

Coping strategies in Chinese social context

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The present study examined whether the scale called Coping Strategies in Chinese Social Context (CSCSC) developed in this paper is better at predicting individual mental health than the COPE Scale, which focuses on 'active-passive' coping. Two hundred and 51 university students were recruited and measured on the CSCSC, COPE and five mental health inventories. The results demonstrated that the CSCSC predicted mental health better than the COPE. 'Active-prosocial' and 'passive-prosocial' are two suitable coping strategies, whereas 'passive-antisocial' is not a suitable coping strategy. Studies exploring coping processes in Chinese culture should consider social interactions and connection with others as a significant aspect of coping.

Key words: Chinese coping strategies, prosocial, social context.

Introduction

When exploring issues related to coping strategies, past studies have sought to consider the influence of social context on coping. Countries with low levels of individualism must especially stress the effects of social context on coping (Weisz, Rothbaum, & Blackburn, 1984; Coyne & Smith, 1991; Roussi & Vassilaki, 2001). Compared to Western societies, Chinese societies stress collectivism more than do Western societies. In Chinese societies, social relationships comprise the basis of individual status. Maintaining social relationships is thus more important than pursuing personal goals (Wu, Hsu, & Cheng, 2002). Therefore, when exploring the Chinese coping strategies, it is necessary to consider social relationships.

Traditionally, the concept of coping, both in Taiwan and elsewhere, has primarily focused on an 'active-passive' perspective. For example, Lazarus and Folkman (1984) categorized coping into two main types, problem-focused and emotion-focused. The former focuses on coping to process or change stress-inducing problems. Meanwhile, the latter focuses on coping with emotional reactions to problems. This 'active-passive' view of coping reflects the following belief: 'a healthy individual is self-contained, independent, self-reliant, and asserting, and can also affect the surrounding environment'. However, this belief overemphasizes the stereotypically masculine characteristics of agency, mastery, and control, while neglecting community-oriented and other stereotypically feminine characteristics (Riger, 1993).

Most studies show that males tend to adopt problem-focused coping and females tend to adopt emotion-focused or avoidance coping (Billings & Moos, 1984; Stone & Neale, 1984; Endler & Parker, 1990). Researchers have further stated that emotion-focused coping is less effective than problem-focused coping and highly related to poor mental health (Billings & Moos, 1984). This approach to gender bias and individualism neglects the social interactions involved in coping and the social context in which coping occurs (Dunahoo, Hobfoll, Monnier, Hulsizer, & Jonhson, 1998).

Problem-focused coping can be prosocial or antisocial. For example, possible disintegration of the surrounding support network may occur when an individual uses problem solving as a coping strategy to maximize personal benefit. Problem-solving strategies can include both aggressive and passive-aggressive strategies. Aggressive coping can cause alienation from others and drive away potential providers capable of supplying social support. Hostile coping can have adverse health effects (Dunahoo *et al.*, 1998; Roussi & Vassilaki, 2001).

Hare-Mustin and Marecek (1986) believed that autonomy and relatedness are influenced by individual social status. To achieve autonomy and dominance, individuals must have the freedom to make choices. Individuals with power and status possess such freedom, whereas individuals with lower status may need to stress connections and communal goals to survive. Active coping is thus not necessarily a suitable method for dealing with stress. In certain cases, coping strategies that stress interpersonal connections may be the most suitable.

Leung (1987, 1988) showed that the Chinese, who tend to be collectivist, are more inclined to emphasize harmony and unity. Unlike Americans, who tend to be individualistic, stressing individual autonomy and competition, Chinese are inclined towards behaving in a non-adversary

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manner. In the event of conflict, Chinese prefer to use mediation and bargaining for conflict resolution. Interpersonal relationships are integral to Chinese conceptions of humanity, meaning that the 'self' is defined in reference to their interpersonal network. Therefore, 'harmony' is the key guiding principle in Chinese interpersonal relationships (Hwang, 1996).

Consequently, exploring Chinese coping patterns requires considering relationships. Few studies have examined Chinese coping strategies. To date, scales derived using the emic approach include the 'Chinese Coping Scale' (CCS) devised by Shek and Cheung (1990) and the 'Chinese Coping Strategy Scale' (CCSS) devised by Siu, Spector, and Cooper (2006). CCS is based on Hwang's (1977) research. Hwang shows five Chinese coping methods, as follows: 1. Mobilization of personal resources; 2. Seeking assistance from community support resources; 3. Appealing to supernatural powers; 4. Adoption of a philosophy of doing nothing; 5. Avoidance. These five coping methods can identify two factors, internal locus of coping and external locus of coping. The former includes mobilization of personal resources, adoption of the philosophy of doing nothing, and avoidance. Meanwhile, the latter includes seeking assistance from community resources and appealing to supernatural powers. These two factors of CCS not only have good reliability, but also are stable in different fields of conflict including marriage, family, interpersonal, and workplace. Shek (1992) examined the effects of gender differences on these two coping loci, and found that females tended to adopt an external locus of coping, whereas males tended to adopt an internal locus of coping. The above research implies that Chinese cultural coping patterns not only stress individual autonomy and effort, but also consider 'relationships'. That is, Chinese cultural coping patterns use external resources to solve problems. The research results of Shek (1992) resemble the findings of Western studies that the coping methods selected by females tend to emphasize social context (Lane & Hobfoll, 1992).

