

Effect of Stress, Perception-Related Traits, and Motivation on Different Coping Strategies

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Abstract

A coping model emphasizing the influence of stress, perception-related traits, and motivation on different coping strategies was tested in this study. The three strategies are problem-solving, social support-seeking, and avoidance. Participants were 332 college students in Taiwan. Variables involved in the model explained 29% of variance in problem-solving, 13% of variance in avoidance, and 9% of variance in social support-seeking. These combined findings show that the model tested is more effective in exploring determinants of problem-solving than those of social support-seeking and avoidance. Results also showed that traits could predict the coping strategy that shares a common orientation with them. Secure attachment (a relationship-related trait) could predict social support-seeking (a relationship-related coping strategy). Self-efficacy (a performance-related trait) could predict problem-solving (a performance related coping strategy). In addition, trait resilience mediated between self-efficacy and problem-solving as well as between stress and avoidance. The practical implications of the findings are discussed.

Keywords: resilience, coping strategy, self-efficacy, motivation, attachment

1. Introduction

College life is stressful for many students as they are in the process of adapting to new academic and social environments. To help them adapt well to stressful situations, researchers have explored the process by which individuals adapt to stressful situations (Fletcher & Sarkar, 2013; Perera & McIlveen, 2014). Coping plays an important role in the process of adaptation to stressful situations (Abraido-Lanza, Vasquez, & Echeverria, 2004; Keller, Siegrist, Earle & Gutscher, 2011). For example, when one's car is hit by another car from the back in a chain reaction traffic accident, this person is likely to call the police and the insurance company (behavior coping) and may reframe the meaning of the accident by thinking that it's lucky that no one was injured (cognitive coping). Coping has been considered as a mediator between stress and adaptation (e.g., Cepeda, 2012; Mckernon, 2003; Lozano, Pastor, & Dolz, 2005; Sinha & Watson, 2007); however, relatively few studies explore factors that influence coping. Even fewer studies have focused on the combined effects of perception-related traits on coping. The present study addressed that issue. The findings of this study can provide mental health counselors with information that can help college students cope with stressful situations and prevent them from relying on avoidance coping such as drug-using to deal with stressful situations. For example, in order to help clients apply problem-solving to deal with stressful situations, a counselor may first help clients enhance their self-efficacy, and then strengthen their trait resilience and motivation.

2. Literature Review

Process oriented researchers (e.g., Prati, Pietrantonio & Cicognani, 2011) conceptualized that when individuals encounter stressful situations, their cognitive appraisal systems appraise the situations, and the results of the appraisal determine the individuals' coping strategies. Furthermore, these theorists suggested that cognitive appraisal is a perception-related process. Kumpfer's resilience theory (1999) indicates that coping is determined by the interaction between contextual and personal factors. These two theoretical models, when combined together, seem to indicate that perception-related traits interact with stress in determining individuals' coping strategies.

Other researchers of coping such as Jensen, Ellestad, and Dyb (2013) posited that situational factors (e.g., stress level) can influence individuals' coping strategies. Integrating these scholars' points of view about coping, the authors of the present study built a theoretical model that focuses on the influence of stress (level), perception-related traits, and motivation on coping. Perception-related traits included in this model were self-efficacy, secure attachment, and trait resilience.

In this model, the author hypothesized that stress activates self-efficacy when individuals encounter stressful situations. Therefore, stress and self-efficacy were expected to determine coping styles. Researchers have proposed that self-efficacy contributes to trait resilience (Li & Nishikawa, 2012) and motivation (Bandura, 1977) and that both trait resilience and motivation influence individuals' coping styles (Li, 2014; van Damme et al., 2013). Therefore, the author hypothesized that trait resilience and motivation can determine coping styles in addition to the effects of self-efficacy and stress.

Insecure attachment has been repeatedly reported to be associated with poor coping outcomes (e.g., Frías, Shaver & Díaz-Loving, 2014). On the other hand, secure attachment was found to positively influence coping outcomes (Hawkins, Howard, & Oyeboode, 2007). Thus, the author of the present study hypothesized that attachment can influence coping styles in addition to the effects of stress and self-efficacy. Secure attachment has been regarded a relation-related trait (Mitchell, 2007) whereas self-efficacy has been considered a performance-related trait (Ramos-Sánchez & Nichols, 2007). Considering relationship a separate human experience from performance, the author of the present study expected that secure attachment can explain variance in coping that cannot be explained by self-efficacy. The author also hypothesized that trait resilience and motivation can interact with stress to determine coping styles over or above the effects of stress, self-efficacy, secure attachment, and trait resilience.

