninsula, Victoria Island, and New Territories). The sample consisted of 356 males and 274 females, aged from 16 J.P. Maxwell, O.L. Siu / *Personality and Individual Differences* 44 (2008) 1049–1059 1051 to 75 (M = 29.15, SD = 12.46). The majority of participants had low income (i.e., <HK\$ 20,000 \ per month; n = 447), the remainder had moderate to high incomes (i.e., HK\$ 20,001 to 60,000 +). Approximately half of the sample were educated at the Bachelor level or higher (n = 338) with the remainder having completed at least a secondary education (i.e., completed the mandatory nine years of formal education currently imposed in Hong Kong). Participation was anonymous and voluntary; participants provided informed consent. Ethical approval was granted by the institutional Human

Research Ethics Committee.

Measures

Chinese Coping Strategies Scale (Chinese-CS). Siu et al. (2006) constructed the Chinese-CS to assess styles of coping used most frequently in work based situations by Chinese adults. Scale items were developed via structured interviews, in which respondents were asked to describe how they coped with a recent stressful event. Coping strategies were then derived from the list of responses. Four basic categories were produced: Active Coping (e.g., "Evaluate what has gone wrong"), Social Support (e.g., "Discuss with your colleagues"), Passive Coping (e.g., "Let fate have its way"), and Relaxation/Hobbies (e.g., "Do physical exercise"). Subsequent exploratory and confirmatory analyses revealed a 12 item scale that represented all of the four derived categories. Responses were made on a six-point scale (1 = never to 6 = very often). Weak negative correlations were found with behavioural and physical symptoms of stress (suggesting that coping style effectively reduced these symptoms), except for Passive Coping which was positively related to symptom intensity. Internal reliability for all four subscales was adequate (Cronbach's alpha ranged from .67 to .78). Internal reliabilities for the scale in the current study were also generally adequate (Active Coping = .82; Social Support = .51; Relaxation/Hobbies = .28; Passive Coping = .88), but were quite low for Social Support, and Relaxation/Hobbies; both of these subscales contain only two items.

Chinese Aggression Questionnaire (Chinese-AQ). The Buss Perry Aggression Questionnaire (BPAQ; Buss & Perry, 1992) is a 29-item scale that purports to measure four aspects of human aggression: Physical Aggression, Verbal Aggression, Anger, and Hostility. The BPAQ was translated and validated in a Cantonese speaking population (Maxwell, 2007). The full 29-item version failed to replicate, as indicated by poor fit indices derived from structural equation modeling (SEM); however, support was found for the validity of Bryant and Smith's (2001) abridged (12 item) version of the BPAQ. Fit indices were uniformly high over three separate samples suggesting factorial stability in the Cantonese version (e.g., $\chi^2(48) = 79.79$, SRMR = .05, RMSEA = .04 (90% CI = .03-.06), CFI = .96; Maxwell, 2007). In addition, correlations between responses made by the same individuals to Cantonese and English versions of the scale were high ($r = .73-.78$), adding support to the linguistic parity between the Cantonese and English versions (Maxwell, 2007). Responses were made on a five point scale ranging from 1 (extremely uncharacteristic of me) to 5 (extremely characteristic of me). In the current study, internal reliabilities for the four subscales were acceptable (Physical Aggression = .78; Verbal Aggression = .77; Anger = .63; Hostility = .49).

Chinese Anger Rumination Scale (Chinese-ARS). The ARS (Sukhodolsky, Golub, & Cromwell, 2001) was devised to measure individuals' tendency to focus attention on angry moods, recall past anger experiences, and think about the causes and consequences of anger episodes (Sukhodolsky 1052 J.P. Maxwell, O.L. Siu / Personality and Individual Differences 44 (2008) 1049-1059 et al., 2001). The 19-item ARS consists of four subscales: Angry Afterthoughts, Thoughts of Revenge, Angry Memories, and Understanding of Causes.

