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Coping with Daily Stress: The Role of Conscientiousness

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Abstract

The current study examined how specific coping strategies mediate the relationship between Conscientiousness (C) and positive affect (PA) in a large, multiethnic sample. Using an internet-based daily diary approach, 366 participants (37.6% Caucasian, 30.6% Asian American, 20.7% Hispanic, 9.1% African American) completed measures that assessed daily stressors, coping strategies used to deal with those stressors, and PA over the course of five days. In addition, participants completed a measure of the Five-Factor Model of Personality. Problem-Focused coping partially mediated the relationship between C and PA. Individuals higher in C used more problem-focused coping, which, in turn, was associated with higher PA. The findings of the current study suggest C serves as a protective factor from stress through its influence on coping strategy selection. Other possible mediators in the C-PA relationship are discussed.

Keywords

Conscientiousness; coping; stress; The Big Five; positive affect

1. Introduction

The college environment has proven to be a great source of stress for students and the amount of psychological distress experienced by students is presumed to have increased over the last few decades (Rosenthal & Schreiner, 2000). Studies have shown high levels of stress are related to higher levels of psychological symptoms, such as anxiety, anger, and depression (Dyson & Renk, 2006). The adjustment to college life seems a particularly difficult aspect of the college experience. Many students battle feelings of homesickness and are forced to adapt to a new environment without their usual support systems, such as old friends and family. New stressors present challenges to students' coping abilities. The failure to develop coping strategies to respond to new stressors often results in poor psychological adjustment to university life (Dyson & Renk).

The aim of the current study was to examine the effects of the personality dimension Conscientiousness (C) on coping and positive affect (PA). Past research has shown C is associated with the use of health related behaviors and active coping strategies (Connor-Smith & Flachsbart, 2007; Saklofske, Austin, Galloway, & Davidson, 2007). Thus, C is conceptualized by some as a general protective factor from stress. However, to the best of our

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knowledge, research has not examined how coping might mediate the C-PA relationship using a daily diary design with a large, multiethnic sample. C is one of the "Big Five" traits that make up the Five-Factor Model of Personality (Neuroticism, Extraversion, Openness, Agreeableness)—the most commonly used model to define personality (Connor-Smith & Flachsbart). C is characterized by an individual's tendency to be well organized, diligent, thorough, achievement-oriented, reliable, and self-determined. Individuals high in C, as opposed to those low in C, typically show high levels of self-regulation, persistence, and impulse control (McCrae & John, 1992). High levels of C have also been related to greater perceived health, life satisfaction, and positive affect (Hayes & Joseph, 2003; Roesch, Aldridge, Vickers, & Helvig, 2009). Negative relationships have been found between C and depression, negative mood, and perceived stress (Besser & Shackelford, 2007).

It has been empirically established that C is an important factor in how individuals assess and respond to stressful situations; however, the exact role C plays in the coping process is not clear (e.g., Lee-Baggley, Preece, & DeLongis, 2005). C is believed to be related to an increase in stress management, stress tolerance, and the ability to avoid stress (Besser & Shackelford, 2007) and has been conceptualized as a personality process (see Vollrath, 2001). These suggestions are consistent with a theoretical model that proposes a specific temporal sequence relating personality variables to outcomes of interest (PA) via coping mediators. According to the differential coping-choice model (Bolger & Zuckerman, 1995), individuals may be more or less reactive to stress because individuals with certain personality traits (e.g., individuals high in C) employ more (or less) adaptive coping strategies. Coping choice, then, is proximally associated with the outcome of interest. An example of this mediated effect proposed by Bolger and Zuckerman is shown in Figure 1 (see compound paths represented by solid lines). This model does not assume that the relationship between personality and outcomes of interest are completely explained by coping. Thus it is possible that C is also directly related to PA because of factors beyond coping choice. This possibility is represented by the direct effect from C to PA in Figure 1.

