



Higher-order coping strategies: Who uses them and what outcomes are linked to them



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ABSTRACT

Many roads to psychological health exist, yet most are likely to conform to systematic, higher-order patterns. In a representative (on age and sex) sample of Australians ($N = 1,232$) and a Mechanical Turk sample from the USA ($N = 602$), secondary principle components analyses were conducted on two related measures of lower-order coping strategies (e.g., denial, active planning) revealing three similar (but not identical), higher-order coping strategies, which we called constructive, destructive, and social. Individual differences in these higher-order coping strategies were assessed in relation to personality (e.g., the Big Five, the Dark Triad) and outcomes (i.e., resilience, hopelessness, interpersonal trust, alcohol intake, general health, life satisfaction, and future discounting) in the full sample and in men and women. We found that constructive and destructive coping were rather opposite forms of coping as seen in the nomological network associated with them and modest, negative correlations between them. In contrast, social coping stood slightly on its own vis-à-vis correlations with extraversion, narcissism, and interpersonal trust. We also found sex differences in the higher-order coping strategies which were often mediated by individual differences in personality. Results are discussed in terms of learning, biological, clinical, and evolutionary models of personality and sex differences.

1. Introduction

Modern life is full of psychological stress in the forms of daily troubles (e.g., toxic workplace), minor annoyances (e.g., trouble with technology), and existential threats (e.g., global warming). The ways people deal with these stressors are called coping strategies, which are ways of controlling and regulating stress (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus & Folkman, 1984). Coping strategies have implications for how people deal with burnout (Shin et al., 2014), breast cancer (Danahauer, Crawford, Farmer, & Avis, 2009), infertility (Peterson, Newton, Rosen, & Skaggs, 2006), and Crohn's disease (Sarid et al., 2017), to name only a few. Researchers have identified hundreds of different lower-order ways people cope with stress including avoidance, seeking social support, religion, acceptance, taking a holiday, and reading a self-help book (Bonneville-Roussy, Evans, Verner-Filion, & Vallerand, 2017; Liddon, Kingerlee, & Barry, 2017; Shin et al., 2014); however, researchers have struggled to

identify—and, therefore, explore—potential higher-order coping strategies composed of specific coping strategies (Carver & Connor-Smith, 2010).

There are at least two perspectives on the presence of high-order coping strategies. Researchers from one perspective suggest that coping strategies should be thought of as dynamic responses, with no fixed boundaries between one another, that people use to cope (Folkman et al., 1986; Lazarus & Folkman, 1984). These researchers tend to take a theoretical approach to coping mechanisms and assert (even implicitly) that seeking higher-order coping strategies is a fool's errand. Other researchers look at coping strategies as systematic ways of dealing with stress on which individuals differ. These researchers take large amounts of items or lower-order strategies that capture individual differences in coping strategies and attempt to inductively reduce them into a smaller taxonomy using principal components analysis (Amirkhan, 1990) or cluster analysis (Nielsen & Knardahl, 2014). These researchers assert that coping strategies can be

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preferred by some people and personality traits may influence the adoption of specific coping strategies (Carver, Scheier, & Weintraub, 1989).

While somewhat inductive in nature, this latter approach has revealed systematic trends that warrant further attention. Across various studies, researchers have identified three-factor solutions using different measures of coping (Amirkhan, 1990; Danhauer et al., 2019; Sun, Vullier, Hui, & Kogan, 2019). For instance, one solution was interpreted as composed of adaptive, social support, and maladaptive coping strategies (Sun et al., 2019) whereas another was interpreted as composed of problem-solving, seeking social support, and avoidance coping strategies (Amirkhan, 1990). The irregularity in these solutions is expected given the nature of factor analytic treatments, the use of different measures and samples, the nature of coping strategies themselves, and even how researchers interpret factors (Carver, Scheier, & Weintraub, 1989; Sun et al., 2019). Principle components analysis allows for the most amount of flexibility in understanding higher-order factors by allowing underlying factors to emerge, but given that it is a data reduction technique, it permits researchers to “clean” (Jonason, Bryan, & Herrera, 2010) the factors by dropping items (e.g., complex items) and retaining central items (i.e., highest loading items). Therefore, we attempted to detect higher-order factors in coping strategies and expected three factors to emerge from analyses. Across various solutions, some form of social coping seems like a reasonable expectation of an emerging factor. Other factors have been labeled “adaptive” or “maladaptive,” “problem-solving” or “emotion-focused,” or “functional” or “dysfunctional,” but we find these labels problematic. These labels have different denotations and connotations in different areas of psychology and in colloquial-speak, respectively. For instance, evolutionary psychologists use the words “adaptive,” “maladaptive,” “functional”, and “dysfunctional” in ways that refer to how some traits can lead to more or less Darwinian fitness whereas clinical psychologists might use these same terms but mean psychosocial adjustment instead of survival and reproduction. To minimize this potential cross-disciplinary confusion, we chose the labels of “constructive” (i.e., to lead to positive outcomes) and “destructive” (i.e., to lead to aversive outcomes) to represent what appear to be healthy and unhealthy coping strategies.

2. Individual differences in higher-order coping strategies

A fundamental assertion by those who take the individual differences approach to understanding coping strategies is that they can be predicted by other individual differences. In this study, we examine how these traits are correlated with 10 aspects of personality and we examine sex differences in higher-order coping strategies. A particularly useful way of understanding individual differences, including higher-order coping strategies, is to conduct nomological network tests with measures of personality. The most commonly used taxonomy of personality to do this to-date is the Big Five or Five Factor Model (e.g., Donnellan, Oswald, Baird, & Lucas, 2006). These traits are openness, conscientiousness, extraversion, agreeableness, and neuroticism, and previous work suggests these five traits are correlated with lower-order coping strategies (Carver & Connor-Smith, 2010; Connor-Smith & Flachsbart, 2007). For instance, because extraversion is a trait about engaging with the social world, it should be especially linked to the use of social coping strategies. In contrast, the anxious and depressive nature of neuroticism may link it with destructive coping strategies. In general, constructive coping may be used by someone who is likely to have “healthy” personality traits (e.g., emotionally stable [as opposed to neurotic], agreeable, open to new experiences). In contrast, destructive coping likely characterizes an antisocial and troubled person with high neuroticism, low agreeableness, and limited openness and conscientiousness. Lastly, we see social coping as a special kind of coping likely to only be engaged in by those who enjoy and even feed-off of social interactions. Such people are likely to be agreeable and

extraverted.