Participants responded to questions, such as “I have long living fantasies of revenge after the conflict is over” and “I ruminate about my past anger experiences”. High scores on the scale are purported to indicate a greater propensity towards anger rumination. The English language version of the ARS has high internal reliability ($\alpha = .93$) and good test–retest reliability ($r = .77$) over a one-month period (Sukhodolsky et al., 2001). The Chinese language versions of the ARS revealed the same factor structure ($\chi^2(144) = 395.72$, SRMR = .06, RMSEA = .06, CFI = .88) and internal reliability indexes that ranged from .68 to .92 for the four subscales (Maxwell et al., 2005). In the current study, internal reliabilities were also high (Angry Afterthoughts = .81; Thoughts of Revenge = .73; Angry Memories = .75; Understanding of Causes = .71). Physical Activity Questionnaire (PAQ). The PAQ assessed frequency of exercise and sporting activity over each day of a ‘typical’ week. Participants rated frequency of physical activity on a five point scale ranging from ‘none at all’ to ‘quite a lot’. Scores were generated by summing responses and ranged from 7 to 35. Internal reliability for the PAQ in the current study was high ($\alpha = .87$).

Procedure

Participants completed a questionnaire packet during a single face-to-face interview conducted by an experienced research assistant. Order of questionnaires was randomized, but order of items within questionnaires was constant. The Chinese-CS was originally designed to measure coping at work; therefore, two items from the social support subscale were modified to reflect talking to family or friends, rather than superiors or colleagues respectively. In addition, the lead-in question was altered to read “When faced with problems in life, you ...”, rather than reference problems at work. All items and instructions were written with Traditional Chinese characters using the Cantonese dialect.

Analysis strategy

Prior to correlational analysis and analysis of mean differences across gender, the factor structure of the modified Chinese-CS was assessed. Confirmatory factor analyses (CFA) were conducted using AMOS 5.0 software for structural equation modeling (Arbuckle, 2003), employing the maximum likelihood method and covariance matrix. Lambda was fixed to 1 for the first observed indicator of each latent variable (i.e., four subscales of the Chinese-CS) and all error weights; all other parameters were freely estimated. Hu and Bentler’s (1999) recommendation of using at least two indices to establish model fit and imply factorial confirmation was adopted for interpretation of the current data. They suggest combining the standardized root mean square residual (SRMR) with one other statistic. A SRMR close to or less than .08 coupled with a root mean square error of approximation (RMSEA) close to or less than .06 was deemed indicative of close model fit. In addition, the chi square statistic, comparative fit index (CFI), goodness of fit index (GFI), and 90% confidence intervals for the RMSEA were calculated. To ensure that the model was valid for both males and females (thereby allowing comparisons across gender) a second analysis was conducted

comparing the two groups. All measurement weights J.P. Maxwell, O.L. Siu / Personality and Individual Differences 44 (2008) 1049–1059 1053(factor loadings) and factor variances and covariances were constrained equal following recommendations from Byrne (2001). The nested model comparison was evaluated using the chi-square statistic. Following confirmation of the Chinese-CS's factor structure, correlations with subscales of the Chinese-AQ and Chinese-ARS were calculated. It was predicted that coping would be negatively correlated with aggression, anger, and anger rumination. The Relaxation and Hobbies subscale, however, was expected to be positively correlated with the PAQ. Finally, mean differences between males and females on all of the subscales was evaluated using multivariate analysis of variance (MANOVA). Due to the large sample size and possibility of accepting small mean differences as significant, alpha was set at .01 for multivariate analyses and .001 for univariate and correlational analyses.

Results

Confirmatory factor analysis

The fit of the data to the theoretical model was close ($\chi^2 = 145.88$, $N = 630$, $df = 47$, $SRMR = .04$, $RMSEA = .06$ (.05–.07), $CFI = .96$, $GFI = .96$). The four factor model previously published by Siu et al. (2006) was supported, confirming the construct validity of the modified scale. Comparison of the model across males and females also proved positive. Model fit, with measurement weights (factor loadings) and factor variances and covariances constrained equal was equivalent for both groups as indicated by model fit statistics ($\chi^2 = 228.38$, $N = 630$, $df = 112$, $SRMR = .06$, $RMSEA = .04$ (.03–.05), $CFI = .96$, $GFI = .94$) and non-significant chi-square change from the unconstrained to constrained model ($\Delta\chi^2 = 23.45$, $df = 18$, $p = .17$). The results suggest that the factor structure of the Chinese-CS is reliable and that there is no evidence that the parameter values for males and females differ significantly from each other.