In order to test the model's effectiveness, the author applied it to explore determinants of three coping styles: problem-solving, social support-seeking, and avoidance. Thus, the following hypotheses were tested:

- (1) A combination of stress and self-efficacy can predict three types of coping styles: problem-solving, social support-seeking, and avoidance.
- (2) A combination of secure attachment, trait resilience, and motivation can predict the three coping styles over or above a combination of stress and self-efficacy.
- (3) A combination of interaction between resilience and stress and interaction between motivation and stress can predict the three coping styles over or above a combination of stress, self-efficacy, secure attachment, trait resilience, and motivation.

3. Methods

Participants were 332 students enrolled in a Taiwanese college. They voluntarily responded to a questionnaire that contains the following instruments: the Student-Life Stress Inventory (SSI: Gadzella, 1991), the Chinese Adaptation of General Self-Efficacy Scale (GSS: Zhang & Schwarzer, 1995), the Resilience Scale (RS: Wagnild & Young, 1993), the Revised Adult Attachment Scale (AAS-Revised: Collins, 1996), the Coping Strategy Indicator (CSI: Amirkhan, 1990), and a motivation instrument, which was developed by the author of the present study. Participants were asked to identify a stressful situation that they experienced within the past six months. Based on their experiences of coping with that stressful situation, participants responded to the CSI.

All of the instruments except the Chinese Adaptation of General Self-efficacy Scale were translated from English into Chinese for Taiwanese participants. Several bilingual graduate students examined the translated instruments. A bilingual undergraduate student, who was blind to the original English instruments, back-translated the Chinese instruments into English. The original instruments and the back-translated instruments were then compared. These two versions appeared to be very similar in meaning, indicating appropriate translation from English to Chinese. All of the instruments except the motivation instrument have been applied to study college students in the past and have demonstrated adequate reliability and validity.

3.1. The Coping Strategy Indicator (CSI: Amirkhan, 1990)

The CSI is a 33-item, three-point Likert-type scale. The CSI has three sub-scales that measure problem-solving, social support-seeking, and avoidance coping strategies. Cronbach's coefficients for problem-solving, social support-seeking, and avoidance sub-scales were reported as .89, .93, and .84, respectively (Amirkhan, 1990).

Amirkhan studied the validity of the CSI by correlated it with other coping instruments such as the Way of Coping Checklist (WCC; Vitaliano, Pusso, Carr, Maiuro, & Becker, 1985). He reported significant correlation between the CSI and other coping instruments, demonstrating the validity of the CSI. In this study, the value for coefficient alpha for the Chinese version of the CSI was .82.

3.2. The Student-Life Stress Inventory (SSI: Gadzella, 1991)

The SSI is a 51-item instrument that measures individuals' stress levels related to college life. It is a 5-point Likert-type instrument. An alpha value of .92 was reported by Gadzella and Baloglu (2001), indicating good reliability of this inventory. Regarding validity of the SSI, Gadzella, Masten, and Stacks' (1998) study provided evidence of convergent validity of this inventory. In this study, the value for coefficient alpha for the Chinese version of the SSI was .88.

3.3. The Chinese Adaptation of the General Self-Efficacy Scale (GSS: Zhang & Schwarzer, 1995)

The GSS is a 4-point Likert-type scale that measures individuals' self-efficacy in general situations. It consists of ten items. The GSS was developed in Germany by Jerusalem and Schwarzer in 1981 (as cited in Schwarzer, Bäßler, Kwiatek, Schröder & Zhang, 1997) and was translated into English by Schwarzer & Jerusalem (1995) and Chinese by Zhang & Schwarzer (1995). The Free University of Berlin (2003) reported evidence of convergent validity of the GSS and information of reliability of the GSS (Cronbach's alpha ranged from .76 to .90). In the current study, the author used the Chinese version of the GSS. The value for Cronbach's alpha was .86.