CCSS, developed by Siu *et al.* (2006), began by interviewing 91 employees from Hong Kong, Taipei, and Beijing. The responses were then categorized into four common coping strategies: active positive coping, passive adaptive coping, social support, and hobbies/relaxation. Siu *et al.* (2006) generated 14 CCSS items. Research suggests CCSS has good reliability and construct validity. Siu *et al.* (2006) used CCSS to explain the coping strategies commonly used by the Chinese working class. Notably, these coping strategies can increase work satisfaction of the working class and reduce physical and behavioural symptoms. Siu *et al.* (2006) indicate that, except for passive coping, the remaining three coping strategies clearly are positively correlated with work satisfaction and negatively correlated with physical and behavioural symptoms. Siu's

research focused on identifying the optimum coping patterns for Chinese. Consequently, Siu's investigation considers adaptable and healthy coping concepts when studying Chinese coping.

Both CCS and CCSS have their own characteristics and rationale. However, CCSS ignores two factors: whether individual coping behaviour considers other individuals and to what degree it affects other individuals. Siu *et al.* (2006) adopt the ideas of Cooper, Dewe, and O'Driscoll (2001), and CCSS presupposes that coping research should focus on the individual. Regarding CCS, Shek and Cheung's results do not indicate the relationship between internal locus of coping/external locus of coping, and adaptation. Consequently, it is impossible to determine the physical and mental health effects of an individual adopting these two types of coping patterns.

Personality research indicates that adaptive coping strategies should be both active and prosocial (Hobfoll, Dunahoo, Ben-Porath, & Monnier, 1994). Active prosocial coping strategies can promote the effects of social support (Kobasa & Puccetti, 1983). Subsequent research demonstrated that active coping, together with the utilization of social resources and working alongside others, can improve stress regulation (Sandler & Lakey, 1982; Hobfoll & Lerman, 1989).

Hobfoll *et al.* (1994) thus developed the dual axis model of coping, which considers social context in relation to coping strategy. Additionally, the dual axis model considers the adaptability of coping. Besides accounting for active-passive coping aspects, the model developed by Hobfoll *et al.* (1994) also weighs prosocial-antisocial aspects. Prosocial coping indicated the adaptive acts of intention of caring for others and seeking care from others, or behaviour involving positive social interactions, which include seeking support from and attempting to establish alliances with others. Prosocial coping can be active, or passive and cautious. Cautious coping can include being considerate of others, understanding the needs of others, and avoiding embarrassing others. Meanwhile, antisocial coping can comprise intentionally harming others or being negligent of behaviour with the potential to harm others, including exploiting others or exploiting the weaknesses of others for personal gain. Another form of antisocial coping is 'shooting from the hip' or acting on intuition. Although such behaviour does not intend to harm others, it disregards social norms. That is, individuals ignore the consequences of their actions for others and thus cause harm to others.

Hobfoll *et al.* (1994) devised the Strategies Approach to Coping Scale (SACS) and obtained nine factors via factor analysis. These nine factors then underwent second-order factor analysis to derive two high-level factors: 'active-passive, prosocial' (involving the four factors of firm action, social unity, seeking social support, and cautions action) and 'active-passive, antisocial' (involving aggressive

action, avoidance, actions harmful to others, and intuitive action).

We believe the approach of Hobfoll *et al.* (1994) is consistent with our concept of compiling Chinese coping patterns, but we do not utilize SACS. SACS was developed to fit the needs of Western individuals and does not necessarily describe Chinese coping behavioural patterns. However, this study accepts the concept of the dual axis model of coping while taking the emic approach to coping. Generating a Chinese coping pattern scale requires organizing past ideas regarding interpersonal harmony derived from Chinese society and conducting research to explain Chinese coping strategies. Hwang (1996) has already researched the literature on Chinese history, literature and philosophy, and her findings were consistent with the Chinese using a dual axis coping model. Hwang (1996) believes that Chinese methods of conflict resolution can be broken down according to two characteristics, namely self-interest or opinion and opposition interest or opinion, yielding four main categories: 'Compromise', 'Contention', 'Forbearance', and 'Withdraw'. Each main category can then be further split into three different coping strategies. In the interpersonal conflict resolution methods mentioned by Hwang, the aspect of 'opposition interest or opinion', could correspond to the dual axis model of the 'prosocial-antisocial' axes of coping. Two types of coping methods, 'Compromise' and 'Contention', involve attempting to change the external environment and are more action oriented. These two methods correspond with the dual axis model of 'active' part. Additionally, the emphasis on 'Forbearance' and 'Withdrawal' implies changing the self to fit the environment. These two methods correspond with the dual axis model of 'passive' part. This study uses the 12 coping strategies of Hwang as a main reference structure and expands its contents to include coping strategies that can be used to deal with environmental pressure external to interpersonal conflict. This approach will provide the basis of our coping strategy scale for application to a Chinese social context.

In accordance with the above, the present study defines 'active-prosocial' as considering the welfare of others when selecting coping behaviours for achieving individual goals. This coping strategy is detailed below: (i) 'teamwork', which involves assembling the opinions and abilities of those affected by pressure, allocating responsibilities, and cooperating to solve a problem; (ii) 'negotiation and compromise', which can involve discussions and negotiations with whom conflicts of interest may exist and trying to find a method acceptable to both parties; (iii) 'seeking assistance', which involves seeking the opinion, suggestions, or support of family, friends, higher-ranking coworkers, or professionals; and (iv) 'dual communication', where parties involved communicate to understand each other's thinking, feelings, expectations, or related information.

In 'active-antisocial' coping strategies, 'contention' is primarily focused on vying for rights and interests that one feels are deserved, regardless of the consequences of such actions on others. 'Aggression' does not consider means, and can cause harm to others to seize limited resources or to launch a counter attack. 'Authoritative compulsion' is defined as individuals who possess authority or resources, and who use their power to force opponents to concede without conflict for the sake of personal interest.

