Journal of Health Psychology

Frequency of use and impact of coping strategies assessed by the COPE Inventory and their relationships to post-event health and well-being

Jordan A. Litman and George D. Lunsford

The online version of this article can be found at:

Published by:

$SAGE

http://www.sagepublications.com

Additional services and information for *Journal of Health Psychology* can be found at:

Email Alerts: http://hpq.sagepub.com/cgi/alerts

Subscriptions: http://hpq.sagepub.com/subscriptions

Reprints: http://www.sagepub.com/journalsReprints.nav

Permissions: http://www.sagepub.co.uk/journalsPermissions.nav

Citations http://hpq.sagepub.com/cgi/content/refs/14/7/982

Frequency of use and impact of coping strategies assessed by the COPE Inventory and their relationships to post-event health and well-being

JORDAN A. LITMAN & GEORGE D. LUNSFORD
University of South Florida, USA

Abstract

In dealing with a stressful event, 440 participants reported how frequently they used a variety of different coping strategies, rated their separate impacts on problems and the associated emotions, and reported their effects on subsequent health and well-being. Coping strategies did not generally impact problems or emotions differently. Use of planning led to increased self-efficacy, which along with positive reinterpretation, predicted growth. Emotional venting and behavioral disengagement predicted diminishment, which along with mental disengagement and self-injury, predicted illness. Social support buffered against diminishment. Use of acceptance coping and seeking advice from others had both positive and negative effects on well-being.

Keywords

- *acceptance coping*
- *COPE inventory*
- *growth*
- *instrumental social support*
- *problem and emotion focused coping*
- *self-efficacy*

Coping, which refers to strategies individuals use to manage their stress, is a significant part of the recent literature on health psychology (Kraaij, Garnefski, & Schroevers, 2009; Lequerica, Forschheimer, Tate, Roller, & Toussaint, 2008; Park, Edmondson, Fenster, & Blank, 2008; Perez et al., 2009; Schwartz et al., 2008). Historically, coping has been broadly conceptualized as either *problem-focused* or *emotion-focused* in nature (Folkman & Lazarus, 1980); the former involves efforts to deal directly with the stressor, whereas the latter concerns attempts to handle the associated feelings of distress. In keeping with this dichotomy, the COPE inventory (Carver, Scheier, & Weintraub, 1989) was designed to assess the extent to which people use a wide range of different problem- and emotion-focused coping strategies.

However, research on the dimensionality of the COPE has found little support for the problem- and emotion-focused distinction. Litman (2006) found that in 10 factor analytic studies of the COPE either 3 or 4 factors were identified: one that involved avoidance-oriented coping, one or two that reflected approach-oriented self-sufficient coping, and one that involved approach-oriented socially-supported coping. Across studies, the factors were found to consist of *both* problem- and emotion-focused strategies.

Litman (2006) also factor analyzed responses to the COPE scales and identified clear approach-oriented self-sufficient and socially-supported coping factors along with an avoidant-oriented factor. As in previous research, the factors comprised both problem- and emotion-focused strategies. Based on these findings, Litman (2006) concluded that the meaningfulness of differentiating between problem- and emotion-focused coping was unclear, and that to elucidate the value of this distinction it would be necessary to demonstrate that coping strategies afford different degrees of effectiveness in managing stressors and stress reactions.

The present study

To clarify whether Lazarus and Folkman's (1980) distinction between problem- and emotion-focused coping is practically meaningful, we separately assessed the perceived impact of each coping strategy measured by the COPE in dealing with a stressor and its associated distress. In conducting this investigation, we were guided primarily by

Lazarus's (1993) appraisal model, which describes coping as a process whereby individuals use a variety of coping strategies, adapting their usage according to a strategy's success or failure. Therefore, we examined relationships between the frequency coping strategies were used and their corresponding problem- and emotion-focused impacts.

In keeping with Lazarus (1993), we asked respondents to identify the most important and stressful event they had recently experienced, and to indicate how much personal control they felt they had over it (Rodin & Langer, 1977). We were also interested in the relationships between each coping strategy's frequency of use and impact with outcomes relevant to post-event health and well-being, including self-efficacy (Bandura, 1986), personal growth (e.g. improved self-concept, optimism) and diminishment (e.g. reduced self-esteem, greater pessimism) (Park, Cohen, & Murch, 1996), and also the emergence of post-event illness symptoms (Glaser & Kiecolt-Glaser, 2005). The complex relationships between each coping strategy's frequency of use and impact with health and well-being were evaluated using exploratory path analysis. We tested several specific hypotheses:

1. Based on recent findings by Litman (2006), we hypothesized that approach-oriented self-sufficient and socially-supported strategies would tend to have positive impacts, whereas avoidance-oriented strategies would have negative impacts. However, consistent with factor-analytic evidence by Litman (2006), we did not expect to find compelling evidence of separate problem- and emotion-focused impact effects.