To better test the idea that troubled people will have more problematic coping strategies we also examined how five dark personality traits relate to higher-order coping strategies. These dark traits are considered subclinical manifestations of personality pathologies (Marcus & Zeigler-Hill, 2015). We considered psychopathy (i.e., impulsivity, callousness), sadism (i.e., enjoyment in the suffering of others), spitefulness (e.g., taking a cost to punish others), Machiavellianism (e.g., duplicity, pragmatism), and narcissism (e.g., grandiosity, vulnerability). There is limited research on coping strategies in relation to these traits, but some hints as to what we can expect come from work on empathy. Empathy tends to be low in people characterized by darker traits (Jonason & Krause, 2013; Jonason & Kroll, 2015; Jonason, Lyons, Bethell & Ross, 2013), and limited empathy is associated with more problematic coping styles (Sun et al., 2019). We expected these dark traits to be negatively correlated with constructive coping and positively correlated with destructive coping. In addition, and like above, we expected social coping to be used only by those people who are likely to feed-off of the attention of others, in this case, narcissists.

Several studies have examined sex differences in the adoption of coping strategies (Bonneville-Roussy et al., 2017; Liddon et al., 2017; Peterson et al., 2006). Women tend to use more constructive and social coping strategies whereas men tend to use more destructive coping strategies. These differences have real life consequences, for example with sex differences in coping leading to different outcomes when dealing with Crohn's disease (Sarid et al., 2017). The sex differences may be because men and women perceive and deal with stress in different ways, it may be because of social conditioning, or it may be because of evolved tendencies. For example, women may have been trained through social learning to rely on their friends and family more during times of stress leading to greater social coping (e.g., Sarason, Sarason, & Pierce, 1990). Alternatively, ancestral women who were more closely tied to others socially may have adaptively benefited from the protection of others in a group making them more likely to seek social support today (e.g., Jonason & Zeigler-Hill, 2018). And, women may have better language skills than men, leading them to seek out more interaction with others to cope (e.g., Lange, Euler, & Zaretsky, 2016). Whatever the reason, we expected to replicate these sex differences, but we attempted to understand the mechanisms (i.e., mediators) behind these sex differences. Therefore, we tried to understand how personality traits (i.e., the Big Five traits and the five dark personality traits) facilitate the adoption of these three different coping strategies. There is cross-culturally robust evidence for sex differences in antisocial aspects of personality. For instance, men are more disagreeable (Schmitt, Realo, Voracek, & Allik, 2008) and higher on the Dark Triad traits (Jonason et al., 2017), and these traits might lead men and women to adopt different coping strategies. For example, being disagreeable may make men less likely to adopt social coping. Such men will not have been received well by others, thereby reducing their tendencies to seek out others for social support. In addition, dark traits of personality are subclinical manifestations of personality pathologies. These aggressive, antisocial, and agentic tendencies may ill-equip people, men in particular, to cope with life's problems and instead, these people, again, men in particular, may be more likely to engage in destructive coping (e.g., denial) and limited social (e.g., seeking support) and constructive (e.g., planning) coping. That is, high scores on these dark traits in men should be associated with higher rates of destructive coping and lower rates of constructive and social coping because these individuals will have personality traits that essentially penalize others for being close to them and they may engage in coping that has limited long-term effectiveness.

Sequelae of higher-order coping strategies. If the documentation of individual differences had no impact on people's lives, determining the higher-order structure of coping strategies would be merely an academic exercise. However, moderate associations between the use of

lower-order coping strategies as individual differences and outcomes in people's lives exist (Carver & Connor-Smith, 2010), which suggests there might be higher-order consequences as well. Prior research has already examined how individual differences in coping strategies are associated with depression, limited optimism (Amirkahn, 1990; Carver, Scheier, & Weintraub, 1989), and life satisfaction (Sarid et al., 2017), and, thus, we attempted to replicate those links here. People who are less depressed/pessimistic and more satisfied with their lives should use more constructive and social coping strategies. Interacting with others and taking action to alleviate their stress should lead to increased psychological and physical health (e.g., reduction of cortisol in the hypothalamic-pituitary-adrenal axis). We also extended this to examine resilience, interpersonal trust, future discounting, general health, and alcohol consumption. We expected those characterized by constructive coping strategies to be psychologically (e.g., generally healthy) and mentally (e.g., high resilience) healthy whereas those with destructive coping strategies should be characterized by a less healthy mind (e.g., hopelessness), body (e.g., alcohol consumption), and actions (i.e., future discounting). And last, social coping may have its own, unique pattern of outcomes in the form of more life satisfaction and limited hopelessness, but also more health given the benefits of social connections as seen in greater rates of interpersonal trust.

While there are many roads to psychological health or ruin, these roads are likely to conform to systematic patterns, despite any apparent differences. To provide a more global understanding of how people cope in their lives and to add to the debate about the utility of an individual differences view of coping strategies, we attempted to understand potential higher-order coping strategies that are composed of lower-order strategies through the use of two Classical Test theory studies relying on the gold standard taxonomy of coping, the COPE (Carver, 1997; Carver, Scheier, & Weintraub, 1989). We reduced lower-order strategies into higher-order strategies and tried to understand the latter by examining sex differences and their surrounding nomological network with individual differences in resilience, hopelessness, psychopathy, and future discounting overall and in the sexes.

2.1. Study 1

In Study 1, we examined higher-order coping strategies by conducting a secondary factor analyses to reduce an array of lower-order coping strategies. We then correlated those emergent dimensions with measures of physical and psychological health and the Big Five personality traits. We assessed sex differences and whether the correlations differed in the men and women.

3. Method

3.1. Participants and procedure

Participants were 1232 Australian community members (50% women) paid AU\$4 through a market research firm. The average participant was 45.79 years old ($SD = 16.71$; $Range = 18-88$). Participants provided their postal codes, allowing us to determine that 35% were from New South Wales, 25% were from Victoria, 2% were from Tasmania, 7% were from South Australia, 9% were from Western Australia, and 20% were from Queensland. In terms of "ethnic heritage," 78% were White/European, 15% were Asian, 2% were Middle-Eastern, 3% identified as "other," and less than 1% were Torres Straight Islanders/Aboriginal, Pacific Island/Maori, Hispanic/Latino, and Black/African. Participants were informed of the nature of the study, completed a series of standardized, quantitative, self-report measures, and were thanked and debriefed upon completion of the study. This study was approved by the ethics committee at Western Sydney University (H14099).