In 'passive-prosocial' coping strategies, 'social conformity' indicates deferring to the opinions of elders, mentors, or higher ranking coworkers, or acting according to social norms. The individual does not necessarily agree or identify with their opinions or norms but complies for certain reasons, for example, to avoid criticism or other problems. 'Forbearance' involves putting up with an individual and not avoiding conflict, suppressing negative emotions and not allowing them to express, or yielding to the other party. Moreover, 'Communion' indicates attempting to keep the interests of others in mind. The individual feels that changing themselves is easier than changing others or the environment and, thus, changes their attitude and sets aside their own opinions to cooperate with the needs of others or the environment. 'Passive-prosocial' coping mainly focuses on maintaining harmony, and not rushing to announce personal interests. 'Passive-prosocial coping' is a coping method emphasized in Chinese culture.

In 'passive-antisocial' coping strategies, 'separation and withdrawal' is defined as withdrawing from the stress-inducing environment and interactions with others, and reducing stress by eliminating stress-inducing stimuli. 'Passive resistance' uses silence, detachment, negligence or poor work, passivity, counteraction, hold-ups at work etc., to deal with the desires of others, preventing others from easily achieving their desires.

The present research develops a coping strategy scale within the Chinese social context based on the above stated views and concepts, then uses factor and multiscale analysis to explore scale construction. That is, the scale developed in this study is primarily based on two axes, 'active-passive' and 'prosocial-antisocial'.

If the scale is successfully developed and found to have acceptable primary reliability and validity, investigations will be performed to determine whether the scale has more power to interpret mental health than the leading 'active-passive' COPE Scale (Carver, Scheier, & Weintraub, 1989) in a Chinese social context. This study is motivated by the fact that COPE does not limit coping strategies patterns to the two categories of problem-focused and emotion-focused, but also incorporates approach and avoidance perspectives. The research of Dunahoo *et al.* (1998) and Roussi and Vassilaki (2001) took the 13 coping patterns of the COPE Scale and correlated them to SACS. These

researches showed that the 13 coping strategies of the COPE included both 'active-passive' and social components. For example, active coping should be clearly correlated with prosocial and antisocial aspects. These results illustrated that coping strategies that develop from an individualism perspective also contain social components. This study attempts to verify the research results of Dunahoo *et al.* (1998) and Roussi and Vassilaki (2001).

In Taiwan, Hsu's (2000, 2003) results indicated that in the COPE Scale, only 'avoidance' affected the psychosomatic adaptability of 921 earthquake victims. The remaining strategies had no significant effect. These results resemble those of Western research. The relationship between avoidance coping and physical and mental health exceeds that between positive coping and physical and mental health (Penley, Tomaka, & Wiebe, 2002). Consequently, the present study examines which coping type is more suitable. Relying on the COPE Scale alone is insufficient. The scale developed in this study may be able to answer the following question. To determine whether the effect of active-prosocial coping on physical and mental health exceeds that between avoidance and physical and mental health.

As stated above, not only does this research aim to develop a Chinese coping scale, it also explores which coping patterns have the greatest physical and mental health benefits for Chinese. Summarizing the above, the present study believes that in a Chinese social context, individual coping aims to pursue interpersonal harmony. 'Active-prosocial' coping is thus based on compromise, and aims to achieve a 'win-win situation' for all involved. In 'active-antisocial' coping, the relationship between the two parties is considered a zero-sum relationship, in which one party wins and the other party loses out. Consequently, each party considers the problem from their own perspective, ignoring the needs and perspective of the other party. In 'passive-prosocial' coping, the individual gives up their own opinions and yields to the other party, or sacrifices their own interests for the sake of the other party. In 'passive-antisocial' coping, the individual appears externally calm in an attempt to reduce the conflict rather than escalating it. However, inwardly, the individual holds considerable malice, possibly deteriorating or even severing the relationship between the two parties. From these perspectives, 'active-prosocial' coping should be the coping pattern that is most suited to Chinese. 'Active-antisocial' and 'passive-antisocial' coping will negatively impact Chinese physical-mental health because it is detrimental to the interests of others and destroys harmonious relationships.

Regarding 'passive-prosocial' coping, Hwang (1978) sees it as a method of compromising based on consideration of general interest. Siu *et al.* (2006) indicated that passive adaptive coping is inversely correlated with work satisfac-

tion and positively correlated with physical and behavioural symptoms. Passive adaptive coping therefore is not a suitable coping method for Chinese and should negatively impact physical and mental health. However, after conducting research on Chinese culture, Hwang (1996) concluded that forbearance is a form of mental victory. The individual can use this coping strategy to establish patience and tenacity, and eventually can successfully solve the problem. Based on this perspective, 'passive-prosocial' coping is a suitable coping strategy.

This study adopts depression, anxiety, anger, well-being, and social harmony as indicators of physical and mental health. The usage of the first three indicators is continued from past research. Meanwhile, the usage of the last two indicators is consistent with the perspective of Lyons, Mickelson, Sullivan, and Coyne (1998) that coping not only aims to maintain peaceful emotions and happiness, but also involves social goals. Coping thus affects physical and mental health and cannot simply be considered an emotional change. It is also necessary to examine the compatibility and harmony of interpersonal relationships and see if such relationships can enhance well-being. This study expects 'active-prosocial' coping to be clearly and inversely correlated with the three types of negative emotions and clearly and positively correlated with well-being and interpersonal harmony. 'Active-antisocial' coping and 'passive-antisocial' coping are expected to be clearly and positively correlated with three types of negative emotions and clearly and inversely correlated with well-being and harmony. As for the question of the adaptability of 'passive-prosocial' coping; if this type of coping is adaptable for Chinese, it should have similar physical and mental health effects to 'active-prosocial' coping. If it does not have such effects, then it should have the same effects as 'active-antisocial' and 'passive-antisocial' coping.