2. We hypothesized that approach-oriented strategies would have positive effects on health and well-being while avoidant-oriented strategies would lead to undesirable outcomes (Joseph & Linley, 2005).

3. In keeping with Bandura's (1986) view that coping self-efficacy is affected by experience, we hypothesized that approach-oriented coping would enhance post-event self-efficacy (Benight, Cieslak, Molton, Johnson, 2008).

4. We also hypothesized that post-event self-efficacy would contribute to stress-related growth, as self-efficacy is an important predictor of improved well-being (e.g. Karademas, 2006).

983

Method

Participants

The participants were 450 (259 women, 191 men)[1] individuals, ranging in age from 18 to 51 (M = 20.84, SD=4.84), recruited from a large southeastern university.

Instruments and measures

Stressor events   Participants were asked to briefly describe the most stressful event they had experienced within the last six months;[2] if the stressful event was still ongoing, they were asked to excuse themselves from the study. Participants also indicated which of the following categories best described the event: 'Medical' (including Illness or injury), 'Relationship' (including a friend, family member, or romantic partner), 'School or Work Problem', 'Death of a Friend or Loved One', and 'Financial or Legal Troubles'. These categories were based on the highest ranked stressors listed in the Social Readjustment Rating Scale (Holmes & Rahe, 1967). If none of these categories characterized the stressful event, participants were instructed to select 'Other'.

A rater coded the content of each event; agreement with participants was very high (κ = .95). Twelve respondents described their stressors as 'other'; these stressors were evaluated by two raters. Of these 12 stressors, 3 were categorized as Medical and 1 was categorized as School/Work; the remaining 8 referred to moving and labeled 'Relocation'. Agreement on these re-categorized stressors was also high (κ = .90); disagreements were resolved with discussion.

Perceived control   A single item measure that simply asked each participant, 'How much control do you feel you had over the stressful event?'. Participants responded on a 4-point likert-type scale anchored by 'hardly any' and 'very high degree'.

COPE *(Carver et al., 1989)*   The COPE comprises fifteen 4-item scales designed to assess a variety of problem and emotion focused coping strategies; several strategies are classified as 'less useful' or not categorized at all. The Problem focused strategies include: *Planning* – creating a plan of action; *Active Coping* – taking steps to eliminate the problem; *Suppression of Competing Activities* – focusing solely on the problem; *Restraint Coping* – waiting for right moment to act;

and *Instrumental Social Support* – seeking advice from others. The emotion-focused strategies include: *Positive Reinterpretation* – reframing stressors in positive terms; *Acceptance* – accepting the problem for what it is; *Religious Coping* – using faith for support; *Emotional Social Support* – seeking sympathy from others; and *Denial* – refusing to believe the problem is real. The 'less useful' strategies include: *Emotional Venting* – expressing one's feelings; *Behavioral Disengagement* – giving up trying to deal with the problem; and *Mental Disengagement* – mentally distracting oneself from thinking about problem. Two strategies, *Humor* and *Substance Use* are uncategorized.

Factor analytic research on the COPE (see Litman, 2006) has shown that the scales do not load on clear 'problem' or 'emotion' focused factors, but rather define three different dimensions: Self-Sufficient Approach-oriented Coping (Planning, Active Coping, Suppression of Competing Activities, Restraint Coping, Positive Reinterpretation, Acceptance, Humor, and Religious Coping), Socially-Supported Approach-oriented Coping (Instrumental Social Support, Emotional social support, Emotional Venting), and Avoidant-oriented Coping (Behavioral Disengagement, Denial, Substance Use, Mental Disengagement).

For each item, participants were asked to make three different responses. First, to assess the frequency that each strategy was used, participants were asked, 'How often did you do this when you experienced the stressful event'; they responded on a 4-point scale ranging from 'didn't do this at all' to 'did this a lot'. To assess emotion-focused impacts, participants were asked, 'What impact did doing (or not doing) this have on how you *felt* at the time'; they responded on a 7-point scale ranging from 'felt much worse' to 'felt much better'. Finally, to assess problem-focused impacts, participants were asked, 'What impact did doing (or not doing) this have on your ability to deal with the stressful event'; they reported on a 7-point scale ranging from 'Made it seem a lot less manageable' to 'Made it seem a lot more manageable'. The two impact questions included a mid-point response of 'no impact'. Alphas for the three variants of each scale were satisfactory (Mdn = .76).