Correlational analysis

Generally, relationships amongst the coping, aggression and rumination variables were weak or non-existent (see Table 1). The strongest, negative, correlations appeared for Active Coping, suggesting that this coping style has the strongest, positive, effect on anger, aggression, and rumination. Correlations for Social Support were in the expected direction, but only significant for Thoughts of Revenge. Relaxation/Hobbies, and Passive Coping were uncorrelated with all variables, with one exception; Relaxation/Hobbies score was positively correlated with physical activity. When males and females were analysed separately, the pattern of correlations remained essentially unchanged, except for the role of Social Support for females. Correlations between Social Support and Anger, and between Social Support and Verbal Aggression were significant and negative, although weak ($r = .15$ and $r = .14$, respectively). These results suggest that Social Support may be a more important or effective strategy for females, relative to males. Respondents'

age was positively correlated with Active Coping and Social Support, but uncorrelated with Passive coping and negatively correlated with Relaxation/hobbies. These correlations

Table 1
 Pearson's Product Moment Correlation Coefficients between subscales of the Chinese-CS, Chinese-AQ, and Chinese-ARS

	Active coping	Social support	Relaxation & hobbies	Passive coping
Age	.14*	.12*	-.16*	.07
Angry Memories	-.07	-.01	.12	.02
Thoughts of Revenge	-.22*	-.16*	.06	.01
Angry Afterthoughts	-.11	-.10	.02	.01
Understanding Causes	.05	-.02	.10	-.05
Anger	-.20*	-.09	.02	.06
Physical Aggression	-.23*	-.09	.03	.02
Verbal Aggression	-.13*	-.11	.02	-.07
Hostility	-.16*	-.04	.07	.06
Physical activity	.04	-.03	.42*	-.05

* $p < .001$, $n = 630$; Chi-square $df = 8$, ** $p < .01$.

Chi-square statistics represent tests of homogeneity amongst correlations.

indicate that as age increased individuals became more reliant on active coping strategies and help from friends and family, but less reliant on pastimes and physical activity. Correlations between age and anger rumination, aggression, anger, and hostility were all negative ($r = .14$ to $.23$), perhaps due to the increasing use of active and social coping strategies.

Mean differences between males and females

MANOVA analysis revealed a significant main effect of Gender ($F(13, 616) = 11.74$, $p < .001$, $g^2 = .20$). Univariate analyses revealed significant differences between males and females for

Table 2
 Mean (SD) scores for males and females, F -test statistics, and Cohen's d for all dependent variables

	Males ($n = 356$)	Females ($n = 274$)	$F(1, 628)$	Cohen's d
Active coping	4.11 (.90)	4.37 (.85)	12.74*	-.30
Social support	3.49 (1.02)	3.93 (1.02)	28.04*	-.43
Relaxation & hobbies	3.81 (1.04)	3.62 (.98)	5.31	.19
Passive coping	3.52 (1.12)	3.71 (1.07)	4.51	-.17
Angry memories	2.05 (.54)	1.89 (.49)	15.03*	.31
Thoughts of revenge	1.78 (.58)	1.48 (.44)	47.70*	.57
Angry afterthoughts	1.94 (.56)	1.83 (.54)	6.75	.20
Understanding causes	2.14 (.59)	1.94 (.55)	17.54*	.35
Anger	6.06 (2.37)	6.15 (2.24)	.21	-.04
Physical aggression	4.73 (2.37)	3.90 (1.61)	25.07*	.40
Verbal aggression	6.17 (2.54)	5.63 (2.40)	7.25	.22
Hostility	6.49 (2.28)	6.09 (2.14)	5.04	.18
Physical activity	9.86 (6.92)	7.19 (6.50)	24.31*	.40

* $p < .001$.

scores on the Active Coping and Social Support subscales of the Chinese-CS; females scored higher than males in both cases. Significant differences were also found for the Angry Memories, Thoughts of Revenge, and Understanding Causes subscales of the Chinese-ARS with males

scoring higher than females, consistent with previous research (Maxwell et al., 2005). Finally, males scored significantly higher than females on the Physical Aggression subscale of the Chinese-AQ, again consistent with previous findings (Maxwell, 2007), and also on the PAQ. Means (SD) and test statistics are presented in Table 2.