3.2. Measures

We measured individual differences in coping strategies with the Brief COPE (Carver, 1997). This scale is composed of 28 items capturing 14 different forms of coping (two items per form). Participants were asked to "imagine that you recently have been having a bad week, with a number of bad things happening to you. Report here what you would have done in response." Participants were asked their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with items such as, "I've been giving up the attempt to cope" (i.e., behavioral disengagement) and "I've been criticizing myself" (i.e., self-blame). Items were averaged to create indices of the coping strategies of *active coping* ($r = 0.67$), *planning* ($r = 0.66$), *positive reframing* ($r = 0.61$), *acceptance* ($r = 0.42$), *humor* ($r = 0.68$), *religion* ($r = 0.78$), *using emotional support* ($r = 0.70$), *using instrumental support* ($r = 0.70$), *self-distraction* ($r = 0.41$), *denial* ($r = 0.55$), *venting* ($r = 0.49$), *substance use* ($r = 0.81$), *behavioral disengagement* ($r = 0.62$), and *self-blame* ($r = 0.71$).

We measured individual differences in happiness with the Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1995). This scale is composed of five items where participants indicated their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with items like "in most ways my life is close to my ideal" and "the conditions of my life are excellent." Items were averaged to create an index of happiness (Cronbach's $\alpha = 0.89$).

We measured individual differences in resilience with the Brief Resilience Scale (Smith et al., 2008). The scale is composed of five items where participants indicated their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with items like "I tend to bounce back quickly after hard times" and "I have a hard time making it through stressful events." Items were averaged to create an index of resilience ($\alpha = 0.87$).

We measured individual differences in depression with the Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974). This scale is composed of five items where participants indicated their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with items such as, "I might as well give up because I can't make things better for myself" and "I can't imagine what my life would be like in 10 years." Items were averaged to create a measure of individual differences in symptoms of depression, hopelessness, and suicide risk ($\alpha = 0.94$).

We measured interpersonal trust with the Rotter's Interpersonal Trust Scale (Robinson, Shaver, & Wrightsman, 1991) by asking participants their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with 25 questions (e.g., "hypocrisy is on the increase in our society;" "one is better off being cautious when dealing with strangers until they have provided evidence that they are trustworthy"). Items were averaged to create an index of interpersonal trust ($\alpha = 0.81$).

To measure participant's alcohol consumption, we used the AUDIT-C (Bradley et al., 2007). Participants were asked how often they had a drink containing alcohol (0 = *never*, 1 = *monthly or less*, 2 = *2-4 times per month*, 3 = *2-3 times per week*, 4 = *4+ times per week*), how many drinks contain alcohol they had on a typical day when drinking (0 = *1-2 drink*, 1 = *3-4 drinks*, 2 = *5-6 drinks*, 3 = *7-9*, 4 = *10+*), and how often they had six or more drinks on one occasion (0 = *never*, 1 = *monthly or less*, 2 = *2-4 times per month*, 3 = *2-3 times per week*, 4 = *4+ times per week*). Items were averaged to create an index of individual differences in drinking behavior ($\alpha = 0.63$).

We measured general health of participants using the General Health Questionnaire (GHQ-12) in Australia (Donath, 2001). Participants reported whether they had recently experienced any of 12 different indicators, such as "been able to concentrate on what you're doing" and "lost much sleep over worry." Items were averaged to create an index of general health ($\alpha = 0.90$).

Lastly, to assess the role of personality, we included a measure of the Big Five personality traits (Donnellan et al., 2006). Participants reported their agreement with four items per trait measuring *extraversion* ($\alpha = 0.80$), *neuroticism* ($\alpha = 0.73$), *conscientiousness* ($\alpha = 0.67$), *agreeableness* ($\alpha = 0.79$), and *openness* ($\alpha = 0.74$). Items were averaged

to create indexes of each trait.¹

4. Results and discussion

To capture higher-order coping strategies, we ran a secondary principal components analysis (Table 1), an approach that has been used before because of its flexibility (Amirkhan, 1990; Danhauer et al., 2009; Sun et al., 2019). We removed items that cross-loaded and were weak (< 0.45) and then retained only the top three in each for measurement symmetry. We observed three clear factors reflecting—in our interpretation—constructive, destructive, and social coping strategies. Therefore, we averaged the three items on constructive ($\alpha = 0.84$), destructive ($\alpha = 0.72$), and social ($\alpha = 0.70$) coping strategies for subsequent analyses.

Constructive coping correlated with destructive coping ($r[1230] = -0.20, p < .01$) and social coping ($r[1230] = 0.37, p < .01$), and destructive coping was correlated with social coping ($r[1230] = 0.18, p < .01$). The correlation between constructive coping and destructive coping among men ($r[611] = -0.17, p < .01$) and women ($r[617] = -0.23, p < .01$) were not significantly different (Fisher's $z = 1.09, p < .28$), nor was the correlation between constructive coping and social coping among men ($r[612] = 0.33, p < .01$) and women ($r[617] = 0.42, p < .001; z = -1.84, p < .07$). However, the correlation between destructive coping and social coping among men ($r[611] = 0.27, p < .01$) and women ($r[617] = 0.08, p < .05$) were significantly different ($z = 3.44, p < .01$).

Table 2 contains descriptive statistics and sex differences for these new scales along with the focal scales of this study. Women were more likely than men to use the social coping strategy, to be neurotic, and to be agreeable. Men were more likely than women to be resilient, healthy, and to drink alcohol. When considering sex differences in the use of social coping strategies ($R^2 = 0.01, F = 11.58, p < .01; \beta = 0.10, p < .01$), the addition of agreeableness accounted for significantly more variance ($\Delta R^2 = 0.02, F = 29.47, p < .01$), suggesting (weak) partial mediation given this was the only personality trait that lead to a smaller effect for sex of the participant at Step 2 ($\beta = 0.07, p < .05$).

In Table 3, the correlations (overall and in each sex) between these three coping strategies and outcomes and personality are reported. In terms of personality, people who were likely to use constructive coping were extraverted, open to new experiences, conscientious, low on neuroticism, and agreeable, with extraverted women being especially likely to use constructive coping. People who were likely to use destructive coping were limited in openness to new experiences, unconscientious, disagreeable, and neurotic, where disagreeable men (compared to women) were especially likely to use this coping strategy. People who were likely to use social coping were extraverted and agreeable, and women who were low in neuroticism were especially likely to use this coping strategy. More satisfaction with life was reported for those who used constructive and social coping, but less satisfaction with life was reported for those who used destructive coping. More resilience was reported for those who used constructive coping, and less resilience was reported for those using destructive coping. Greater health was linked to using both constructive and social coping strategies with less health linked to destructive coping. More alcohol consumption was linked with more destructive coping. Interpersonal trust was linked to more social coping, especially in men.

However, given that all three of these coping strategies were correlated, as noted above, we wanted to better compare the correlations between them and the outcomes as well as personality overall and in the sexes to test how distinct these higher-order coping strategies were

¹ The correlations between the Big Five traits, interpersonal trust, resilience, satisfaction with life, hopelessness, alcohol consumption, and general health can be found in Appendix A.

Table 1
Secondary principle components analysis (varimax rotation) of coping strategies (Study 1).