Self-injury coping   One form of coping not assessed by the COPE is self-injury, an avoidant-oriented strategy (Hasking, Momeni, Swannell, & Chia, 2008) that reflects efforts to manage both

problems and emotions (Brown, Williams, & Collins, 2007). We selected and adapted five items from Sansone, Wiederman, and Sansone's (1998) 22-item Self-harm Inventory that described direct self-injurious behaviours (e.g. 'I cut myself on purpose'). Items about substance use were not selected as the COPE includes a measure of this type of coping. We also did not include items describing suicidal ideation or 'self-destructive' lifestyle choices. Adaptations reflected use of the three response scales used for the COPE; alphas for all three versions were > .88.

Post-event outcomes　We assessed four post-event health and well-being outcomes, described briefly below. Respondents were asked to indicate the extent to which the way they generally feel *has changed as a result of the stressful event*, on a 4-point likert-type scale ranging from 'not at all' to 'very much so'.

Post-event Self-Efficacy (α = .92) was measured with Schwarzer and Jerusalem's (1995) 10-item Generalized Self-Efficacy scale, which assesses optimistic beliefs that one can perform new or challenging tasks or overcome problems (e.g. 'I can always manage to solve difficult problems if I try hard enough').

Post-event Growth and Diminishment was assessed with a 50-item measure adapted from the Stress-Related Growth Scale (SRGS: Park, Cohen, & Murch, 1996), which measures positive outcomes such as improvements in autonomy, self-concept, and optimism. We selected 25 items from the SRGS to assess post-event Growth (α = .95) and adapted 25 SRGS items to assess post-event Diminishment (α = .88), defined as feelings of helplessness, reduced self-esteem, and greater pessimism (e.g. 'I learned that I was stronger than I thought I was' was rewritten 'I learned that I wasn't as strong as I thought I was').

Post-event Illness (α = .90) was assessed with an 18-item scale based on the Patient Health Questionnaire (PHQ: Spitzer, Kroenke, & Williams, 1999). The Illness scale included the nine PHQ items that inquire about mental illnesses symptoms such as depression and anxiety (e.g. 'I feel more down, depressed or hopeless'), and nine items that inquired about physical symptoms (e.g. 'aches and pains').[3]

Procedure

The measures were administered on computer and required approximately 45 minutes to complete.

Participants were first asked to write about their stressful event, and then asked a series of questions about how they dealt with the event and how they felt after it had ended.

Results

Relationships between coping strategy frequency of use and stressor category

To evaluate whether the category of stressor affected how frequently coping strategies were used, a mixed-model ANOVA was conducted, with strategy frequency of use entered as a repeated measure and stressor category and perceived control as between subjects' variables. The strategy frequency main effect, though significant, was very small, $F(15,6420) = 17.30$, $p < .001$, $\eta_p^2 = .04$, indicating that people tended to use some strategies more than others. Tukey tests indicated that respondents used approach-oriented strategies (especially Positive Reinterpretation) somewhat more frequently than avoidant-oriented coping strategies (particularly Behavioral Disengagement). However, these mean differences were all very small in magnitude ($d < .20$).

The strategy by category interaction effect was also quite small, but significant, $F(15,6420) = 2.02$, $p < .001$, $\eta_p^2 = .02$, indicating that the frequency strategies were used depended somewhat on the stressor. Simple effects analyses revealed very small differences ($d < .20$) between frequencies for each stressor category; Tukey tests indicated these differences were of the same magnitude and followed essentially the same pattern found for the strategy effect. Notably, strategy use for Death deviated the most from the overall pattern, and involved the greatest use of Religious Coping.[4] Neither of the between subjects effects nor the strategy by control interaction was significant.

Coping strategy impacts and their relationships with stressors and perceived control

One-sample *t*-tests, adjusted for the family wise error rate (FWER; $p < .003$), were conducted to determine whether strategy impact effects differed significantly from having 'no impact'. These results are summarized in Table 1, along with the effect size (*d*) and also the correlation between each strategy and the outcome of having an appreciable impact

Table 1. Means, standard deviations, and correlations for each coping strategy's impact on problems and emotions and whether their effects were different from 'no impact'