A recent meta-analysis has shown that C facilitates the use of specific coping strategies and potentially inhibits the use of other coping strategies (Connor-Smith & Flachsbart, 2007). C is positively associated with the use of more approach than avoidance strategies, which generally results in more positive affective experiences (Connor-Smith & Flachsbart). Higher C is associated with the use of problem solving, cognitive restructuring, emotional social support, instrumental social support, and emotion regulation (Connor-Smith & Flachsbart; Roesch, Wee, & Vaughn, 2006; Vollrath & Torgersen, 2000). Individuals high in C generally use less denial, negative emotion-focused, avoidant coping, and substance use as forms of coping (Connor-Smith & Flachsbart; Saklofske et al., 2007). O'Brien and DeLongis (1996) argued that the differences in coping strategy selection are due to how people appraise stressful situations, with these appraisals dependent upon characteristics of both the person and the situation. Shewchuk, Elliot, and MacNair-Semands (1999) found that regardless of how the stressor is appraised, higher C is associated with the use of a more instrumental, proactive style of coping. Similarly, O'Brien and DeLongis found that, across situations, individuals higher in C use less escape-avoidance and self-blaming strategies. Individuals high in C tend to use more problem-focused coping strategies, which appear effective when used in situations over which the individuals perceive they have some control (O'Brien & DeLongis). In sum, while individual studies have shown a relationship between C and various coping strategies, the Connor-Smith and Flaschbart (2007) meta-analysis found that C was primarily associated with forms of problem-focused coping.

While theories of coping are becoming more refined, there still remains contention regarding theoretical conceptualizations, structure, and measurement methods (see Skinner, Edge, Altman, & Sherwood, 2003). Traditionally researchers have used two primary measurement

approaches to operationally define coping. The first approach simply asks individuals how they cope with stress *in general*, whereas the second approach asks individuals how they coped with reference to a *target stressor* (either defined by the researcher or self-identified) at a single time-point. These single time-point assessments are limited in that they are unable to model stress and coping as a dynamic, unfolding process, which is best operationalized through repeated assessments of individuals over smaller time-frames (Stone, Shiffman, Atienza, & Nebeling, 2007). Through these repeated assessments, ecological momentary assessment/daily diary designs allows variability of the stress and coping process to be captured *in situ*, and subsequently modeled at the within-person (e.g., daily) level. The aggregation of within-person assessments across time reduces the noise inherent in single time-point measures error relative to single assessments and provides a more statistically reliable and powerful measure of the construct(s) of interest (Schwarz, 2007).

As suggested by Carver and Connor-Smith (2010), the personality and coping literature is lacking in studies examining how both personality and coping relate to PA using innovate methodologies that assess coping and outcomes of interest in a more intensive way. In the current study, a daily diary methodology was implemented to measure coping in multiple situations over multiple days. Thus, the role of coping as a mediator of the relationship between C and PA could be more rigorously evaluated. Moreover, these relationships were evaluated in a large, multiethnic sample. While daily diary designs have been used to model the stress and coping process (e.g., Park, Armeli, & Tennen, 2004), the type of sample used in these studies has been overwhelmingly Caucasian (over 90% Caucasian). Based on the differential coping-choice and effectiveness model and previous research linking C, coping, and PA (Carver & Connor-Smith), it was hypothesized that individuals high in C would use more Problem-Focused coping, which, in turn, would be associated with higher PA.

2. Method

2.1. Participants

Participants were college students recruited from a large western university. Three hundred and sixty-six participants completed all target measures (to be described below). There were more female than male participants (68.5% vs. 31.5%) and their ages ranged from 17 to 25 years (M = 20.14, SD = 2.10). This multiethnic sample was composed of Caucasians (37.6%), Asian Americans (30.6%), Hispanics/Latinos (20.7%), African Americans (9.1%), and individuals who were either biracial or another ethnic group (2%). The sample also represented a cross-section of majors at the university, with larger percentages of Business (24.0%) and Psychology (15.9%) majors, respectively. Moreover, 51% of the participants were 1st year students.

2.2. Measures

Daily diary pages assessed three primary variables: stress, coping, and positive affect. Personality and demographic variables were completed at one administration point.

2.2.1. Perceived stress—Participants were asked to first describe the most stressful or bothersome event that had occurred to them during each day using an open-ended format. Next the participants rated the perceived stressfulness of the event using a 5-point rating scale (1 = *very slightly* to 5 = *extremely*).