Methods

Participants

The research participants comprised university students who were not psychology majors but were taking a psychology related course. The convenient method of sampling was used. The sample was divided by class, and the class instructor then gave directions and the students completed the questionnaires. Some 251 valid subjects were gathered, comprising 126 (50.2%) males and 125 (49.8%) females. Regarding year of study: eight (3.2%) students were freshmen; 46 (18.3%) were sophomores; 57 (22.7%) were juniors; 125 (49.8%) were seniors, and 15 (5.6%) were graduate students. Additionally, a further sample of 62 students was taken to determine test-retest reliability over a 1-month interval.

Questionnaires

The tools used in this study included the self-compiled Coping Strategies in Chinese Social Context, COPE, Beck Anxiety Inventory (BAI), Beck Depression Inventory-II (BDI-II), State-Trait Anger Scale (STAS), Chinese Well-being Scale, and Compatibility-Harmony Scale. Explanations are given below.

Coping strategies in Chinese social context (CSCSC). As previously stated, the scale included: 'active-prosocial' coping, namely teamwork, negotiation and compromise, seeking assistance, and two-way communication; 'active-antisocial' coping, namely contention, aggression, and authoritative compulsion; 'passive-prosocial' coping, namely social conformity, forbearance, and cooperation; and 'passive-antisocial' coping, namely separation and withdrawal, and passive resistance.

Research relevant to these 12 coping methods was reviewed and related items selected. Available materials on Chinese interpersonal interactions were also reviewed, along with listed topics related to the four coping domains, namely: active-prosocial, active-antisocial, passive-prosocial, and passive-antisocial. Each domain contained 11 items. For example, items in the 'active-prosocial' domain included: 'sharing responsibility with those involved and working together to face the problem' and 'negotiating with those involved to identify a solution acceptable to both parties'. Items in the 'active-antisocial' domain included: 'counterattacking to let the other party know that I am not a push-over' and 'discussing terms with the opposite party to maximize gains and minimize losses'. Items in the 'passive-prosocial' domain included: 'making concessions to gain advantages' and 'avoiding harming the relationship with the other party as a guiding principle in problem resolution'. Finally, items in the 'passive-antisocial' domain included: 'voicing one's opinion by not cooperating with the other party', and 'overtly agreeing with the other party while covertly opposing them'.

Responses to items were obtained using a five-point Likert scale, where '1' represented 'almost never' and '5' represented 'almost always'. Instructions on how to answer the questionnaire were as follows: 'Everyone faces stressful situations in life. The following are methods used to deal with stressful situations. Everyone has their own way of dealing with such situations. Please think back to some stressful situation you have faced, and consider the probabilities of you using each of the following methods to deal with that situation.'

COPE Scale. This study used the COPE questionnaire by Carver *et al.* (1989). This questionnaire comprises 13 coping strategies, which are: active coping, planning, suppression of competitive activities, restrictive coping,

seeking instrumental support, seeking emotional support, positive reinterpretation, acceptance, denial, religion, behavioural disengagement, mental disengagement, and emotional venting. Four questions are asked in relation to each coping strategy. Additionally, the COPE Scale contains an additional question dealing with drug/substance use. The COPE Scale contains 53 questions.

The COPE Scale assesses the dispositional coping style of an average individual. The COPE Scale can determine the coping style that an individual will be likely to use when facing a specific stress source. Explanations of these coping styles rely completely on the present study's goal. The present study explains the coping scale as follows: 'The scale attempts to understand how an average individual will react to a stressful situation. A stressful situation can be handled in thousands of ways. This questionnaire aims to determine how you will handle a stressful situation in the event of being faced with one.'

The study used a four-point Likert scale with 4 corresponding to 'frequently', 3 to 'sometimes', 2 to 'occasionally' and 1 to 'never'.

Hsu (2000) performed principle component analysis of 286 high school students, then used the orthogonal rotation method together with the criteria that eigen values should exceed one to extract 13 factors. The total variance explained was 63.8%. The factor structure of these 13 factors closely resembled the 13 coping patterns of Carver *et al.* (1989). The present study thus scored the 13 coping patterns defined by Carver *et al.* separately. The present study can thus generate 13 factor scores using this measurement.

Beck Anxiety Inventory. This study used the Chinese version of Beck Anxiety Inventory to indicate anxiety. This inventory comprises some 21 items scored using a four-point Likert scale. Previous studies have shown the BAI to have acceptable reliability and validity (Beck *et al.*, 1988). Two factors can be obtained via factor analysis: cognitive symptoms and physical symptoms (Beck, Epstein, Brown, & Steer, 1988; Hewitt & Norton, 1993). In Taiwan, the university students and community residents tested by Teng and Chang (2006) exhibited an internal consistency coefficient of 0.88. The present study was not interested in the relationship between the scale factors and coping, and used the total score with the level of anxiety regarding what is being tested increasing with the score.

Beck Depression Inventory-II (BDI-II, Beck, Steer, & Brown, 1996). The present study used the Chinese version of BDI-II. This inventory is commonly used in Taiwan for determining the severity of depression. This inventory contains 21 items scored using a four-point scale of 0–3 to determine depression severity. Past research indicated that BDI-II has good internal consistency, test–retest reliability,

and construct validity (Beck *et al.*, 1988). Taiwanese reviews of related research have found that using this scale with college students and patients yields an internal consistency coefficient of 0.85 to 0.93 (Teng & Chang, 2006). Higher score indicates greater depression severity.

State-Trait Anger Scale. The State-Trait Anger Scale designed by Spielberger, Jacobs, Russell, and Crane (1983) contains a State Anger component comprising 10 items. Moreover, it has an internal consistency, Cronbach's alpha of 0.94, and its test-retest reliability following 8 weeks was 0.37 (Yang, 1990). This scale was rated using a four-point Likert scale, with a higher score indicating that an individual becomes angry more easily.