3.4. The Resilience Scale (RS: Wagnild & Young, 1993)

The RS is a 7-point Likert-type scale that measures individuals' trait resilience. It has 25 items. Wagnild and Young's (1993) study revealed information of concurrent validity of the RS. They also reported, based on different studies, that the internal consistency of the RS was between .76 to .91. In the present study, the value for coefficient alpha of the Chinese version of the RS was .89.

3.5. The Revised Adult Attachment Scale (AAS-R: Collins, 1996)

Secure attachment in this study was measured by the Revised Adult Attachment Scale. The AAS-R is a 5-point Likert-type instrument that measures adults' attachment styles. It has 18 items. The convergent validity of the AAS-R was demonstrated by Collins and Read in 1990. Years later, Collins (1996) reported information of reliability of this scale—Cronbach's alpha ranged from .77 to .85. In the current study, the value for coefficient alpha for the Chinese version of the AAS-R was .76.

Motivation was measured by 3 items: (1) how important it was to solve the problem at that time, (2) how did you believe that you could solve the problem at that time, and (3) how did you believe that you had enough resources to solve the problem at that time? The first two items were based on Rotter's (1967) theory of motivation. All of the three are 5-point Likert-type items.

Procedures of hierarchical multiple regression were applied to test this study's three hypotheses. In each procedure, stress and self-efficacy were entered into regression equation as the first-step predictors. Secure attachment, trait resilience, and motivation were then entered as the second-step predictors. Lastly, interaction between resilience and stress and interaction between motivation and stress were entered as the third-step predictors.

The outlier was removed so it did not impact the accuracy of data analysis. The criterion used to screen outliers were (a) a Cook's distance greater than 1, and (b) a standardized residual greater than 3.

4. Results

The effect of gender was found on social-support seeking coping style but not problem-solving coping style and avoidance coping style. When facing stressful situations, females are significantly likely to seek for social support than their male counterparts do [$F(1, 327) = 7.16, p < .05$; Female: $M = 25.18, SD = 5.37$, Male: $M = 23.00, SD = 4.29$]. In addition, stress type significantly impacted problem-solving and avoidance but not social-support seeking. Those who experienced academic stressful situations ($M = 20.02, SD = 3.65$) and relational stressful situations ($M = 20.52, SD = 4.30$) reported the highest levels of avoidance [$F(7, 318) = 2.38, p < .05$]. Those who experienced work-related stressful situations ($M = 26.30, SD = 4.63$) and money-related stressful situations ($M = 25.13, SD = 4.23$) reported the highest levels of problem-solving [$F(7, 318) = 2.29, p < .05$].

The predictive relationships between each variable and the three coping styles are presented at Table 1. Stress could predict both social-support seeking and avoidance. Self efficacy could predict both problem-solving and avoidance. Secure attachment could predict social-support coping only. The trait of resilience could predict problem-solving and negatively predict avoidance. Motivation could predict problem-solving and social support seeking. Since motivation was measured by 3 items (dimensions) based on Roter's (1967) motivation theory, the authors of the present study were interested in exploring relative effectiveness of the three dimensions in predicting problem-solving and social support-seeking. Thus, multiple regression procedures were conducted. Results of these procedures showed that two items were effective predictors of problem-solving [$F(3, 322) = 18.22, p < .050$] and none of the three items was predictive of social support-seeking. The two items were (1) how important it was to solve the problem at that time ($\beta = .143, p < .05$), and (2) how did you believe that you could solve the problem at that time ($\beta = .37, p < .05$)? Resilience x stress could predict problem-solving while motivation x stress could predict social-support seeking.

4.1. Results Regarding Problem-Solving

Results from hierarchical multiple regression analysis showed that, in the first step, stress and self-efficacy explained 15% of variance in problem-solving coping, $F(2, 323) = 27.91, p < .05$. However, only self-efficacy significantly contributed to the prediction. Those who held higher levels of self-efficacy, as opposed to their counterparts showing less self-efficacy, were more likely to apply problem-solving to deal with stressful situations.

The second step of the regression analysis examined the effects of secure attachment, trait resilience, and motivation on problem solving, after controlling for the effects of stress and self-efficacy. These three predictors together explained additional 11% of variance in problem-solving over or above stress and self-efficacy, $F_{change}(3, 320) = 15.93, p < .05$. However, among predictors in this step, secure attachment did not significantly contribute to the prediction. Those who held higher levels of trait resilience and motivation, when compared to their less resilient and less motivated counterparts, demonstrated a greater tendency to apply problem-solving to cope with stressful situations.