2.2.2. Perceived control—Participants were asked how much control they had over the onset of the stressful event that they had described using a 5-point rating scale (1 = *no control* to 5 = *absolute control*).

2.2.3. Coping—Daily coping was assessed with 28 items reflecting 14 specific coping strategies using a 4-point rating scale (1 = *not at all* to 4 = *a lot*). These items were taken from Brief COPE (Carver, 1997), the Children's Coping Strategies Checklist and the How I Coped Under Pressure Scale (Ayers & Sandler, 2000) and the Responses to Stress Questionnaire (Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000. Four daily coping variables were used in the current study based on a recent multilevel factor analysis (see Roesch et al., in press, for a full exposition of the use of this technique and derivation of the factors): (1) Social Support (mean α = .77; composed of problem-focused and emotion-focused support items; e.g., *talked to my friends about how I was feeling*); (2) Problem-Focused Coping (mean α = .80; composed of problem solving and cognitive decision making items; e.g., *thought about what I need to know to solve the problem*); (3) Minimization of Stressor (mean α = .75; composed of avoidant and distracting action items; e.g., *tried to stay away from things that made me upset*); and (4) Emotional Rumination (mean α = .70; composed of expressing feelings and seeking understanding items; e.g., *cried to myself/thought about why it had happened*).

2.2.4. Positive Affect (PA)—PA was assessed with 10 adjectives from the Positive Affect Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). Items that comprised the PA scale were highly reliable (mean α = .92). Participants completed the PA scale once a day according to *how they feel at* this moment using a rating scale that ranged from very slightly (= 1) to very much (= 5).

2.2.5. Personality questionnaire—To assess the C dimension of the FFM, the 10-item C scale from the International Personality Item Pool (IPIP; Goldberg, 1999) was used. The instructions asked participants to rate how accurately each of the items described them using a 5-point scale ranging from 1 = *very inaccurate* to 5 = *very accurate* (α = .88).

2.3. Procedure

Participants were recruited via flyers, course/club presentations, and university seminars. Once an individual agreed to participate they received instructions (via email) on how to complete the internet-based daily diary page over the course of five days. Potential participants signed an electronic informed consent form prior to participating in the study. Once the consent form was signed, participants completed the IPIP and the demographic questionnaire. Next, participants were given instructions on how to complete the internet-based daily diary page over the next 5 consecutive days. Participants were given a username and password (that they could change) to access the secured website in order to complete the diary page. These procedures are consistent with recent Internet-based daily diary studies (Nezlek, 2005; Park et al., 2004). Compliance with the dairy page at the end of the day was high, with the model response time of reporting being 9:43 PM and over 85% of observations reported after 7 PM. Participants were paid $25 at the completion of the study.

3. Results

There were a total of 1782 observations (diary pages completed) for the 366 participants, with an average of 4.87 observations per participant. Of the stressful events reported, 28.4% were related to academics (i.e., homework, tests) on average across days, with smaller percentages of stressful events reported on social relationships with peers (20.7%) or family (17.5%), financial concerns (7.1%), and work-related concerns (6.8%). The intraclass correlation coefficient for the positive affect outcome was .57.

Because of the nested structure of the data (repeated measures [level-1] nested within individuals [level-2], multilevel regression models (MRM) were tested using MPlus (Muthén, & Muthén, 2006). MRM was chosen over procedures that use ordinary least squares estimation

because this technique provides better parameter estimates when data are hierarchically structured (Raudenbush & Bryk, 2002). The regression coefficients from the target models below are unstandardized (*b*). In addition, for the binary MRMs the reduction in the proportion of variance explained (or error) index (r^2) is presented as an indicator of effect size for all regression coefficients. This index is analogous to R^2 from linear regression (see Raudenbush & Bryk for a full discussion of this index). In the multiple predictor models, this index represents the additional variance accounted for by a target predictor (e.g., C) controlling for all other covariates and target predictors in the model, analogous to a semi-partial correlation squared (sr^2).