	Primary Solution			Secondary Solution		
Active Coping	0.83	-0.21	0.19	0.84		
Planning	0.82	-0.14	0.19	0.84		
Acceptance	0.81	0.05	-0.04	0.83		
Reframing	0.68	-0.05	0.36			
Humor	0.44	0.36	0.22			
Self-Distraction	0.42	0.41	0.22			
Behavioral Disengagement	-0.22	0.80	0.15			0.80
Self-Blame	-0.02	0.76	-0.20			0.82
Substance Use	-0.09	0.69	0.11			0.74
Denial	-0.08	0.66	0.36			
Venting	0.23	0.58	0.22			
Using Emotional Support	0.27	0.12	0.79		0.83	
Using Instrumental Support	0.35	0.08	0.77		0.81	
Religion	0.03	0.21	0.64		0.66	
% Variance accounted for	29.30	21.59	7.91	33.12	24.82	11.78
Eigen Value	4.10	3.02	1.11	2.99	2.23	1.06

Note. Items loading below 0.45 removed and top three items selected.

while controlling for other factors like method variance (Table 4). The three different coping strategies were differently linked to both the personality traits and the outcomes. For example, more resilience, hopelessness, and general health were better linked to constructive coping than social coping, and these effects were rather stable across the sexes. Constructive coping was equally linked to low neuroticism as destructive coping was linked to high neuroticism. There were no differences between social and constructive coping in the associations overall and in men and women for satisfaction with life, but both were significantly better linked with life satisfaction than destructive coping. And constructive coping was not differently associated with interpersonal trust than destructive coping, but social coping was better linked to interpersonal trust than constructive and destructive coping. Such tests discriminate the different kinds of coping we revealed.

4.1. Study 2

Study 1 revealed three potential higher-order coping strategies consistent with previous attempts to understand the higher-order nature of coping strategies using factor analysis. These three were correlated with various aspects of “normal” personality and health. However, this study was limited by an extremely brief measure of coping strategies (Bonneville-Roussy et al., 2017; Nielsen & Knardahl, 2014; Sarid et al., 2017; Shin et al., 2014; Sun et al., 2019) and a focus on “positive” aspects of personality. Therefore, in Study 2 we repeated the factor analytic treatment of coping strategies, but instead, used the parent-measure of the brief measure we previously used (i.e., COPE). We then correlated the emerging higher-order factors with dark aspects of personality and future discounting.

5. Methods

5.1. Participants and procedure

Six hundred and two (53% women) Amazon Mechanical Turk workers from the USA participated in an online study in exchange for US\$0.25. The average participant was 37.11 years old ($SD = 12.76; Range = 18-82$). In terms of participants’ “ethnic or racial heritage,” 71% were Caucasian/White, 10% were Asian American/Asian, 10% were African America/Black, 6% were Latino/a or Hispanic, 2% were Biracial/Multiracial, and less than 1% identified as Native American/American Indian/Native Alaskan/other. All participants were informed of the nature of the study, and completed a series of standardized, quantitative, self-report measures. The Institutional Review Board at Boise State University (041-SB18-104) approved this study.

Table 2
Descriptive statistics and sex differences for coping strategies, personality traits, and outcomes (Study 1).

	Mean (SD)	t	d		
Coping Strategies	Overall	Men	Women		
Constructive coping	3.73 (1.33)	3.76 (1.33)	3.70 (1.32)	0.79	0.05
Destructive coping	1.77 (1.34)	1.78 (1.40)	1.77 (1.28)	0.13	< 0.01
Social coping	2.46 (1.41)	2.32 (1.41)	2.59 (1.39)	- 3.38**	0.19
Personality					
Extraversion	2.75 (0.84)	2.73 (0.82)	2.76 (0.86)	- 0.50	- 0.04
Openness	3.42 (0.75)	3.39 (0.76)	3.45 (0.73)	- 1.30	- 0.08
Conscientiousness	3.57 (0.70)	3.57 (0.66)	3.57 (0.74)	0.10	< 0.01
Neuroticism	2.81 (0.78)	2.70 (0.77)	2.94 (0.77)	- 5.51**	- 0.31
Agreeableness	3.68 (0.72)	3.54 (0.74)	3.82 (0.67)	- 7.07**	- 0.40
Outcomes					
Satisfaction with life	3.20 (0.87)	3.19 (0.88)	3.22 (0.86)	- 0.77	- 0.03
Hopelessness	2.59 (0.66)	2.61 (0.67)	2.56 (0.66)	1.55	0.07
Resilience	3.15 (0.78)	3.24 (0.77)	3.06 (0.78)	3.99**	0.23
General health	3.44 (0.78)	3.50 (0.78)	3.39 (0.78)	2.45*	0.14
Alcohol consumption	4.12 (2.36)	4.59 (2.50)	3.61 (2.09)	6.89**	0.43
Interpersonal trust	2.73 (0.38)	2.73 (0.38)	2.73 (0.39)	0.28	< 0.01

Note. *d* is Cohen's *d* for effect size (<https://www.uccs.edu/lbecker/>).

* *p* < .05, ** *p* < .01.

Table 3
Correlations between coping strategies and personality and outcomes overall and in men and women (Study 1).

	Constructive Coping			Destructive Coping			Social Coping					
	Overall	Men	Women	<i>z</i>	Overall	Men	Women	<i>z</i>	Overall	Men	Women	<i>z</i>
Personality												
Extraversion	.14**	.08	.20**	- 2.15*	- 0.04	- 0.04	- 0.04	< 0.01	.27**	.23**	.32**	- 1.71
Openness	.13**	.12*	.13**	- 0.18	- 0.16**	- 0.18**	- 0.13**	- 0.90	- 0.01	- 0.03	- 0.01	- 0.35
Conscientiousness	.24**	.24**	.23**	0.19	- 0.35**	- 0.36**	- 0.34**	- 0.40	.01	- 0.04	.04	- 1.40
Neuroticism	- 0.38**	- 0.36**	- 0.40**	0.82	.43**	.42**	.44**	- 0.43	- 0.05	.02	- 0.16**	3.18**
Agreeableness	.17**	.19**	.17**	0.36	- 0.16**	- 0.22**	- 0.10*	- 2.16*	.17**	.14**	.17**	- 0.54
Outcomes												
Satisfaction with life	.31**	.34**	.29**	0.97	- 0.17**	- 0.18**	- 0.17**	- 0.18	.32**	.34**	.30**	0.78
Hopelessness	- 0.45**	- 0.46**	- 0.43**	- 0.66	.52**	.53**	.51**	0.48	- 0.24**	- 0.20**	- 0.28**	1.49
Resilience	.41**	.40**	.42**	- 0.42	- 0.43**	- 0.40**	- 0.46**	1.29	.06	.04	.10*	- 1.06
General health	.50**	.51**	.49**	0.47	- 0.60**	- 0.62**	- 0.58**	- 1.10	.15**	.09*	.23**	- 2.52*
Alcohol consumption	- 0.03	- 0.09*	.02	- 1.93	.22**	.20**	.27**	- 1.30	- 0.03	- 0.08	.09*	- 2.98**
Interpersonal trust	.05	.05	.05	< 0.01	- 0.02	.05	- 0.03	1.40	.28**	.35**	.21**	2.67**

* *p* < .05, ** *p* < .01.