Coping Strategy/Impact			M	SD	t	d	Impact Effect	r with Impact Effect	r_{PE}
Self-sufficient approach	Planning	P	19.76	4.01	19.91***	.94	Positive	.42***	.91***
		E	19.87	4.17	19.70***	.93	Positive	.42***	
	Active coping	P	18.15	2.95	15.41***	.73	Positive	.34***	.87***
		E	19.02	3.71	17.25***	.81	Positive	.37***	
	Supp. compet.	P	16.74	2.61	6.03***	.28	Positive	.14**	.83***
		E	16.91	2.89	6.65***	.31	Positive	.15**	
	Restraint	P	16.60	3.02	4.23***	.20	Positive	.10*	.80***
		E	16.62	3.05	4.32***	.20	Positive	.10*	
	Positive. reint.	P	18.93	3.51	17.70***	.83	Positive	.38***	.86***
		E	19.43	3.57	20.40***	.96	Positive	.43***	
	Acceptance	P	17.40	4.35	6.81***	.32	Positive	.15**	.86***
		E	18.44	3.99	12.83***	.61	Positive	.28***	
	Humor	P	17.55	3.30	9.94***	.47	Positive	.22***	.89***
		E	17.31	3.04	9.14***	.43	Positive	.20**	
	Religious coping	P	19.39	3.95	18.20***	.86	Positive	.39***	.94***
		E	19.39	4.23	16.98***	.80	Positive	.37***	
Socially-supported approach	Emot. soc. supp.	P	20.38	3.90	23.80***	1.12	Positive	.49***	.89***
		E	20.10	3.91	22.50***	1.05	Positive	.47***	
	Instr. soc. supp.	P	18.66	3.43	16.41***	.77	Positive	.35***	.89***
		E	18.76	3.50	16.53***	.79	Positive	.36***	
	Emot. venting	P	16.19	3.85	1.04	.05	None	.02	.79***
		E	15.23	4.07	−4.03***	.19	Negative	.09	
Avoidant-oriented	Denial	P	15.50	2.69	−3.98***	.19	Negative	.09	.82***
		E	15.53	2.52	−3.99***	.19	Negative	.09	
	Mental diseng.	P	17.33	2.84	9.89***	.47	Positive	.22***	.77***
		E	16.74	3.00	5.26***	.25	Positive	.12*	
	Beh. diseng.	P	15.35	3.14	−4.36***	.21	Negative	.10*	.89***
		E	15.48	3.24	−3.40***	.16	Negative	.08	
	Substance use	P	16.48	3.19	3.17**	.15	Positive	.07	.80***
		E	16.40	3.31	2.56*	.12	None	.06	
	Self-injury	P	20.19	2.88	.07	.07	None	.03	.92***
		E	20.22	2.97	.07	.07	None	.03	

1. P = Problem, E = Emotion
2. For all coping strategies except Self-injury, *M* >16 = positive impact, *M* <16 = negative impact.
3. For Self-injury *M* >20 = positive impact, *M* <20 = negative impact.
4. *p<.05; **p<.001, ***p<.0001, FWER α=.003
5. *r* with impact effect derived from *d*, where $r = d / \sqrt{(d^2 + 4)}$

effect. The correlations between each matched pair of impact scores is also reported in this table. Most coping strategies had a significant impact on both problems and emotions in the expected direction. Planning, Active coping, Positive reinterpretation, Religious Coping, and both Social Support strategies had the strongest positive impacts on both problems and emotions (*Mdn d* = .845). Unexpectedly, Mental Disengagement was viewed as having a positive impact on problems and emotions. Curiously, although Substance Use had no impact on emotions, it did have a marginally positive impact on problems. Self-injury had no impact whatsoever. Despite these differences, it should be noted that matched pairs of coping strategy impacts were very strongly correlated (*Mdn r* = .865), suggesting that strategies had nearly equivalent impact effects on problems and emotions.

The correlation between each strategy and its impact effects provides information about the proportion of individuals who reported that a given strategy had an appreciable positive or negative impact. Conceptualized as a binomial effect (Rosenthal & Rubin, 1982), with dichotomized outcomes of either 'impact' or 'no impact' and equally distributed groups when $r = .0$ (i.e. 50% chance of being in one group or the other), every $|.2|$ of r indicates an additional 10 percent of the sample comprised the 'impact' group for the direction of its effect (i.e. 'positive' or 'negative'). Thus, approximately 71 percent of respondents reported that use of Planning was helpful, while 55 percent of respondents felt that Behavioral Disengagement made matters worse.

To further evaluate the effect of each strategy's impact, and to examine whether stressors or perceived control affected impacts, a mixed-model ANOVA was conducted, where type of impact (i.e. Problem vs. Emotion) and strategy were repeated measures, and stressor category and control were between subjects variables. The control main effect was very small but significant, $F(1,413) = 8.83$, $p < .01$, $\eta_p^2 = .02$, indicating that higher perceived control was associated with slightly greater impacts. A small but significant main effect of strategy was also found, $F(15,6195) = 10.76$, $p < .001$, $\eta_p^2 = .03$, indicating that some strategies had a slightly greater overall impact than others. The strategy by category interaction, $F(15,6195) = 1.81$, $p < .001$, $\eta_p^2 = .02$, indicates that the degree of impact for each strategy varied somewhat depending on the stressor, although the effect was very small.[5] Neither the stressor category main effect nor the control by category interaction was significant.