Preliminary bivariate analyses were conducted to identify statistically significant covariates for use in the target multiple predictor models. All continuous level-1 and level-2 covariates were grand-mean centered. At level-1 perceived stressfulness ($b = -.09$, $SE = .02$, $r^2 = .02$, $p < .001$) and perceived control ($b = .09$, $SE = .02$, $r^2 = .02$, $p < .001$) were significantly associated with daily PA, with lower perceived stress and higher perceived control being associated with more daily PA. At the individual level, both gender ($b = -.30$, $SE = .08$, $r^2 = .05$, $p < .001$) and age ($b = .07$, $SE = .02$, $r^2 = .05$, $p < .001$) were significantly associated with PA, with males and older individuals reporting more PA. All four of these covariates were used in the multiple predictor MRM models described below.

To test the target mediational pathways of interest, a series of multilevel models were evaluated. First, a model where a direct effect from C (antecedent) to PA (outcome) was specified; C was significantly related to PA ($b = .25$, $SE = .06$, $sr^2 = .06$, $p < .001$), individuals who scored higher on C reported experiencing higher PA. Second, a model where a direct effect from C to the coping variables (mediators) was specified; C was significantly associated with Problem-Focused ($b = .11$, $SE = .05$, $sr^2 = .02$, $p = .013$), but not with Minimization of the Stressor ($b = .01$, $SE = .04$, $sr^2 = .00$, $p = .85$), Social Support ($b = .01$, $SE = .05$, $sr^2 = .00$, $p = .34$), or Emotional Rumination ($b = -.07$, $SE = .04$, $sr^2 = .01$, $p = .08$); individuals who scored higher on C reported using more Problem-Focused coping in dealing with the identified stressor. Because C was only significantly related to Problem-Focused Coping, further tests of mediation only involved this coping variable. A model where a direct effect from Problem-Focused coping to PA was specified; Problem-Focused Coping was significantly related to PA ($b = .18$, $SE = .03$, $sr^2 = .07$, $p < .001$), individuals who used more Problem-Focused Coping on a daily level reported experiencing higher PA on a daily level. To formally test the mediated pathway (C→Problem-Focused Coping→PA), MacKinnon's asymmetric confidence interval was calculated to determine if the mediated effect was statistically significant (see MacKinnon, Fritz, Williams, & Lockwood, 2007). The 95% confidence interval ranged from .004–.038. A mediated effect is supported because the confidence interval does not contain 0. A final model was tested to determine if complete (vs. partial) mediation was evident. Both C and Problem-Focused Coping were simultaneously entered as predictors of PA. Both C ($b = .20$, $SE = .05$, $sr^2 = .05$, $p < .001$) and Problem-Focused Coping PA ($b = .18$, $SE = .03$, $sr^2 = .06$, $p < .001$) remained significantly associated with PA, supporting partial mediation.

4. Discussion

The purpose of the current study was to examine how coping might mediate the relationship between C and PA. Problem-Focused coping partially mediated the relationship between C and PA, supporting this hypothesis. Individuals higher in C used more Problem-Focused coping, which in turn was associated with higher PA. This highlights the fact that C serves as a protective factor from stress, in part, through coping strategy selection. These findings are supportive of the differential coping-choice model (Bolger & Zuckerman, 1995), which theorizes that personality influences coping choice, and that it is the specific coping strategies used that determine the positive or negative outcomes when one is faced with a stressor. In the

current study, problem-focused coping was identified as the coping dimension of choice for individuals high on C and was associated with higher PA scores. Supporting this substantive interpretation, the problem-focused coping variable is conceptually and operationally similar to these problem-focused or problem-solving dimensions commonly found on coping instruments (e.g., Coping Strategies Indicator; CSI; Amirkhan, 1990; Ways of Coping; WOC; Lazarus & Folkman, 1984). The two basic coping strategies subsumed within this variable included cognitive decision making and direct problem solving. Cognitive decision making is similar to that of planning, which has been associated with increased positive affective experiences in samples of college students and adolescents (Steward et al., 1998; Vaughn & Roesch, 2003). The use of direct problem solving has also been associated with more positive affective experiences (Aldridge & Roesch, 2008). In addition, previous studies have found C to be related to both Problem-Focused coping strategies and positive outcomes (see Carver & Connor-Smith, 2010).