Chinese Well-being Scale. This study used a scale compiled by Lu and Shih (1997). The archetype for this scale was the 'Oxford Well-being Scale' compiled by Argyle, Martin, and Crossland (1989). Besides the 28 items translated from the Oxford Scale, Lu and Shih (1997) used data obtained from qualitative interviews to draw conclusions regarding the sources of well-being among Chinese and added a further 20 items. The final scale thus comprised 48 items. The scale had a Cronbach's alpha of 0.95 and test-

retest reliability of 0.66. Ratings were performed using a four-point Likert scale, with a higher score indicating greater individual well-being.

Compatibility-Harmony Scale. This scale was developed by Chien (2003). This measurement was based on a previous scale developed by Kwan, Bond, and Singelis (1997), and Chien added an additional six items dealing with individual integration into groups. The scale is a seven-point Likert scale determining the compatibility and harmony of individual relationships with significant individuals and groups. The compatibility and harmony of individual interpersonal relationships increases with increasing score. Chien (2003) achieved an internal consistency coefficient of 0.76 in tests involving university students and normal subjects ($N = 425$).

Results

Table 1 reports the descriptive statistics of each variable. The present study examined the reliability and validity of the CSCSC Scale. The principal axes method was used for the factors analysis. Four factors were extracted using

Table 1 Descriptive statistics of each variable

Variable	Item	No. valid subjects	Mean	SD	Max	Min
CSCSC Scale						
Active-prosocial	9	251	21.30	5.54	6	36
Active-antisocial	10	251	19.24	4.86	6	32
Passive-prosocial	11	251	26.14	5.33	8	41
Passive-antisocial	9	251	12.34	4.77	0	33
COPE Scale						
Active coping	4	251	9.83	2.29	4	16
Planning	4	251	10.25	2.45	2	16
Suppression of competitive activities	4	251	8.44	2.16	3	16
Restrictive coping	4	251	9.03	2.22	3	16
Seeking emotional support	4	251	9.00	3.02	1	16
Seeking instrumental support	4	251	10.22	2.84	1	16
Acceptance	4	251	9.94	2.35	3	16
Positive reinterpretation	4	251	10.80	2.42	4	16
Emotional venting	4	251	8.22	2.29	0	15
Religion	4	251	3.30	3.29	0	16
Denial	4	251	4.86	2.40	0	13
Behavioural disengagement	4	251	7.30	2.16	1	13
Mental disengagement	4	251	6.24	2.35	0	14
Beck Depression Inventory-II	21	251	10.86	7.69	0	47
Beck Anxiety Inventory	21	250	7.87	7.17	0	48
State-Trait Anger Scale	10	250	4.34	4.77	0	30
Chinese Well-being Scale	48	251	57.92	18.28	9	107
Compatibility-Harmony Scale	6	247	26.32	5.58	6	36

CSCSC, Coping Strategies in Chinese Social Context.

Cattell's Scree test. The varimax rotation method was then used to perform orthogonal rotation to eliminate items with factor loadings <0.3 . The results revealed nine items for 'active-prosocial', 10 items for 'active-antisocial', 11 for 'passive-prosocial', and nine for 'passive-antisocial'. The total variance accounted for by these four factors was 34.44%, and each of the internal consistency Cronbach's alpha was 0.87, 0.77, 0.81, and 0.78, respectively, indicating acceptable reliability. The test-retest reliability of these four factors, respectively, was 0.86, 0.84, 0.90, and 0.81.

This study then explored the four factors of the CSCSC Scale to determine whether the construct contains second-order factors, conforming to the theoretical concepts of 'active-passive' and 'prosocial-antisocial'. Factor analysis was then conducted for the means of each factor, 'active-prosocial', 'passive-prosocial', 'active-antisocial' and 'passive-antisocial'. Table 2 lists the results. The results demonstrated total accounted variance of 63.55%, indicating high accountability that a second-order factor underlied the construct. The factor loading demonstrated that 'active-

prosocial' and 'passive-prosocial' can both be considered to belong to the 'prosocial' factor construct. Meanwhile, 'active-antisocial' and 'passive-antisocial' can both be considered to belong to the 'antisocial' factor construct. Therefore, the two factors can be labelled 'prosocial' and 'antisocial' factors. However, no underlying construct was found for 'active-passive', demonstrating that the main underlying construct for the CSCSC Scale are 'prosocial-antisocial' factors.

Using second-order factors analysis it appears difficult to prove that the four factors in the scale are combinations of the two axes 'active-passive' and 'prosocial-antisocial'. Accordingly, to determine whether these four factors fit the dual axes assumption, the present study used multidimensional scaling (MDS) to test the validity of the shape of the four factors. This study used SPSS and PROXSCAL programs to establish a 2-D shape. Analyses revealed that the stress figures converged at 0.00123 (with nine iterations), while the S-stress figure was 0.00383 and the interpretative power was 0.99938. The two stress figures were below 0.025, indicating an excellent coordination (Chen, 1998). Consequently, in terms of validity, these four factors were well suited to distribution in 2-D spaces. Additionally, the distribution coordinates of space positions were as follows: active-prosocial (-0.307, -0.248), active-antisocial (0.153, -0.136), passive-prosocial (-0.700, 0.247), and passive-antisocial (0.855, 0.137), as shown in Figure 1. Figure 1 clearly shows that the two variables for the active factors are distributed in the bottom half of the first dimension (y-axis), whereas the two variables for the passive factors are distributed in the top half of the first dimension. The y-axis thus is labelled 'active-passive'. The two variables for the antisocial factors are distributed in the right half of the second dimension (x-axis), whereas the two variables for the prosocial factors are distributed in the left half of the second dimension. The x-axis is thus termed 'prosocial-

Table 2 Results of second-order factor analysis in CSCSC

Variable	Factor I (prosocial)	Factor II (antisocial)
Active-prosocial	0.94	-
Active-antisocial	0.36	-
Passive-prosocial	-	0.73
Passive-antisocial	-0.45	0.45
Accounted variances of each factor (%)	34.02	29.54
Total accounted variances (%)	63.55	

CSCSC, Coping Strategies in Chinese Social Context.