The lack of an impact-type main effect indicates that across strategies there was no difference between their overall impact on problems or emotions. However, the very small though significant strategy by impact-type interaction effect, $F(15,6195) = 3.13$, $p < .001$, $\eta_p^2 = .01$, indicates that despite the very high correlations between pairs of impacts, some strategies had a somewhat greater effect on either problems or emotions. Tukey tests indicated that only five strategies demonstrated a small, but significant, differential impact effect ($p < .05$). Strategies that tended to have a greater impact on the problem included Positive Reinterpretation ($M_{problem} = 19.43$, $SD = 3.57$; $M_{emotion} = 18.93$, $SD = 3.51$, $d = .14$), Active Coping ($M_{problem} = 19.02$, $SD =$ 3.71; $M_{emotion} = 18.15$, $SD = 2.95$, $d = .26$), and Acceptance ($M_{problem} = 18.44$, $SD = 3.99$; $M_{emotion} = 17.40$, $SD = 4.35$, $d = .25$), whereas Mental Disengagement ($M_{problem} = 16.74$, $SD = 3.00$, $M_{emotion} = 17.33$, $SD = 2.83$, $d = .20$) had a greater impact on emotions. The differential impact effect for Emotional Venting ($M_{problem} = 16.19$, $SD = 3.85$, $M_{emotion} = 15.23$, $SD = 4.07$, $d = .24$) indicated that the negative impact on emotions was significantly different from its lack of impact on problems. None of the other interactions were significant.

Relationship between frequency of using a coping strategy and its corresponding impact

Correlations were computed to assess whether the frequency with which a given strategy was used was related to its corresponding impact. Given the very strong correlations found between matched pairs of impact scores (see Table 1), a mean overall impact score derived from the sum of the two impacts was used in all subsequent analyses. These data are reported in the first column of Table 2. Positive correlations (*Mdn r* = .58) were found between each approach-oriented coping strategy's frequency of use and its total impact. For the avoidance-oriented strategies, the relationships were generally weaker, and for Behavioral Disengagement and Denial the relationships were negative, indicating that the more these two strategies were used the more self-detrimental the effect.

Relationships between each strategy's frequency of use and impact and post-event outcomes

In order to simultaneously examine the relationships between each coping strategy's frequency of use and overall impact on post-event health and well-being, exploratory path analysis was conducted.[6] Each coping strategy's frequency score was hypothesized to have a direct effect on both its corresponding impact as well as on each outcome. As strategy data reflected multiple responses to the same items, errors for these measures were allowed to correlate (Reddy, 1992). In keeping with the appraisal model, perceived control was hypothesized to have a direct effect on frequencies, impacts, and post-event outcomes. Based on recent evidence that well-being is influenced by efficacy-beliefs (Karademas, 2006), post-event Self-efficacy was predicted to have a direct effect on Growth, while

Table 2. Correlations between each coping strategy's frequency of use and its overall impact (r_{FI}), and path and error coefficients for each coping strategy's frequency of use and overall impact and other predictors on health outcomes