The third step of the regression analysis examined the effects of interactions between resilience and stress and interaction between motivation and stress on problem-solving, after controlling for the effects of stress, self-efficacy, secure attachment, trait resilience, and motivation. These two predictors only explain additional 2.5% of variance over or above the predictors in the first two steps, $F_{change}(2, 318) = 5.48, p < .05$. However, only the interaction between resilience and stress contributed significantly to the prediction.

4.2. Results Regarding Social Support-Seeking

Results from hierarchical multiple regression analysis revealed that stress and efficacy explained 3% of variance in social support-seeking. However, only stress was an effective predictor in the first step, $F(2, 323) = 4.59, p < .05$. Those who experienced higher levels of stress, as opposed to their less-stressed counterparts, were more likely to seek for social support in stressful situations.

The predictors in the second step (i.e., secure attachment, trait resilience, and motivation) explained additional 4% of variance in social support-seeking over or above the predictors in the first step, $F_{change}(3, 320) = 4.15, p < .05$. However, only secure attachment and motivation were effective predictors. Those who held higher levels of secure attachment and motivation, as opposed to their less securely-attached and less motivated counterparts, demonstrated a greater tendency to apply social support-seeking to cope with stressful situations.

The third-step predictors (i.e., interactions between resilience and stress and interaction between motivation and stress) explained additional 2% of variance in the social support-seeking coping, $F_{change}(2, 318) = 3.43, p < .05$. And only interaction between motivation and stress has statistically significant contribution to the prediction.

4.3. Results regarding Avoidance Coping

Results from hierarchical multiple regression analysis showed that stress and self-efficacy explained 10% of variance in avoidance coping, $F(2, 323) = 17.86, p < .05$. However, only stress was an effective predictor in the first step. Those who experienced higher levels of stress, as opposed to their less-stressed counterparts, were more likely to avoid stressful situations.

The predictors in the second step (i.e., secure attachment, trait resilience, and motivation) explained an additional 3% of the variance in avoidance over or above the predictors in the first step, $F_{change}(3, 320) = 3.13, p < .05$.

However, trait resilience was the sole effective predictor. Those who showed more trait resilience, as opposed to their less resilient peers, demonstrated a greater tendency to avoid stressful situations.

The third-step predictors (i.e., interaction between resilience and stress and interaction between motivation and stress) explained only additional 0.5% of variance in avoidance coping, $F_{\text{change}}(2, 320) = 0.94, p > .05$. Accordingly, neither of these two predictors has significant contribution to the prediction over or above the predictors in the first two steps. The results of all the above-mentioned hierarchical multiple regression analysis are presented in Table 1.

4.4. Exploring Trait Resilience as a Mediator

It was interesting to find that resilience could predict both problem-solving and avoidance. Since problem-solving and avoidance are usually seen as two opposite styles of coping, it may be worthy to explore the role resilience plays in influencing people to solve their problems and to avoid the problem. A possible hypothesis was that resilience functions as a mediator in the process of stress-coping. To be more specific, resilience was hypothesized to (1) mediate between self-efficacy and problem-solving and (2) mediate between stress and avoidance. In order to examine these two hypotheses, this study applied Baron and Kenny's (1986) method of testing mediator variables.

Based on their method, four conditions must be met for trait resilience to mediate the relationship between self-efficacy and active coping or between stress and avoidance: (A) self-efficacy (or stress) must be significantly associated with trait resilience, (B) self-efficacy (or stress) must be significantly associated with problem-solving (or avoidance), (C) trait resilience must be significantly associated with problem-solving (or avoidance) and (D) the relationship between self-efficacy and problem-solving (or between stress and avoidance) is no longer significant when controlling for trait resilience. When all four conditions are met, the mediator (in this case, trait resilience) fully mediates the effect from self-efficacy (or stress) to problem-solving (or avoidance). If the first three conditions are met but the last one is not met, the mediator only partially mediates the effect. The author applied multiple regression procedures to test these conditions. The results are presented in Table 2. Results showed that, for both hypotheses, conditions (A), (B), and (C) were met but condition (D) was not met. Regarding condition (A), self-efficacy and stress could each predict trait resilience. Condition (B) was met because self-efficacy could predict problem-solving and stress could predict avoidance. With condition (C), trait resilience could predict both problem-solving and avoidance. However, condition (D) was not met. The relationship between self-efficacy and problem-solving as well as the relationship between stress and avoidance were still significant when controlling for the effect of trait resilience. These results indicated that both of the two hypotheses were supported—trait resilience partially mediated between self-efficacy and problem-solving and between stress and avoidance.

