



Received: 21 August 2018
Accepted: 07 January 2019
First Published: 12 January 2019

*Corresponding author: Malcolm J. Bond, College of Medicine and Public Health, Level 3, Health Sciences Building, Flinders University, GPO Box 2100, Adelaide 5001, Australia
E-mail: malcolm.bond@flinders.edu.au

Reviewing editor:
Gabriela Topa, Social and Organizational Psychology, Universidad Nacional de Educacion a Distancia, Spain

Additional information is available at the end of the article

HEALTH PSYCHOLOGY | NEW PERSPECTIVE

The pragmatic derivation and validation of measures of adaptive and maladaptive coping styles

Lynsey J. Brown¹ and Malcolm J. Bond^{1*}

Abstract: There remain challenges involving the theoretical and empirical variability of the operationalization of coping styles. The current analyses sought to identify a parsimonious number of coping styles, from the commonly used Ways of Coping Questionnaire presented in dispositional format, and present internal consistency, construct validity and effectiveness information for the obtained scales. Data were collected from 317 adult community participants. Measures assessed coping, personality, stress, and demographic characteristics such as age and gender. Factor analyses identified that only two unique constructs, and therefore subscales, could be supported by the available data. However, three reliable parallel versions for each coping style, comprising 20, 10 and 5 items, respectively, were able to be derived. Face validity led to these uncorrelated scales being termed adaptive and maladaptive coping. Personality, stress and demographic details provided initial construct validity for these scales. This research proposes empirically sound measures for adaptive and maladaptive coping styles in dispositional format derived from a popular existing instrument. The independence of the scales demonstrates the fundamental distinction between styles, while the availability of scales of differing length with equal reliability offers particular value. These new options will provide clarity and consistency in the quantification of two commonly cited coping styles.

ABOUT THE AUTHORS

Lynsey Brown is a Research Fellow at Flinders University. While her predominant research focus is ageing, she also has a more general interest in health psychology, particularly stress and coping.

Malcolm Bond is an applied health psychologist whose research encompasses the psychosocial evaluation of the reaction and adaptation to chronic disease. Research areas include social gerontology (particularly caregiver wellbeing), social-cognitive psychology, stress and coping, abnormal illness behaviour, and health-related decision-making (including motivation and health behaviour change).

PUBLIC INTEREST STATEMENT

Stress in modern life is inevitable. However, it is how we cope with stress and stressors that determines our capacity to continue to thrive in our day-to-day activities. Agreed terminology and associated measures are therefore critical for clinicians and researchers to be able to reliably study people's different styles of coping. Our broader research program concerns the role played by coping styles in affecting positive or negative outcomes following stressful life events. During this research we became concerned by the inconsistency with which coping activities were described by researchers. Therefore, the analyses reported in this paper illustrate a set of brief, practical, yet robust measures that characterize coping as either adaptive or maladaptive. The broad adoption of our proposed measures will result in the consistent assessment and description of coping styles, allowing comparisons across different samples, settings, and circumstances.

Subjects: Health Psychology; Testing, Measurement and Assessment; Behavioral Medicine

Keywords: maladaptive coping; adaptive coping; dispositional measurement; ways of coping questionnaire

1. Introduction

It is generally accepted that coping reflects attempts to manage the internal and/or external demands perceived to follow from challenging or threatening stimuli (Lazarus & Folkman, 1984). While this is largely a consensus view, there remain multiple options to operationalize coping. Available measurement models demonstrate the complexity of the construct, with coping variously construed as an outcome, process, behavior, and a set of either trait-based or state-based strategies or styles (Greenaway et al., 2015; Schwarzer & Schwarzer, 1996; Skinner, Edge, Altman, & Sherwood, 2003).