			Self-efficacy	Growth	Diminishment	Illness symptoms
Self-sufficient approach	Planning	F	.19**	−.03	.08	.13
	$r_{FI=}$ .64***	I	.10	−.10	−.13	.06
	Active coping	F	.05	−.05	.08	−.02
	$r_{FI=}$ .62***	I	.05	.03	.01	−.06
	Suppress competing	F	.09	.07	.03	.10
	$r_{FI=}$ .26***	I	.00	.01	.10	−.06
	Restraint	F	−.07	.07	.12	−.04
	$r_{FI=}$ .28***	I	.07	−.02	.02	−.11
	Positive reinterp.	F	.10	.17**	−.07	−.10
	$r_{FI=}$ .69***	I	.03	.09	−.01	.04
	Acceptance	F	.30***	.02	.17**	−.03
	$r_{FI=}$ .48***	I	−.12	.06	−.05	.06
	Humor	F	−.03	.03	.09	−.07
	$r_{FI=}$ .82***	I	.03	−.07	.13	.03
	Religious coping	F	.07	.10	.01	.05
	$r_{FI=}$ .86***	I	−.04	.09	.05	.03
Socially-Supported approach	Emot. soc. sup.	F	.01	.01	−.25***	.04
	$r_{FI=}$ .69***	I	.10	.07	.09	−.08
	Inst. Soc. sup.	F	−.04	−.01	.18**	−.02
	$r_{FI=}$ .58***	I	.09	.03	−.19**	.00
	Venting emotions	F	−.08	.09	.24***	.11
	$r_{FI=}$ .14**	I	−.05	−.04	.07	−.05
Avoidant-oriented	Denial	F	.07	−.01	.07	.09
	$r_{FI=}$ −.14**	I	.01	.08	−.09	−.01
	Behavioral diseng.	F	.03	.01	.19**	.06
	$r_{FI=}$ −.31***	I	.04	−.07	.01	.08
	Mental diseng.	F	.04	.02	.08	.14**
	$r_{FI=}$ .42***	I	−.01	−.03	.00	−.07
	Substance use	F	.03	.02	.05	−.02
	$r_{FI=}$ .22***	I	.00	−.05	.07	.11
	Self injury	F	−.08	.00	.10	.14**
	$r_{FI=}$ .07	I	−.05	.03	.05	−.07
Other predictors	Perceived control		.07	.00	.09	−.12
	Self-efficacy		–	.51***	–	–
	Diminishment		–	–	–	.36***
	Error		.72	.61	.78	.77

1. F = Frequency; I = Impact
2. ** *p* <.01 *** *p* <.001

Diminishment, which reflected increases in post-event negative affectivity, was expected to have a direct effect on the development of Illness symptoms (Glaser & Kiecolt-Glaser, 2005).

Standardized path and error coefficients for all variables included in the model are reported in Table 2. The correlations between each strategy's frequency and its impact are equivalent to the path coefficients between these measures, and (as previously noted) are reported in the first column of Table 2. Given that path coefficients may be interpreted as an index of effect size, we can infer the approximate proportion of respondents for whom using a given strategy resulted in a change (improved or worsened) in health and well-being (Rosenthal & Rubin, 1982).
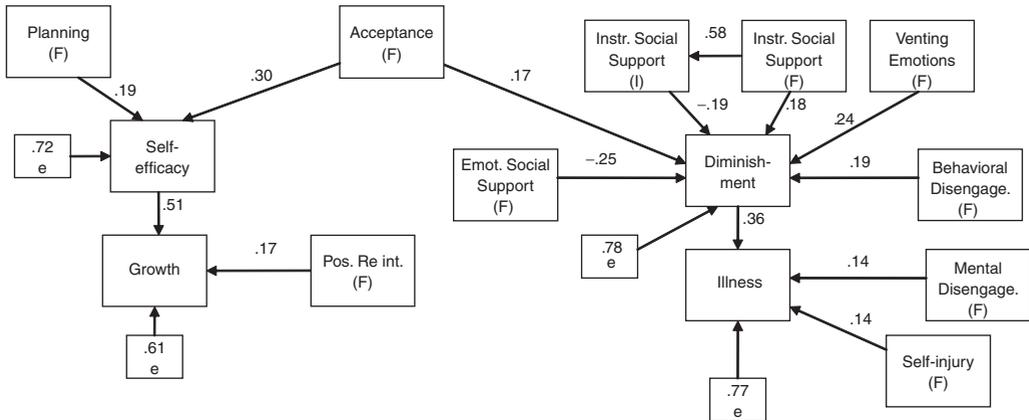
988

Figure 1. Simplified path diagram showing significant predictors of post-event self-efficacy, growth, diminishment, and illness

Fit indices for the model were generally acceptable, *CFI* = .953, *NNFI* = .955, *RMSEA* = .059, *RMSEA CI* = .053–.065, with the exception of chi-square, χ^2 = 636.24(260), *p* < .001. Significant positive effects on Self-efficacy were found for the frequency of Planning and Acceptance. None of the other direct or indirect effects on Self-efficacy were significant. For Growth, significant positive effects were found for the frequency of Positive Reinterpretation and for Self-efficacy. For Diminishment, significant positive effects were found for the frequency of Acceptance, Venting Emotions, and Behavioral Disengagement. Significant negative paths were found for the frequency of seeking Emotional Social Support and the impact of Instrumental Social Support. Post-event Diminishment and the frequency that Mental Disengagement and Self-injury were used had significant effects on Illness. Figure 1 depicts a simplified diagram of these significant paths.