5. Discussion

The results of this study supported hypotheses 1 and 2, and partially supported hypothesis 3 (see Table 1, hypothesis 3 was not supported in the case of avoidance, although it was supported in cases of problem-solving and social support-seeking). In addition, the results supported the two additional hypotheses (see Table 2), which regarded trait resilience as a mediator.

Self-efficacy, trait resilience, motivation, and the interaction between resilience and stress were effective predictors of problem-solving in the first, second, and third step of a hierarchical regression analysis, respectively. Together, these variables explained around 29% of variance in problem-solving. Regarding social support-seeking; stress, secure attachment and motivation, interaction between motivation and stress predicted social support-seeking in the first, second, and third step of a hierarchical regression analysis, respectively. They totally explained 9% of variance in social support-seeking. A third hierarchical regression analysis revealed that stress and trait resilience predicted avoidance in the first and second step of the analysis, respectively; and that they explained around 13% of variance in avoidance. These combined findings led to the conclusion that the model tested in the present study can explore determinants of three coping styles; therefore, it is an effective model. However, this model is more effective in exploring determinants of problem-solving than those of social support-seeking and avoidance.

The present study proved that stress (level), perception-related traits, and motivation are significant determinants of coping styles. Nevertheless, these variables play different roles in determining different coping styles.

In the first step of regression analysis, self-efficacy can predict problem-solving but not social support-seeking and avoidance. This finding is in line with Smit and colleagues' (2014) and Mazzer and Rickwood's (2014) finding that self-efficacy is related to behavioral performances. On the contrary, stress can predict social support-seeking and avoidance but not problem-solving. This finding is consistent with Gladding's (2012) suggestion that people tend to gather together to seek social support when they encounter a difficult task that cannot be handled by one single individual. In the second step of regression analysis, secure attachment can only predict social support-seeking; whereas trait resilience can only predict problem-solving. Since secure attachment is related to relationships (Pilkonis, Kim, Yu & Morse, 2014) and trait resilience is related to action (Matuska, 2014) and performance (Martin, 2013), these findings seem to designate that coping styles can be influenced by traits that share the same orientation with them.

The results of testing the two additional hypotheses showed that trait resilience plays the role of mediator in the relationship between self-efficacy and the coping strategy of problem-solving. This finding is similar to Yi's (2006) report that trait resilience mediates self-efficacy's effect on coping. It appears that the higher the level of trait resilience is, the greater its tendency to carry the effect of self-efficacy on problem-solving. In other words, individuals who are high in self-efficacy tend to apply the problem-solving coping strategy to deal with stress. When they also have high levels of trait resilience, the tendency to apply this coping strategy is even greater. The results of the current study also indicated that trait resilience mediates between stress and avoidance. This finding is consistent with Daniels and colleagues' (2012) discovery that resilience is positively correlated with individual's emotional regulation. The ability to regulate emotions in stressful situations can support individuals to face the situations (counter avoidance). In the relationship between stress and avoidance; the higher the level of trait resilience is, the more likely this trait can indirectly reduce the effect of stress on avoidance (note: resilience was negatively correlated with stress and with avoidance). When individuals are severely stressed, they tend to avoid the stressful situations. However, if they have high levels of trait resilience, this trait would decrease the tendency to avoid facing the situation.

5.1. Limitations

There are limitations to this study. First, because the sample is a convenience sample, it runs the risk of misrepresenting the general population. Second, participants responded to instruments based on their general life experiences; therefore, the data may not reflect participants' specific life experiences. Third, the participants are college students and thus the results of the study may not be appropriately applied to the general population.