Coping *strategies* are practical behavioral or cognitive techniques of which examples are humor, self-blame, positive reappraisal, distancing, planning, self-pity, and information searching (Greenaway et al., 2015; Schwarzer & Schwarzer, 1996; Skinner et al., 2003). It is common practice for scales to be developed by nominating individual items that characterize specific coping strategies such as these. However, the attempt to provide breadth of coverage may result in an unwieldy profile of coping dimensions. For example, while the Coping Checklist (Billings & Moos, 1981) surveys only five coping strategies, the Ways of Coping Questionnaire (WCQ; Folkman & Lazarus, 1988) measures eight, and the Coping Orientation to Problems Experienced inventory (COPE; Carver, Scheier, & Weintraub, 1989), Brief COPE (Carver, 1997), and the Coping Strategies Inventory (CSI; Tobin, Holroyd, Reynolds, & Wigul, 1989) assess 14 strategies.

As it is rare for a research study to be able to accommodate such a large number of items or variables to evaluate the single construct of coping, perhaps inevitably researchers seek to aggregate coping strategies into a more manageable number of higher-order coping styles (e.g., emotion-focused versus problem-focused coping; adaptive versus maladaptive coping). For example, the CSI describes a hierarchical model of coping which includes the higher-order coping styles of engagement and disengagement. Similarly, the Coping Styles Questionnaire (CSQ; Roger, Jarvis, & Najarian, 1993) directly quantifies an adaptive style (rational and detached), and a maladaptive style (emotional and avoidant), as does the Maladaptive and Adaptive Coping Styles Questionnaire (MAX; Moritz et al., 2016) which comprises the dimensions of maladaptive, adaptive, and avoidance coping. An additional confusion is that the conceptual labels applied to these styles often refer differentially to function (e.g., appraisal) or the potential for effectiveness (e.g., adaptive/maladaptive).

Beyond these examples, however, researchers commonly engage in *ad hoc* dimension reduction, the cost of which is often theoretical and/or empirical variability in the definition and operationalization of coping styles depending on sample size and composition, method of data reduction, and the scale used (Schwarzer & Schwarzer, 1996; Skinner et al., 2003). This has led to long-standing confusion surrounding the best way to characterize coping styles. Using the Brief COPE as an illustrative example, its 14 strategies have been used to represent both problem- and emotion-focused styles (Tuncay, Musabak, Engin Gok, & Kutlu, 2008), and adaptive and maladaptive styles (Rohland, 2000). Further, while Meyer (2001) aggregated eight Brief COPE strategies and termed the sum “adaptive”, Badura, Reiter, Altmaier, Rhomberg, and Elas (1997) used only four in their “adaptive” scale. In summary, the benefits of aggregated coping style measures include a reduced load for participants, providing a more intense focus on fewer coping practices than if multiple scales are employed. However, a lack of reliable and repeatable scales has often led to inconsistent definitions and item content for the same named styles.

A further contextual issue is that coping may reflect either situational (unique to a stressor) or dispositional (habitual methods) modes of responding to stress (Ayers, Sandler, West, & Roosa,

1996; Bouchard, Guillemette, & Landry-Léger, 2004; Livneh & Martz, 2007). Situational (state) theories emphasize the actual coping of an individual and/or the outcome of the application of coping methods or strategies. Such an approach leads to the microanalytic study of a wide variety of specific and concrete coping strategies. Conversely, dispositional (trait) theories focus on the more general recognition of a person's resources and tendencies related to coping. That is, a macroanalytic approach concentrating on fundamental and abstract coping methodologies (styles). The former (situational) theory appears to be dominant, comprising the examination of strategies chosen to suit the specifics of the threat experienced (i.e., coping responses relevant to specific environmental demands).