Discussion

There were several important findings in the present study. As predicted, approach-oriented strategies tended to have positive impacts, while avoidant-oriented strategies tended to have negative impacts. Also as hypothesized, strategies did not generally impact problems or emotions differently. This finding, and the strong correlations between impact scores, suggests it may be more meaningful to consider the *overall* impact of a coping strategy,

rather than its unique effects on problems or emotions. Additionally, there was evidence that coping strategies were more effective when individuals believed they had more control.

The frequency of using Acceptance and Planning enhanced the development of Self-efficacy, which along with Positive Reinterpretation, predicted greater Growth. For post-event Diminishment, significant positive effects were found for Acceptance, Venting Emotions, and Behavioral Disengagement, suggesting that the more these strategies were used, the more people tended to weaken. The positive relationship between Acceptance and Diminishment was somewhat puzzling especially given that this strategy was also associated with enhanced Self-efficacy and (indirectly) Growth. We interpret this finding as reflecting the 'Serenity Prayer', that asks for the ' … grace to accept with serenity the things that cannot be changed, [and the] courage to change the things that should be changed … ' (Brown, 1987, pp. xxiv). Acceptance may involve recognizing the factors one can and cannot change about a stressful situation; thus, Acceptance may promote feeling capable of overcoming new challenges, but may call attention to one's limitations as well.

The frequency of Emotional Social Support and the impact of Instrumental Social Support were negatively related to Diminishment, which is consistent with previous theory and research on the importance of social support as a buffer against stress (e.g. Chesney & Darbes, 1998). However, the positive relationship between the frequency of seeking

Instrumental Social Support and Diminishment suggests that needing advice involves admitting to some weakness, which is undesirable. This interpretation is consistent with evidence that subtle, rather than overt, forms of social support are more welcome (Bolger, Zuckerman, & Kessler, 2000). Post-event Diminishment, and use of Self-injury and Mental Disengagement predicted Illness; given that the overall impact of Mental Disengagement was marginally positive, its relationship with Illness suggests that even if using this strategy makes people feel better temporarily, there is a potential cost for suppressing unpleasant thoughts and feelings about one's stress.

The results of the present study point to some potentially valuable suggestions for practitioners who wish to advise clients about coping with stress. First, although the findings indicate it would be sensible for practitioners to direct their clients to use approach-oriented strategies over avoidant-oriented ones, evidence that some approach-oriented strategies were 'double edged' indicates that further counseling is warranted. In particular, practitioners should help their clients to focus more on the positive benefits of Acceptance (i.e. identify solvable problems) and seeking Instrumental Social Support (i.e. acquire useful advice) over the negative aspects (i.e. admit limitations), which may facilitate their potential to experience improved self-efficacy and growth, as well as buffer against diminishment and illness.

There are two notable limitations to the present study: First, the respondents' data are all retrospective self-reports; an important goal for follow-up research would be to conduct a prospective study of the relationships between coping strategy frequency of use, impact, and outcomes. Second, the average respondent was a 20-something man or woman; it will be important to replicate this study design with different cohort groups.

Notes

1. No significant gender differences were found for the measures, thus gender was not included in subsequent models.
2. Highly similar methods for studying stressful events have been used by Folkman and Lazarus (1980) and Carver et al. (1989).
3. A factor analysis of the illness symptoms revealed one strong factor; extraction of two factors resulted in many items having cross loadings of nearly equal magnitude; the factors correlated .67. Given the substantial overlap between physical and mental symptoms, the items were summed to create an overall illness score.
4. Cell means for these ANOVA's and the results of the simple-effects and post-hoc analyses are available from the first author.
5. Cell means for these ANOVA's are available from the first author.
6. This was an exploratory analysis, with the goal of evaluating relationships among the variables, in keeping with relevant theory. Thus, all paths were retained, rather than running through successive iterations in search of improved fit.

References

Bandura, A. (1986). Social foundations of thought and action: A social cognitive theory. Englewood Cliffs, NJ: Prentice Hall.

Benight, C. C., Cieslak, R., Molton, I. R., & Johnson, L. E. (2008). Self-evaluative appraisals of coping capability and posttraumatic distress following motor vehicle accidents. *Journal of Consulting and Clinical Psychology*, *76*, 677–685.

Bolger, N., Zuckerman, A., & Kessler, R.C. (2000). Invisible support and adjustment to stress. *Journal of Personality & Social Psychology*, *79*, 953–961.

Brown, R. M. (Ed.). (1987). The essential Reinhold Niebuhr: Selected essays and addresses. New Haven, CT: Yale University Press.

Brown, S. A., Williams, K., & Collins, A. (2007). Past and recent deliberate self-harm: Emotion and coping strategy differences. *Journal of Clinical Psychology*, *63*, 791–803.

Carver, C. S., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267–283.