5.2. Practical Implications

The results of the current study indicated that the model evaluated in this study was effective, especially when it was applied to predict the problem-solving coping strategy. Stress, self-efficacy, trait resilience, motivation, and stress*trait resilience were found to be effective predictors of problem-solving. Therefore, counselors are encouraged to focus on these factors, in order to help their clients apply the problem-solving strategy to cope with stress. However, the issue of whether or not the counselor would concentrate on stress should be carefully considered. When the clients are suffering a high level of stress, it may not be appropriate to focus on stress. The results of this study also showed that traits were able to predict coping strategies that share a common orientation with them. The results imply that counselor can enhance clients' secure attachment (a relationship-related trait) to help the clients apply the coping strategy of social support-seeking. By the same token, counselors can concentrate on self-efficacy (a performance-related trait) for the purpose of helping clients to apply the problem-solving coping strategy. In addition, trait resilience was found to partially mediate the effect of self-efficacy on problem-solving and the effect of stress on avoidance. This finding clearly showed the important role trait resilience plays in the coping process. By enhancing this trait, counselors not only can decrease the clients' tendency to avoid dealing with the problem situations but also can promote the clients' tendency to find solutions to the situations.

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Table 1: Hierarchical Multiple Regression Equations Predicting Coping Styles from Stress, Perception-Related Traits, and Motivation

Step	β			R^2	R^2_{change}	F	F_{change}
	Step 1	Step 2	Step 3				
DV: Problem-solving							
Step 1				.147		27.91*	
Stress	.023	.111*	.146*				
Self-efficacy	.387*	.166*	.156*				
Step 2					.111		15.93*
Secure Attachment		.001	.000				
Trait Resilience		.292*	.300*				
Motivation		.246*	.235*				
Step 3					.025		5.48*
Trait Resilience x Stress			.130*				
Motivation x Stress			.059				
DV: Social Support-seeking							
Step 1				.028		4.59*	
Stress	.168*	.237*	-.080*				
Self-efficacy	.019	-.061	-.070				
Step 2					.036		4.15*
Secure Attachment		.134*	.261*				
Trait Resilience		.058	.048				
Motivation		.146*	-.744*				
Step 3					.020		3.43*
Secure attach. x Stress			-.166				
Motivation x Stress			.929*				
DV: Avoidance							
Step 1				.100		17.86*	
Stress	.319*	.263*	.273*				
Self-efficacy	.043	.153*	.149*				
Step 2					.026		3.13*
Secure Attachment		-.056	-.063				
Trait Resilience		-.146*	-.149*				
Motivation		-.104	-.105				
Step 3					.005		.94
Trait Resilience x Stress			.013				
Motivation x Stress			.067				

* $p < .05$

Table 2 : Regression Analyses for Variables Predicting Trait Resilience (CONDITION A) and Problem-Solving/Avoidance (CONDITIONS B, C & D)

IVs	β	Adjusted R^2	F	P
CONDITION (A)				
(DV = Trait Resilience)				
Stress	-.254*	.062	22.604*	.000*
Self-Efficacy	.580*	.334	165.46*	.000*
Secure Attachment	.087	.004	2.476	.117
Motivation	.192*	.034	12.36*	.001*
CONDITION (B) & (C)				
(DV = Problem-Solving)				
Stress	-.048	.000	.745	.389
Self-Efficacy	.382*	.143	55.811*	.000*
Secure Attachment	.039	-.002	.490	.484
Trait Resilience	.410*	.166	66.098*	.000*
Motivation	.324*	.102	37.947*	.000*
(DV = Avoidance)				
Stress	.315*	-.097	36.117*	.000*
Self-Efficacy	-.005	-.003	.007	.933
Secure Attachment	-.134*	.015	5.971*	.015*
Trait resilience	-.151*	.020	7.630*	.006*
Motivation	-.147*	.018	7.108*	.008*
CONDITION (D)				
(DV = Problem-Solving)				
Stress	.111*	.009	22.268*	.000*
Self-Efficacy	.166*	.016		
Secure Attachment	.001			
Trait Resilience	.292*	.163		
Motivation	.246*	.061		
(DV = Avoidance)				
Stress	.263*	.107	9.167*	.000*
Self-Efficacy	.153*	.008		
Secure Attachment	-.056			
Trait Resilience	-.146*	.020		
Motivation	-.104			

* $p < .05$