Table 4
Comparing the correlations (Steiger's *z*) across types of coping with personality and outcomes overall and in men and women (Study 1).

	Constructive to Destructive Coping			Constructive to Social Coping			Destructive Coping to Social Coping		
	Overall	Men	Women	Overall	Men	Women	Overall	Men	Women
Personality									
Extraversion	4.08**	1.88	3.86**	- 4.29**	- 3.26**	- 2.80**	- 8.76**	- 5.54**	- 6.76**
Openness	6.50**	5.03**	4.12**	4.27**	3.19**	3.03**	- 4.08**	- 3.27**	- 2.34**
Conscientiousness	13.80**	10.19**	9.40**	7.38**	6.11**	4.39**	- 9.93**	- 6.80**	- 7.23**
Neuroticism	- 20.02**	- 13.75**	- 14.81**	- 10.76**	- 8.48**	- 6.03**	13.96**	8.72**	11.82**
Agreeableness	7.70**	6.78**	4.32**	0.13	0.98	0.19	- 9.21**	- 7.64**	- 4.85**
Outcomes									
Satisfaction with life	11.42**	8.64**	7.51**	- 0.27	- 0.09	- 0.22	- 14.11**	- 11.11**	- 8.90**
Hopelessness	- 25.08**	- 18.42**	- 17.11**	- 6.97**	- 6.15**	- 3.80**	23.27**	16.51**	16.31**
Resilience	21.00**	14.15**	15.702**	11.76**	8.13**	8.01**	- 14.15**	- 9.52**	- 11.10**
General health	29.83**	22.28**	19.94**	12.01**	10.01**	6.49**	23.56**	- 16.87**	- 16.92**
Alcohol consumption	- 5.35**	- 4.38**	- 3.67**	- 0.23	- 0.14**	- 1.55	6.26**	5.43**	2.99**
Interpersonal trust	0.84	- 0.03	1.24	- 7.22**	- 6.62**	- 3.72**	- 7.36**	- 6.31**	- 4.40**

Note. Steiger's *z* compares dependent correlations (<http://quantpsy.org/corrttest/corrttest2.htm>).

* *p* < .05, ** *p* < .01.

5.2. Measures

Individual differences in coping strategies were measured with the COPE (Carver, Scheier, & Weintraub, 1989). This scale is composed of 53 items assessing 14 different types of coping. Participants reported the likelihood (1 = *I usually don't do this at all*; 4 = *I usually do this a lot*) of engaging these strategies with items such as: "I take additional action

to try to get rid of the problem" (i.e. active coping), "I force myself to wait for the right time to do something" (i.e., restraint coping), and "I just give up trying to reach my goal" (i.e., behavioral disengagement). Items were averaged to create indexes of the coping strategies, including *active coping* (Cronbach's $\alpha = 0.76$), *planning* ($\alpha = 0.86$), *suppression of competing activities* ($\alpha = 0.75$), *restraint coping* ($\alpha = 0.76$), *seeking social support for instrumental reasons* ($\alpha = 0.87$), *seeking social*

support for emotional reasons ($\alpha = 0.89$), positive reinterpretation and growth ($\alpha = 0.84$), acceptance ($\alpha = 0.76$), turning to religion ($\alpha = 0.96$), focus on venting of emotions ($\alpha = 0.84$), denial ($\alpha = 0.86$), behavioral disengagement ($\alpha = 0.88$), mental disengagement ($\alpha = 0.74$), and alcohol-drug disengagement (single item).

Individual differences in the Dark Triad traits were measured through the Short Dark Triad (Jones & Paulhus, 2014). Participants rated their agreement (1 = *strongly disagree*; 5 = *strongly agree*) with 27 items. Items were averaged to construct the three subscales measuring Machiavellianism (e.g., “Most people can be manipulated;” $\alpha = 0.82$), narcissism (e.g., “I know I am special because everyone keeps telling me so;” $\alpha = 0.80$), and psychopathy (e.g., “Payback needs to be quick and nasty;” $\alpha = 0.83$).

Individual differences in spitefulness were measured through the Spitefulness Scale (Marcus, Zeigler-Hill, Mercer, & Norris, 2014), which is composed of 17 items assessing the willingness of respondents to participate in behaviors that would harm another individual but that would also involve harm to oneself, including social, financial, physical, or an inconvenience. Participants were asked to rate the extent to which they agreed with statements (1 = *strongly disagree*; 5 = *strongly agree*) like: “There have been times when I was willing to suffer some small harm so that I could punish someone else who deserved it” and “If I am checking out a store and I feel like the person in line behind me is rushing me, then I will sometimes slow down and take extra time to pay.” Items were averaged to construct a single spitefulness score ($\alpha = 0.94$).

Individual differences in sadism were measured using the Short Sadistic Impulse Scale (10-items; O’Meara, Davies, & Hammond, 2011). Participants indicated their agreement (1 = *Strongly Disagree*; 5 = *Strongly Agree*) with statements like “I have hurt people because I could” and “I would enjoy hurting someone physically, sexually, or emotionally.” Items were averaged for an overall score of sadism ($\alpha = 0.92$).

Individual differences in future discounting were measured using seven questions that asked participants to make ipsative choices between two options where one reflects a future-discounting choice (Grisevicius, Tybur, Delton, & Robertson, 2011). Participants responded to the basic item: “Do you want to get \$100 tomorrow OR get \$X 90 days from now.” The quantity of money that could be received in 90 days (\$X) ranged from \$110 to \$170 sequentially in \$10 increments. Each item was scored as “1” if the immediate, smaller option was selected, and “0” if the delayed, larger option was selected. Therefore, larger scores indicated a greater frequency of selecting the smaller more immediate quantity of money, compared to smaller scores. This variable was treated as a count and was internally consistent ($\alpha = 0.91$).²

6. Results and discussion

As we did in Study 1, we ran a secondary principal components analysis (Table 5) that revealed a similar-but-not-identical three-factor solution. We removed items that cross-loaded and were weak (< 0.35) and then retained only the top three in each for measurement symmetry, and observed three clear factors reflecting—in our interpretation—constructive, destructive, and social coping strategies. One important proviso here was that our initial PCA had a fourth factor (Eigen = 1.03; 7.38% of variance), but this was characterized by the religion coping strategy loading well (factor loading = 0.93) and most other items loading poorly and being complex, thus we deemed this to be a “crud” factor.³ We averaged the three scales of constructive ($\alpha = 0.87$), destructive ($\alpha = 0.88$), and social ($\alpha = 0.89$) coping strategies for subsequent analyses.