Interestingly, the direct relationship between C and PA was still present even when Problem-Focused coping was simultaneously considered as a predictor of PA (in the test for partial vs. complete mediation). This finding suggests that there are other variables not captured in the current study that contribute to C being a protective factor from stress. Among these possible mediators are stress exposure and coping efficacy. Stress exposure may be more limited for Conscientious individuals than for individuals lower in C. As suggested in previous studies, the tendency to plan and prioritize by those high in C may reduce the number of stressors encountered (Besser & Shackelford, 2007; Connor-Smith & Flachsbart, 2007). Previous research has shown C to be positively related to healthy behaviors and negatively related to unhealthy behaviors (e.g., Saklofske et al., 2007). By avoiding potentially stressful situations through responsible and healthy choices, the need for coping is eliminated.

Although many stressors can be avoided, it is unrealistic to assume all will be. We have shown that one's choice of coping strategies can contribute to affect, but what we did not examine was coping efficacy. Conscientious individuals may be experiencing higher levels of PA because they have confidence in their coping abilities and know how to effectively use the coping strategies they select. Penley and Tomaka (2002) found that C was positively correlated with perceived coping ability, perceived performance, and the tendency to perceive tasks as challenges instead of threats. The persistent, self-regulating, and goal/achievement-oriented aspects of C should allow individuals to allocate their resources appropriately so as to a) focus their efforts on eliminating stressors or b) continue to focus on and work toward their goals without allowing the stressors to interfere with their achievements. Repeatedly overcoming stressors should contribute to the development of more experienced, skilled copers. This may help to explain the findings from previous studies that C is associated with a variety of effective coping strategies and the experience of more positive outcomes (Connor-Smith & Flachsbart, 2007; Vollrath & Torgersen, 2000).

Limitations of the current research should be noted. First, the prediction of PA could differ as a function of other stress-related variables such as stressor type. Lee-Baggley et al. (2005), for example, recently reported that individuals used more avoidance-oriented coping strategies (e.g., withdrawal, self-blame) when encountering marital conflict but used more approach-oriented coping strategies (e.g., relationship-focused) when encountering child misbehavior. Second, more assessment periods would have resulted in more reliable assessments of coping and PA. With respect to the end-of-the-day reports, some research has found that this assessment method is susceptible to recency and saliency heuristic biases (e.g., Hedges et al., 1985; see Stone et al., 2007). Our conceptualization of situation-specific coping could be questioned. Participants at the end of each day recalled and described the most stressful event that they experienced and the specific coping strategies that they used in combating it. Certainly this recollection of the thoughts, feelings, and behaviors is still prone to biased memory

recollections. However, by reducing the "recollection window", the current study has greatly improved the measurement of coping. Third, the measures used are self-report, and thus the data do not overcome this potential source of bias. However, as noted by Schwarz (2007) and Chan (2009), self-reports are necessary to assess self-referential perceptions (e.g., how one has coped), but clearly could be supplemented with other measures (e.g., peer reports). Fourth, the current study evaluated same-day associations between coping variables and PA; thus, causal statements about the directionality of these relationships are tenuous. And fifth, researchers could disagree with the composition and labeling of the coping factors. There has been a general lack of consensus in coping categories/dimensions as noted by Skinner et al. (2003). Related to this, the factor structure of coping measures is typically unstable (Perrez, 2001), thus the factor structure implemented here, arguably, might not generalize to other populations, methodological designs, and coping measures.

In summary, Problem-Focused coping partially mediated the relationship between C and PA in a large, multiethnic sample of college students. Conscientious individuals used more Problem-Focused coping, which was associated with higher PA. By influencing coping strategy selection and behavior, the current study identified a coping propensity for individuals high in C that is associated with higher PA. However, the direct effect from C to PA remained statistically significant after accounting for the Problem-Focused coping mediator. This suggests that other propensities (mediators) related to C exist and are also associated with higher PA.

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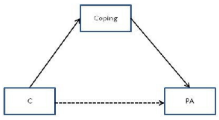

Figure 1.
Proposed coping-choice mediational model.