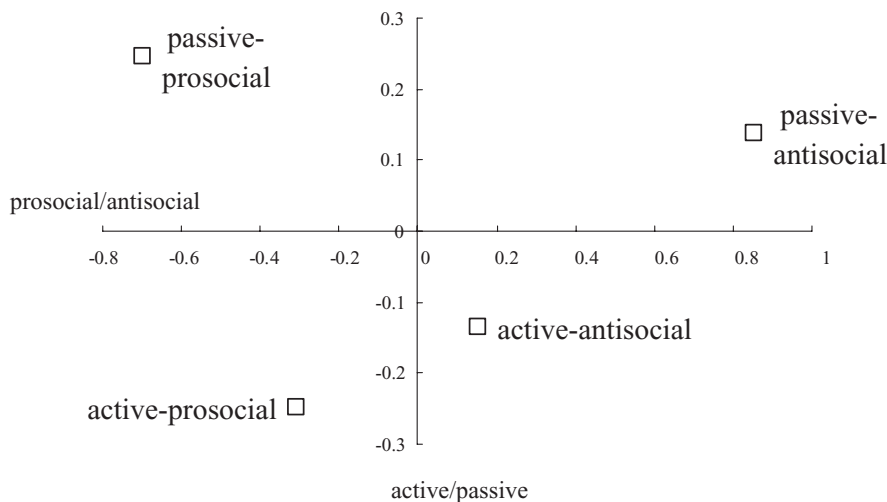


Figure 1 Two axes of Coping Strategies in Chinese Social Context (CSCSC).

Table 3 Correlations of factors in CSCSC, COPE and mental health

	CSCSC			
	Active-prosocial	Active-antisocial	Passive-prosocial	Passive-antisocial
COPE				
Active coping	0.495**	0.402**	0.406**	-0.254**
Planning	0.605**	0.236**	0.491**	-0.321**
Suppression of competitive activities	0.331**	0.306**	0.342**	-0.099
Restrictive coping	0.224**	0.245**	0.357**	0.021
Seeking emotional support	0.697**	0.122	0.199**	-0.165**
Seeking instrumental support	0.826**	0.209**	0.403**	-0.238**
Acceptance	0.275**	0.100	0.428**	-0.057
Positive reinterpretation	0.529**	0.232**	0.614**	-0.264**
Emotional venting	0.331**	0.260**	0.099	0.038
Religion	0.052	0.115	0.091	0.154
Denial	-0.328**	-0.031	-0.019	0.394**
Behavioural disengagement	-0.167**	0.079	0.151*	0.321**
Mental disengagement	-0.327**	-0.078	-0.102	0.442**
Mental health				
Beck Depression Inventory-II	-0.365**	-0.025	-0.144	0.252**
Beck Anxiety Inventory	-0.137	0.028	-0.168**	0.062
State-Trait Anger Scale	-0.217**	0.071	-0.282**	0.125
Chinese Well-being Scale	0.530**	0.102	0.367**	-0.411**
Compatibility-Harmony Scale	0.351**	0.024	0.138	-0.265**

* $p < 0.05$; ** $p < 0.01$.

CSCSC, Coping Strategies in Chinese Social Context.

antisocial'. The results demonstrate that the four coping factors of the self-compiled CSCSC comprise two axes.

Second, the present study compared the various physical and mental adaptive indicators of CSCSC and COPE to identify which is better. Before beginning this comparison, the relationship between the 13 coping strategies of COPE and the four coping strategies of CSCSC was explained. The research results were then used to examine why past coping strategies based on only the 'active-passive' axis cannot seriously consider social components and their effects. Table 3 lists the results of the comparison of CSCSC Scale and COPE Scale coping strategies.

Table 3 reveals a significant relationship between the four coping strategies of CSCSC and the 'active coping' 'planning' and 'seeking instrumental support' strategies of COPE. Notably, a significant positive relationship exists with the 'active-prosocial' 'active-antisocial' and 'passive-prosocial' coping strategies. Moreover, a significant negative relationship exists with the 'passive-antisocial'; 'suppression of competitive activities' 'restrictive coping' strategies and a significant positive relationship exists for the 'active-prosocial' 'active-antisocial' and 'passive-prosocial' strategies. These results clearly demonstrate that problem-focused related coping strategies, including active coping, planning, suppression of competitive activities, restrictive coping, and seeking instrumental support,

include 'prosocial' and 'antisocial' social contents. That is, despite only considering the maximization of self-interest, purely individualism-based coping strategies can have both positive and negative effects on others.

The emotional focused coping strategies of COPE, including seeking emotional support, acceptance, positive reinterpretation and emotional venting, are clearly correlated with the 'active-prosocial' and 'passive-prosocial' strategies of CSCSC (with the exception of emotional venting and 'passive-prosocial'). 'Seeking emotional support' and 'positive reinterpretation' are significantly and negatively correlated with 'passive-antisocial'. Moreover, 'positive reinterpretation' and 'emotional venting' are significantly and positively correlated with 'active-antisocial'. This result demonstrates how emotional focused coping strategies incorporate both prosocial and antisocial social contents.

The avoidance coping strategies of COPE, including denial, behavioural disengagement, and mental disengagement, are significantly and negatively correlated with 'active-prosocial' and significantly correlated with 'passive-antisocial'. These results demonstrate that avoidance coping not only does not consider the welfare of others but actually has a negative effect on others.