Constructive coping was correlated with destructive coping (r

[597] = -0.29 , $p < .01$) and social coping (r [597] = 0.37 , $p < .01$), and destructive coping was correlated with social coping (r [597] = 0.10 , $p < .05$). These associations were also examined in each sex. Correlations between constructive and destructive coping were (slightly) stronger (Fisher’s $z = 1.99$, $p < .05$) for women (r [316] = -0.36 , $p < .01$) compared to men (r [277] = -0.21 , $p < .01$); however, there was no difference ($z = -0.69$, $p < .49$) in the magnitude of correlations for constructive and social coping between men (r [277] = 0.33 , $p < .01$) and women (r [316] = 0.38 , $p < .01$). Further, correlations between destructive and social coping were stronger ($z = 3.22$, $p < .01$) for men (r [277] = 0.25 , $p < .01$) compared to women (r [316] = -0.01 , $p < .81$).

Table 6 contains descriptive statistics and sex differences for these new scales along with the focal scales of this study. We found that men (compared to women) were better characterized by all five of the dark traits and destructive coping, and women (compared to men) were more likely to use constructive and social coping. When considering sex differences in constructive coping ($R^2 = 0.02$, $F = 13.76$, $p < .01$; $\beta = -0.15$, $p < .01$), the addition of the dark traits accounted for significantly more variance ($\Delta R^2 = 0.24$, $F = 39.64$, $p < .01$), suggesting full mediation of the sex difference with a near-zero effect for sex of the participant at Step 2 ($\beta = -0.11$, *ns*) with all traits maintaining significant residuals ($ps < 0.05$). When considering sex differences in destructive coping ($R^2 = 0.01$, $F = 5.86$, $p < .05$; $\beta = 0.10$, $p < .01$), the addition of the dark traits accounted for significantly more variance ($\Delta R^2 = 0.24$, $F = 38.21$, $p < .01$), suggesting full mediation of the sex difference with a near-zero effect for sex of the participant at Step 2 ($\beta = -0.07$, $p = .052$) with all traits except Machiavellianism maintaining significant residuals ($ps < 0.05$). The magnitude of this effect was likely inflated given the directional change of the effect of sex. And last, when considering sex differences in social coping ($R^2 = 0.05$, $F = 30.74$, $p < .01$; $\beta = -0.22$, $p < .01$), the addition of the dark traits accounted for significantly more variance ($\Delta R^2 = 0.08$, $F = 11.37$, $p < .01$), suggesting partial mediation of the sex difference with a significant effect for sex of the participant at Step 2 ($\beta = -0.19$, $p < .01$) with only spitefulness and narcissism maintaining significant residuals ($ps < 0.01$).

Table 7 contains the correlations between dark aspects of personality and future discounting with the three higher-order coping strategies overall and in each sex. Constructive coping was negatively correlated with Machiavellianism, psychopathy, sadism, and spitefulness. The link was stronger in women than it was in men for Machiavellianism. In addition, narcissistic women, not men, appeared unlikely to use constructive coping. All of the dark traits were positively correlated with destructive coping, with a larger correlation in women than in men for Machiavellianism suggesting a type of covert manipulateness to get one’s stress management needs met. More future discounting was also correlated with more destructive coping, and an effect that was localized to women. Narcissistic men were more likely to use social coping whereas women low in the other dark traits were more likely to use social coping.

The dark aspects of personality were correlated (see Appendix B); therefore, we ran three standard multiple regressions to control for the shared variance. For constructive coping, the dark traits accounted for 26% of the variance ($F = 42.72$, $p < .01$), all traits retained significant residuals ($p < .01$), and the associations were positive for Machiavellianism and narcissism but negative for psychopathy, sadism, and spitefulness. For destructive coping, the dark traits accounted for 24% of the variance ($F = 38.31$, $p < .01$) and had a similar pattern of residuals as we found for constructive coping. As for social coping, the dark traits accounted for 10% of the variance ($F = 13.38$, $p < .01$) and narcissism had a positive residual ($p < .01$), but psychopathy and spitefulness had negative residuals ($ps < 0.05$). For constructive and destructive coping, the patterns suggested that the genuine links between the traits and the coping strategies were a function of unique variance as opposed to shared variance in the traits.

² The correlations between the five dark traits and future discounting can be found in Appendix B.

³ Religion has previously been shown to be problematic (Sun et al., 2019).

Table 5
Secondary principle components analysis (varimax rotation) of coping strategies (Study 2).

	Primary Solution			Secondary Solution		
Active Coping	0.69	-0.29	0.29	-0.14	0.71	
Planning	0.73	-0.32	0.30	-0.09	0.77	
Restraint Coping	0.71	0.05	-0.04	0.14	0.82	
Acceptance	0.68	0.11	0.01	0.04		
Positive Reinterpretation	0.66	-0.19	0.31	0.15		
Suppression of Activities	0.62	-0.18	0.28	0.02		
Behavioral Disengagement	-0.23	0.79	-0.04	0.13		0.83
Mental Disengagement	0.16	0.78	0.07	-0.13		0.79
Denial	-0.18	0.73	0.10	0.34		0.77
Substance Disengagement	-0.12	0.67	0.01	-0.17		
Using Emotional Support	0.19	-0.05	0.84	0.06		0.86
Using Instrumental Support	0.32	-0.04	0.71	0.10		0.74
Focus on Venting Emotions	0.02	0.30	0.71	0.03		0.72
Religion	0.14	-0.01	0.12	0.93		
% Variance accounted for	30.10	17.56	8.18	7.38	33.09	24.19
Eigen Value	4.21	2.46	1.15	1.03	2.98	2.18
						11.34
						1.02

Note. Items loading below 0.35 removed and top three items selected.

Table 6
Descriptive statistics and sex differences for coping strategies, personality traits, and future discounting (Study 2).