Chesney, M., & Darbes, L. (1998). Social support and heart disease in women: Implications for intervention. In K. Orth-Gomer, M. Chesney, & N. K. Wenger (Eds.), Women, *Stress, and Heart Disease* (pp. 165–182). Mahwah, NJ: Erlbaum.

Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health & Social Behavior*, *21*, 219–239.

Glaser R., & Kiecolt-Glaser, J.K. (2005). Stress-induced immune dysfunction: implications for health. *Nature Reviews Immunology*, *5*, 243–251.

Hasking, P., Momeni, R., Swannell, S., & Chia, S. (2008). The nature and extent of non-suicidal self-injury in a non-clinical sample of young adults. *Archives of Suicide Research*, *12*, 208–218.

Holmes, T. H., & Rahe, R. H. (1967). The social readjust-ment rating scale. *Journal of Psychosomatic Research*, *11*, 213–218.

Joseph, S., & Linley, P. A. (2005). Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology*, *9*, 262–280.

Karademas, E. C. (2006). Positive and negative aspects of well-being: Common and specific predictors. *Personality and Individual Differences*, *43*, 277–287.

Kraaij, V., Garnefski, N., & Schroevers, M. J. (2009). Coping, goal adjustment, and positive and negative affect in definitive infertility. *Journal of Health Psychology*, *14*, 18–26.

Lazarus, R. S. (1993). From psychological stress to the emotions: A history of a changing outlook. *Annual Review of Psychology*, *44*, 1–21.

Lequerica, A. H., Forschheimer, M., Tate, D. G., Roller, S., & Toussaint, L. (2008). Ways of coping and per-ceived stress in women with spinal cord injury. *Journal of Health Psychology*, *13*, 348–354.

Litman, J. A. (2006). The COPE inventory: Dimensionality and relationships with approach- and avoidance-motives and positive and negative traits. *Personality and Individual Differences*, *41*, 273–284.

Park, C. L., Cohen, L. H., & Murch, R. L. (1996). Assessment and prediction of stress-related growth. *Journal of Personality*, *64*, 71–105.

Park, C. L., Edmondson, D., Fenster, J. R., & Blank, T. O. (2008). Positive and negative health behavior changes in cancer survivors: A stress and coping perspective. *Journal of Health Psychology*, *13*, 1198–1206.

Perez, J. E., Chartier, M., Koopman, C., Vosvick, M., Gore-Felton, C., & Spiegel, D. J. (2009). Spiritual striving, acceptance coping, and depressive symptoms among adults living with HIV/AIDS. *Journal of Health Psychology*, *14*, 88–97.

Reddy, S. K. (1992). Effects of ignoring correlated measurement error in structural equation models. *Educational and Psychological Measurement*, *52*, 549–570.

Rodin, J., & Langer, E. J. (1977). Long-term effects of a control-relevant intervention with the institutionalized aged. *Journal of Personality and Social Psychology*, *35*, 897–902.

Rosenthal, R., & Rubin, D. B. (1982). A simple, general purpose display of magnitude of experimental effect. *Journal of Educational Psychology*, *74*, 166–169.

Sansone, R. A., Wiederman, M. W., & Sansone, L. A. (1998). The Self-Harm Inventory (SHI): Development of a scale for identifying self-destructive behaviours and borderline personality disorder. *Journal of Clinical Psychology*, *54*, 973–983.

Schwartz, R. M., Hogben, M., Liddon, N., Augenbraun, M., McCormack, W. M., Rubin, S., & Wilson, T. E. (2008). Coping with a diagnosis of C trachomatis or N gonorrhoeae: Psychosocial and behavioral correlates. *Journal of Health Psychology*, *13*, 921–929.

Schwarzer, R., & Jerusalem, M. (1995). Generalized self-efficacy scale. In J. Weinman, S. Wright, & M. Johnston, *Measures in health psychology: A user's portfolio*. Causal and control beliefs (pp. 35–37). Windsor: NFER-NELSON.

Spitzer, R. L., Kroenke, K., & Williams, J. B. W. (1999). The Patient Health Questionnaire primary care study group: Validation and utility of a self-report version of PRIME-MD: The PHQ primary care study. JAMA, 282, 1737–1744.

Author biographies

JORDAN A. LITMAN, PhD is visiting scientist and research associate of the Center for Research in Behavioral Medicine and Health Psychology, Department of Psychology, University of South Florida, Tampa, FL, USA.

GEORGE D. LUNSFORD, M.A. is doctoral candidate and graduate research assistant in the Center for Research in Behavioral Medicine and Health Psychology, Department of Psychology, University of South Florida, Tampa, FL, USA.