To determine which is better, the CSCSC Scale established by this research or the COPE Scale, each scale score

Table 4 Multiple regressions results comparing CSCSC and COPE

DV	Model	Adjusted R^2	SSE	F-test	AIC
Beck Depression Inventory-II ($N = 251$)	COPE	0.134	12 148.55	3.98**	999.76
	CSCSC	0.138	12 557.60	11.00**	990.01
Beck Anxiety Inventory ($N = 250$)	COPE	0.041	11 640.81	1.81*	986.20
	CSCSC	0.024	12 290.69	2.54*	981.78
State-Trait Anger Scale ($N = 250$)	COPE	0.085	4 903.53	2.79**	770.06
	CSCSC	0.088	5 074.81	7.01**	760.65
Chinese Well-being Scale ($N = 251$)	COPE	0.349	51 589.16	11.30**	1362.73
	CSCSC	0.409	48 555.92	44.33**	1329.52
Compatibility-Harmony Scale ($N = 247$)	COPE	0.111	6 461.74	3.36**	832.27
	CSCSC	0.136	6 523.35	10.65**	816.62

* $p < 0.05$; ** $p < 0.01$.

$AIC_p = n \ln SSE_p - n \ln n + 2p$. n , number of valid subjects; p , indicates variables; SSE, the sum of square of deviations from the model. CSCSC, Coping Strategies in Chinese Social Context.

was made an independent variable. Regression analysis was then conducted to predict which five types of mental health were related to stress coping. These five types of mental health include BDI-II, BAI, STAS, Chinese Well-being Scale, and Compatibility-Harmony Scale. Furthermore, the Akaike information criterion (AIC) promoted by Kutner, Nachtsheim, and Neter (2004) was used to compare these two stress coping scales, and the results are listed in Table 4. This formula takes the consistency between the model and data, and compares it against a standard to determine the model complexity: the higher the consistency level between the model and the data, and the lower the complexity, the better the model. Lower AIC thus indicates a better model. The results clearly show that in terms of predicting the five types of mental health levels, the CSCSC Scale has better model suitability than the COPE Scale. Furthermore, with the exception of predicting anxiety levels, compared to the traditional COPE Scale, the sum of power of CSCSC explained (R^2 following adjustment) in predicting BDI-II, STAS, Well-being, and Compatibility-Harmony, are superior.

To compare the predictive abilities of CSCSC & COPE for various mental health indicators, this study took the four coping strategies of CSCSC and the 13 coping strategies of COPE, and treated them as independent variables. The total scores for BDI-II, BAI, STAS, Well-being, and Compatibility-Harmony were then considered dependent variables. Stepwise regression analysis was then conducted to explore which of these coping strategies could best explain various mental health indicators. Table 5 lists the results.

Table 5 clearly shows that 'active-prosocial' was the first variable to predict BDI-II, Well-being, and Compatibility-Harmony. The accounted variances are 13.6%, 30.3%, and 12.4%, respectively. These results demonstrate that individual level of depression reduces with increasing utiliza-

tion of 'active-prosocial' coping strategies, whereas subjective well-being and harmony in interpersonal or group interactions increase. 'Passive-prosocial' was the first variable to predict BAI and STAS, and the accounted variances are 2.9% and 8.1%, respectively. These results demonstrate that 'passive-prosocial' coping strategies reduce individual levels of anxiety and anger. Combining the above results demonstrates that 'active-prosocial' and 'passive-prosocial' coping strategies outperform other coping strategies in predicting mental health. However, COPE emotional venting and mental disengagement affect depression, whereas positive reinterpretation affects anger, and planning affects well-being. However, on average, the explanation ability is inferior to that for the 'active-prosocial' and 'passive-prosocial' strategies. The effect of CSCSC on mental health thus appears to exceed that of COPE.

Table 3 lists data on the relationship between the four coping strategies of CSCSC and each mental health indicator. Table 3 clearly shows that 'active-prosocial' and 'passive-prosocial' are significantly and negatively correlated with negative mental health indicators (with the exception of 'active-prosocial' and BAI, 'passive-prosocial' and BDI-II). These results show that prosocial coping strategies reduce individual psychological distress, and increase individual capacity to experience well-being and the harmony of group interactions. 'Passive-antisocial' coping strategies are significantly and positively correlated with depression and significantly negatively correlated with 'Well-being' and 'Compatibility-Harmony'. These results demonstrate that individuals using non-cooperative, detached, and other coping strategies do not get along harmoniously with others, or feel depressed or unwell. 'Active-antisocial' coping strategies are not significantly correlated with any mental health indicator. These results are inconsistent with our assumption that a negative relationship

Table 5 Results of stepwise regression analysis

Dependent variable	Predicted variable	β	ΔR^2	Adjusted R^2	F -value
Beck Depression Inventory-II ($N = 251$)	Active-prosocial	-0.372**	0.136**	0.197**	21.419**
	Emotional venting	0.180**	0.044**		
	Mental disengagement	0.175**	0.026**		
Beck Anxiety Inventory ($N = 250$)	Passive-prosocial	-0.171**	0.029**	0.025**	7.514**
State-Trait Anger Scale ($N = 250$)	Passive-prosocial	-0.327**	0.081**	0.100**	10.244**
	Active-prosocial	-0.191**	0.014*		
	Positive reinterpretation	0.176*	0.016*		
Chinese Well-being Scale ($N = 251$)	Active-prosocial	0.274**	0.303**	0.419**	46.012**
	Passive-antisocial	-0.250**	0.071**		
	Positive reinterpretation	0.159*	0.042**		
	Planning	0.170*	0.013*		
Compatibility-Harmony Scale ($N = 247$)	Active-prosocial	0.298**	0.124**	0.142**	21.369**
	Passive-prosocial	-0.166**	0.025**		

* $p < 0.05$; ** $p < 0.01$.

exists between 'active-antisocial' and physical-mental health. However, Table 3 shows that 'active-prosocial' and 'passive-prosocial' are two suitable coping strategies, whereas 'passive-antisocial' is not a suitable coping strategy.