	Mean (SD)			t	d
	Overall	Men	Women		
Coping Strategies					
Constructive coping	2.96 (0.50)	2.89 (0.53)	3.03 (0.46)	-3.31**	-0.28
Destructive coping	2.09 (0.56)	2.15 (0.62)	2.03 (0.53)	2.40*	0.21
Social coping	2.73 (0.56)	2.60 (0.57)	2.85 (0.56)	-5.41**	-0.44
Personality					
Narcissism	2.70 (0.68)	2.82 (0.67)	2.60 (0.67)	4.15**	0.33
Machiavellianism	2.93 (0.75)	3.08 (0.77)	2.80 (0.72)	4.46**	0.38
Psychopathy	2.26 (0.74)	2.54 (0.68)	2.01 (0.71)	9.23**	0.76
Sadism	1.84 (0.86)	2.07 (0.90)	1.64 (0.77)	6.14**	0.51
Spitefulness	2.21 (0.85)	2.42 (0.83)	2.03 (0.83)	5.72**	0.47
Outcome					
Future discounting	3.87 (2.65)	3.95 (2.64)	3.79 (2.67)	0.72	0.06

Note. *d* is Cohen's *d* for effect size (<https://www.uccs.edu/lbecker/>).
p* < .05, *p* < .01.

Table 7
Correlations between coping strategies and personality and future discounting overall and in men and women (Study 2).

	Constructive Coping				Destructive Coping				Social Coping			
	Overall	Men	Women	z	Overall	Men	Women	z	Overall	Men	Women	z
Personality												
Narcissism	-0.05	.06	-0.12*	2.19*	.13**	.14*	.09	0.62	.11**	.26**	.07	2.38*
Machiavellianism	-0.10*	.01	-0.16**	2.08*	.24**	.14*	.33**	-2.45**	-0.13**	-0.05	-0.14*	1.10
Psychopathy	-0.40**	-0.32**	-0.44**	1.71	.45**	.42**	.49**	-1.07	-0.17**	< -0.01	-0.18**	-0.13
Sadism	-0.38**	-0.36**	-0.36**	<0.01	.43**	.41**	.42**	-0.15	-0.12**	.05	-0.19**	2.94**
Spitefulness	-0.42**	-0.40**	-0.41**	0.15	.39**	.41**	.35**	0.85	-0.22**	-0.06	-0.29**	2.90**
Outcome												
Future discounting	-0.05	.01	-0.09	1.22	.09*	.03	.15**	-1.47	-0.01	.11	-0.09	2.43*

Note. *z* is Fisher's *z* to compare independent correlations (<http://quantpsy.org/corrttest/corrttest.htm>).
p* < .05, *p* < .01.

Given correlations between the three higher-order coping strategies, we compared the correlations reported above overall and in men and women like we did in Study 1 (see Table 8). The three different coping strategies were differently linked to dark traits and future discounting. For example, overall constructive and social coping were equally linked to low rates of the dark personality traits and destructive coping was linked to high rates of the dark personality traits. The lack of difference in associations between constructive and social coping, and Machiavellianism, and the lack of difference in associations between destructive and social coping, and narcissism appeared to be the most notable exceptions to these trends. These relationships were largely similar in

each; however, there were noteworthy exceptions: there was no difference in association between constructive and destructive coping and Machiavellian traits in men, whilst for women, being high in constructive coping was associated with low Machiavellianism and high destructive coping was associated with high Machiavellianism. Additionally, there was no difference in associations between social and destructive coping and narcissism for men, whilst for women, constructive coping was more strongly negatively associated with narcissism compared to destructive coping. Overall, future discounting was better linked to destructive coping, compared to constructive and social coping; effects that were localized to women.

7. General discussion

There are three fundamental questions to consider in determining whether there are meaningful, higher-order coping strategies. First, similar, but not necessarily identical, factor structures of lower-order

coping strategies should be detected across measures. Second, evidence that these higher-order factors are correlated with other stable, individual differences like personality in sensible ways should be demonstrated. Third, they should predict outcomes in people's lives, such as life satisfaction and future-discounting. In two Classic Test Theory studies, we provided new evidence speaking to these issues. Using the flexible statistical analysis, principle components analysis, we detected two similar, three higher-order dimensions of the coping strategies using the brief (Study 1) and full (Study 2) versions of the COPE scale in an Australian (Study 1) and American (Study 2) sample. The analyses suggested that there are constructive, destructive, and social avenues to

Table 8
Comparing the correlations (Steiger's z) across types of coping with personality and future discounting overall and in men and women (Study 2).

	Constructive to Destructive Coping			Constructive to Social Coping			Destructive Coping to Social Coping		
	Overall	Men	Women	Overall	Men	Women	Overall	Men	Women
Personality									
Narcissism	−2.75**	−0.86	−2.27*	−3.50**	−2.94**	−3.05**	0.37	−1.68	0.25
Machiavellianism	−5.27**	−1.40	−5.47**	0.66	0.86	−0.32	6.89**	2.60**	6.10**
Psychopathy	−14.31**	−8.56**	0.68	−5.35**	−4.61**	−4.50**	12.20**	6.13**	9.15**
Sadism	−13.50**	−8.95**	−9.12**	−5.98**	−6.16**	−2.87**	10.71**	5.20**	8.14**
Spitefulness	−13.49**	−9.50**	−8.84**	−4.72**	−5.18**	−2.10*	11.84**	5.06**	8.49**
Outcome									
Future discounting	−2.13*	−0.21	−2.60**	−0.87	−1.44	0.11	3.48**	−1.09	3.02**

Note. Steiger's z compares dependent correlations (<http://quantpsy.org/corrttest/corrttest2.htm>).

* $p < .05$, ** $p < .01$.

coping with stress in people's lives. We explored the correlations these higher-order coping strategies had with personality and outcomes in people's lives.

Constructive and destructive coping appeared to be fairly opposite coping strategies. The associations between the two were modest and negative in each study and were correlated in opposite ways with other traits and outcomes across the two studies. In Study 1, positively framed personality traits (i.e., extraversion, openness, conscientiousness, and agreeableness) were positively associated with constructive coping and negatively correlated (sans extraversion) whereas the negatively framed trait (i.e., neuroticism) was negatively associated with constructive coping and positively with destructive coping. In Study 2, individual differences in constructive coping were negatively associated with five dark personality traits whereas those same traits were positively associated with destructive coping. Taken together, those characterized by these traits may be more likely to deal with life's stresses in unhealthy ways and, instead, preferred to engage in tactics like denial.

While destructive and constructive coping are conceptually and empirically at odds, in several ways, social coping seems rather distinct from them. First, it was less saturated in correlations with personality and outcomes. Social coping seems more used by those who can benefit the most from it. Those people with extraverted and narcissistic traits may be dispositionally biased to use social coping because of the value they place in social interaction. Second, this coping mechanism was associated with greater interpersonal trust, which may be both a consequence and pre-requisite for relying on others for coping needs. Indeed, interpersonal trust was only associated with social coping. Third, those using this coping strategy were psychologically and physically healthier; they did not drink more or less and were not more or less resilient. Together these results suggested that social coping has positive outcomes in people's lives, but these outcomes are likely localized to those who are most likely to benefit from and engage with social groups.