Discussion

The Chinese-CS was developed to analyse the strategies used by Chinese adults when faced with work stress. The current research extended its use to angry emotions, cognitions, and behaviours. A negative correlation was found between active coping and anger, hostility, physical and verbal aggression, and thoughts of revenge. A significant negative correlation was also found between social support and thoughts of revenge. These findings suggest that an active coping strategy may reduce angry emotions and cognitions, and may also help to prevent anger being expressed as aggressive behaviour. Passive adaptive coping and engaging in distracting hobbies were unrelated to anger, rumination, or aggression. In fact, physical activity was positively related to both thoughts of revenge and physical aggression ($r = .10$ & $.15$, respectively). The findings suggest that the passive Taoist way and Confucian forbearance may not be useful for dealing with anger; therefore, caution should be administered before recommending this style of coping to individuals facing problems in their life. Additionally and consistent with previous research (e.g., Bushman, 2002), the idea that physical activity may act to cathartically relieve angry emotions, thereby preventing aggression, is unsupported. Although the relationships between coping and anger/aggression are rather weak, they are similar to those reported by Siu et al. (2006) and represent meaningful associations. It must be acknowledged that the participants in the current survey may have experienced angering events infrequently and that the Chinese tend to disapprove of angry expression. Both of these factors would tend to weaken any relationship with coping. Future studies might wish to measure the recency and frequency of angering events or adopt an experimental design whereby participants are angered as part of the protocol and their ability to deal with the anger is measured. It could be predicted that individuals who adopt an active coping strategy would be less likely to retaliate aggressively when given an opportunity to do so. The pattern of male and female differences for the aggression and rumination scales was consistent with previous research (e.g., Maxwell, 2007; Maxwell et al., 2005). The gender comparison for the coping scale was not reported in previous research (i.e., Siu et al., 2006), but is also consistent with the current literature. Females tended to score higher than males on the Active Coping and Social Support subscales, suggesting that they use these strategies more often than do males. Social support was also negatively correlated with anger and verbal aggression for females, suggesting that this strategy is helpful for women coping with angering events. In the current study, the construct validity of the Chinese-CS was confirmed, hence we were able to extend this scale from the work setting to a wider population; however, the internal reliability of the

relaxation/hobbies subscale was particularly low. The two items on this scale (“Take 1056 J.P. Maxwell, O.L. Siu / *Personality and Individual Differences* 44 (2008) 1049–1059 time to relax” and “Do physical exercise”) may be differentially associated with anger and aggression. It is plausible, for example, that individuals who engage in aggressive sports (e.g., boxing or rugby) are less likely to lower their anger and aggression than are individuals who compete in passive sports (e.g., badminton or swimming). In addition, if relaxation is accompanied by vengeful rumination, anger is also unlikely to dissipate and is more likely to result in aggression (Maxwell, 2004). It may be wise to add further items to this subscale to improve its reliability and investigate these possibilities. Although verification is required, we believe our results can be generalized to Chinese populations outside Hong Kong such as the PRC and overseas Chinese (e.g., Chinese in European and North American countries). There are several justifications: first, according to a meta-analysis conducted by Oyserman, Coon, and Kimmelmeier (2002), Chinese from Taiwan, Hong Kong, and China share collectivist and cultural values. Second, because the average age of the current sample is quite low, our results can specifically generalize to the younger generation of Chinese in the PRC. According to Tung (1996), China’s current work settings are dominated by the Consolidation generation, the Cultural Revolution generation, and the Social Reform generation. The latter two grew up during China’s closed-door policy period with very little interaction with the Western world (Egri & Ralston, 2004); whereas, the younger Social Reform generation grew up when China reopened her doors, providing them exposure to Western influences during a period of rapid globalization (Egri & Ralston, 2004). Third, Cheung and Chow (1999) concluded, from their comparative study on managerial values in Greater China, that there are more similarities than differences between mainland and island Chinese, particularly among young managers. The Chinese-CS appears to be a useful measure of methods used by Chinese individuals when faced with daily problems. It employs an etic approach that takes into account local cultures and customs. It is probable that these strategies can be employed to cope with a range of provocations, negative life events, or conflicts; however, research supporting this assertion is limited. Given the overwhelming dominance in terms of population size, the paucity of Asian based research seems problematic for general theories of coping. It is important, therefore, to incorporate Asian populations within the research participant base and to continue the development and validation of suitable psychometric instruments.

Acknowledgement

This research was partially funded by a Competitive Earmarked Research Grant (HKU 7447/ 05H) awarded by Hong Kong Government’s Research Grants Council to the first author.

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