Discussion

The central question asked by this study was whether the CSCSC Scale developed here is superior to the COPE Scale for predicting individual mental health in a Chinese social context. The analytical results demonstrate that CSCSC is more effective than COPE in terms of depression, anxiety, anger, well-being, and compatibility-harmony. Additionally, stepwise regression analysis revealed that 'active-prosocial' coping is the most effective variable in predicting depression, Well-being, and Compatibility-Harmony. Moreover, 'passive-prosocial' coping is the most effective variable in predicting anxiety and anger. That is, in a Chinese social context, prosocial coping strategies can help an individual reduce their psychological distress and increase their psychological well-being and harmonious group interactions.

Factor and MDS analysis demonstrated that the CSCSC scale compiled in this study comprised the two axes 'active-passive' and 'prosocial-antisocial', demonstrating the validity of considering social context when compiling CSCSC.

The above results demonstrated that coping strategies developed from a Western cultural perspective cannot be directly applied in an Eastern cultural context, and can only

be applied after some additional considerations. When faced with difficult situations, individuals must actively make an effort to control or change the environment. American culture emphasizes 'action', implying that individuals must manipulate or control nature. When faced with problems, individuals thus must directly identify the problem, and then actively solve it. Individualism and independence has always been central to American culture (Kluckhohn & Strodtbeck, 1961), which stresses individual independence and autonomy and values individual rights and opposing group constraints. Individual growth and personal accomplishments are considered the greatest life goal. Coping pattern concepts developed from such a cultural perspective are also focused on the individual, and the emphasis is placed on individual autonomy and control of the environment while neglecting the relationships between the individual and others or between the individual and the environment.

The present research views the interaction between and individual and the environment from a Chinese cultural perspective, which stresses interpersonal harmony and uses a very different approach to coping from mainstream Western ideas. Besides the individual 'active-passive' behavioural approach, this study also added the 'prosocial-antisocial' approach, which is the social axis of when an individual considers the effect of coping on others. This becomes the basis for the coping pattern concept examined in this research. Research using actual data supports the following hypothesis: if a social axis coping pattern concept is added to an individual behavioural approach and compared with a coping pattern concept that emphasizes only an individual behavioural approach, then interpretative

and predictive power for physical and mental health can be improved.

The above findings can be explained by the emphasis of Chinese culture on interpersonal harmony. Li (1996) believed that Chinese culture conceives 'health' as balance and harmony among nature, organisms, and interpersonal relationships. Only an environment characterized by balanced and harmonious interpersonal relationships can ensure individual health. Therefore, individuals facing stress can use 'active-prosocial' or 'passive-prosocial' coping to ensure their own self-interest and the interests of others, or can strengthen their connection with others during the coping process. Individuals can thus improve their adaptation. 'Passive-prosocial' coping is thus a suitable coping style for university students.

The values stressed by Chinese culture include: modesty in social interactions, an emphasis on interpersonal interactions, an emphasis on family, and respect and loyalty to authority. Consequently, maintaining harmonious interpersonal relationships and behaving consistently with social norms is more important than controlling the environment and conquering problems. Studies exploring coping in Chinese culture must consider interactions and connections with others during the coping process. Such an approach can better interpret individual physical and mental adaptation, and thus better understand what coping strategies are suitable in a given cultural context.

The results of this research demonstrate that a prosocial coping strategy not only reduces psychological distress but also increases positive psychological well-being. This finding supports those of Monnier, Hobfoll, Dunahoo, Hulsizer, and Jonhson (1998), Roussi and Vassilaki (2001), and Monnier, Cameron, Hobfoll and Gribble (2000). However, some of the findings of this study differ from those of previous studies. Notably, other studies found a significant correlation between antisocial coping and anger. In contrast, this study found a significant correlation between 'passive-antisocial' and anger, but no significant correlation between 'active-antisocial' and anger. This inconsistency may result from the use of different scales. SACS was the main scale used by Monnier *et al.* (1998), Monnier *et al.* (2000), and Roussi and Vassilaki (2001), whereas this study used the CSCSC scale. Although the two scales are based on similar concepts, their contents are completely different. The lack of any significant correlation between 'active-antisocial' coping and any of the physical-mental health indicators may result from contention being the basis of this type of coping. Individuals feel that success depends entirely on contention. After winning, not only does the individual feel a sense of accomplishment, but also gains increased respect, authority and self-affirmation, vents anxiety, and experiences various other positive emotions. However, the price of contention, which is the breakdown of interper-

sonal harmony, takes time to appear. Consequently, this study failed to observe these negative effects using the cross-sectional research method. Future studies should apply longitudinal research to identify the effects of 'active-prosocial' coping on physical-mental health.

The present study suffers some limitations that should be addressed by future related studies. First, the subjects of this study were all university students and thus care is necessary when extending the results to other samples. Second, this study did not measure stress and, thus, future studies should examine whether different sources of stress influence the effect of the four types of coping strategies of CSCSC on physical-mental health. Third, this study did not use confirmatory factor analysis to verify CSCSC construct validity and, thus, this analysis will have to be repeated with another sample in future. Fourth, because this study only used single point measurement and not long-term and multipoint measurement, it cannot clarify whether a cause-effect relationship exists between the four coping strategies of CSCSC and mental health. Future studies will use longitudinal methods to further this issue.

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