There were several sex differences worth discussing. First, we replicated sex differences in the dark traits (Jonason & Zeigler-Hill, 2018; Jonason et al., 2017), agreeableness, and neuroticism (Schmitt et al., 2008). Second, we showed—not too consistently across the two studies—women were more likely to use social and constructive coping than men were, whereas men were more likely than women to use destructive coping strategies (Bonneville-Roussy et al., 2017; Liddon et al., 2017; Peterson et al., 2006). Social learning approaches to these differences suggest that men are less punished or more rewarded than women are for being “bad,” and, thus, these sex differences emerge in personality and coping strategies. Biological explanations of these sex differences center around the role of physiological asymmetries in the sexes in hormones and neurotransmitters. Evolutionary researchers would suggest that different adaptive problems that ancestral men and women may have faced might lead to tendencies in modern men and women to be characterized by certain personality traits and coping strategies. All three of these models can probably be integrated into a single one (i.e., consilience) where adaptive pressures shaped

psychobiological systems in humans which “bias” cultural learning systems and individual differences in learning mechanisms.

What is offered here, in addition, is some indication of what mechanisms might account for sex differences in coping strategies. In Study 1, sex differences in social coping were facilitated by disagreeableness in men. In Study 2, men who were high on darker traits were more likely to use destructive and social coping (likely driven by narcissism) but less likely to use constructive coping. If we merge all three of the aforementioned paradigms to understand these effects, we might be able to say something generally about them. Men, who are often better characterized by antagonistic traits, may opt for less effective coping strategies than women do for several reasons. First, in terms of learning, men characterized by these traits will have offended and pushed away others with their personality making the relative gain for social coping limited. Indeed, these men may have been actively punished for attempting to manage their stress by talking to others because of their prior selfish acts. In addition, men's destructive coping strategy tendencies may similarly be because of their lack of success in finding effective “healthy” coping mechanisms because of their personality and downstream correlates like impulsivity. Second, in terms of physiology, men's greater size and less complex neuronal structures for language may push them towards adopting “antisocial” coping strategies more than others. And third, in terms of evolutionary pressures, natural selection may have poorly equipped men for coping with stress beyond the use of physical violence. There may have been selection pressures pushing men to be antisocial in nature (Jonason & Tome, 2019). Male intrasexual competition may have suppressed the healthy revelation of psychological and health problems because of the advantages of out-competing other men for resources and mates. Indeed, anyone who has a dog (who are also wired to compete for resources) knows that they rarely reveal their pain and sickness because revealing it would have spelled death in natural environments from conspecifics and predators of their ancestors.

8. Limitations and conclusions

This study provides a reasonably comprehensive answer to the question plaguing coping researchers; there are systematic individual differences in higher-order coping strategies. While we had sampling and methodological heterogeneity, the studies were limited. First, although we had samples from two different nations, these two nations share such a long cultural heritage that they might be expected to converge in their coping strategies. That said, “culture” is an insufficient criticism because the features that generate similarities or differences in countries in coping mechanisms are unclear. Indeed, both samples could be called W.E.I.R.D. (i.e., Western, educated, industrialized, rich, and democratic; Henrich, Heine, & Norenzayan, 2010), begging more cross-culturally complex research on coping strategies at the lower-order and higher-order levels. Second, there was imperfect alignment in the factor structures for higher-order coping strategies across the studies. Such a problem is to be expected given the

	1	2	3	4	5	6	7	8	9	10
1. Openness	–									
2. Conscientiousness	.16**	–								
3. Extraversion	.15**	.05	–							
4. Agreeableness	.32**	.14	.24**	–						
5. Neuroticism	–0.05	–0.34**	–0.20**	–0.06*	–					
6. Resilience	.08*	.32**	.25**	.05	–0.66	–				
7. Interpersonal Trust	–0.04	.02	.25**	.12**	–0.14**	.20**	–			
8. Hopelessness	–0.21**	–0.35**	–0.29**	–0.32**	.52**	–0.56**	–0.28**	–		
9. Life Satisfaction	–0.01	.18**	.29**	.10**	–0.46**	.45**	.31**	–0.56**	–	
10. Alcohol Consumption	–0.03	–0.10**	.11**	–0.10**	.06	–0.05	.01	.08*	–0.03	–

* $p < .05$, ** $p < .01$.

	1	2	3	4	5	6
1. Narcissism	–					
2. Machiavellianism	.34**	–				
3. Psychopathy	.44**	.59**	–			
4. Sadism	.29**	.40**	.67**	–		
5. Spitefulness	.31**	.47**	.65**	.63**	–	
6. Future Discounting	.17**	.05	.15**	.12**	.13**	–

* $p < .05$, ** $p < .01$.

exploratory nature of factor analysis, sampling Table Appendix A and methodological artifacts, and simply noise. Third, we assumed that coping strategies could be captured using self-report and cold reasoning. People may think they will respond one way, but when the pressure is on, they may respond in another way. This means that what we have reported here is simply the correlations between self-reported personality traits and idealized coping solutions to stress. Nevertheless, if this is the case, we still presented new evidence for the higher-order coping systems and their nomological network regardless of such response biases. Fourth, we examined cross-sectional outcomes only, thus the causal order we offered above is based solely on a Brunswickian lens (i.e., distal traits → specific traits → outcomes). It is, of course possible that depressed people are likely to choose a particular coping strategy and this reinforces a depressed person's spiral downwards (Nesse, 2009). Fifth, outcomes like resilience and depression may be states and not traits and the treatment of them as traits may capture a different psychological construct than a person's momentary feelings. Sixth, our mediation tests relied on somewhat antiquated methods for testing mediation. However, our goals here were not account for causal relationships which would call for indirect effects

Appendix A

Correlations between study variables in Study 1.

Appendix B

Correlations between study variables in Study 2.

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assessments but, instead, to show the confounding effect of the mediator on the main effect (i.e., c'). And seventh, while we adopted two measures of coping strategies, these are really just one taxonomy of coping derived by one group of researchers. The possibility exists that there are more forms of coping not captured in these measures. For example, these measures were developed prior to the time of social media. Turning to social media, even being aggressive towards others in that space, may be a modern coping strategy worth considering in future taxometric work on coping strategies. Despite these limitations, we have added to the conversation about the presence and utility of considering higher-order coping strategies.

Modern life is replete with stressors and people have elaborate ways of coping with that stress. These coping strategies differ from person to person and may operate as streams composed of specific coping strategies. These streams can be revealed through the use of analyses of higher-order coping strategies, and are likely to have systematic predictors and correlates. In this study, we revealed there may be three streams of coping strategies, different people choose to get in those streams, and those streams, and likely the people they carry, lead to different outcomes in people's lives.

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