There is, in fact, contention about the very relevance or existence of dispositional coping responses that reflect general behavioral tendencies (Schwartz, Neale, Marco, Shiffman, & Stone, 1999). It has been argued, for example, that generalized coping traits predict little about unique stressful situations (Cohen & Lazarus, 1973; Lazarus & Folkman, 1984; Livneh & Martz, 2007). Yet conversely there is growing evidence that both situational and dispositional styles play a role. For example, a predictive relationship between dispositional and situational coping has been noted (Ayers et al., 1996; Bouchard et al., 2004; Carver et al., 1989; Catanzaro, Wasch, Kirsch, & Mearns, 2000; Kaiseler, Polman, & Nicholls, 2012; Ptacek, Pierce, & Thompson, 2006; Sasaki & Yamasaki, 2005; Stanton, Kirk, Cameron, & Danoff-Burg, 2000). It may be that individuals select situational approaches from a preferred set of dispositional options based on past experiences of success with specific stressors (Carver & Scheier, 1994).

Other potential associations include that dispositional coping emotions predict situational coping emotions when participants experience high distress, but not in low distress situations (Carver & Scheier, 1994). The connection between dispositional coping and health outcomes has also been noted to be mediated by situational coping (Bouchard et al., 2004; Catanzaro et al., 2000; Sasaki & Yamasaki, 2005). These latter examples suggest an interaction between situational and dispositional styles that is complex, but that both nevertheless have a role to play in describing coping.

Notwithstanding these observations, relatively few instruments measure coping in dispositional format, or permit the comparison of dispositional and situational coping. Those that do include the COPE and Brief COPE (Carver et al., 1989), Children's Coping Strategies Checklist (CCSC), How I Coped under Pressure Scale (HICUPS) (Ayers et al., 1996), and Emotional Approach Coping Scales (Stanton et al., 2000). However, despite being one of the oldest and most frequently used measures of coping strategies, the WCQ has not yet been changed into a dispositional format. While Folkman and Lazarus (1988) did not rule out dispositional measurement using the WCQ, they noted that the psychometric properties of the WCQ may not hold for a dispositional version.

1.1. Current study

The data to be reported are sourced from a yet to be published parent study concerned with the mediating role of coping style in the association between life event stress and stress appraisal. Using the WCQ in dispositional format, poor internal reliability data were noted for the original eight scales. This is perhaps not surprising as there remains uncertainty concerning the structure of these scales even in situational format (e.g., Lundqvist & Ahlström, 2006; Senol-Durak, Durak, & Elagöz, 2011). The replication of the original eight factors has been noted as challenging (Cook & Heppner, 1997; Edwards & O'Neill, 1998; Rózsa et al., 2008), with the suggestion that researchers conduct independent factor analyses to construct their own scales (Parker, Endler, & Bagby, 1993).

The initial research objective was therefore to propose a parsimonious number of coping styles in dispositional format using the WCQ. Exploratory factor analysis was used as a heuristic tool to examine the clustering patterns within the item pool, with the results serving as a pragmatic guide to scale membership (Kim & Mueller, 1985). The internal consistency of the derived scales was also assessed. The second research objective was to present valuable first steps toward the construct validity of the derived scales which comprised the exploration of variables previously reported to

be associated with coping style. These were personality (Bouchard et al., 2004; Carver & Connor-Smith, 2010; Panayiotou, Kokkinos, & Kapsou, 2014; Watson & Hubbard, 1996), stress (Holahan & Moos, 1987; Holton, Barry, & Chaney, 2015; Mahmoud, Staten, Hall, & Lennie, 2012; Meng & D'Arcy, 2016; Parasuraman & Hansen, 1987), age (Ben-Zur, 2002; Diehl et al., 2014), education level (Holahan & Moos, 1987), marital status, and gender (Kaiseler et al., 2012; Tamres, Janicki, & Helgeson, 2002).

2. Methods

2.1. Participants and procedure

A convenience sample was sourced from adult educational institutions, leisure organizations, and occupational groups in Australia. A brief précis of the study was presented (at group meetings where possible), with those providing informed consent then given a written summary, questionnaire booklet and envelope. Questionnaires comprising basic demographic questions and the scales described below were either completed at the time or returned later via reply-paid post. The sample consisted of 317 participants with a mean age of 39.8 years ($SD = 14.0$, range 18–65 years). The majority were female (51%), living with a partner (61% married), and had achieved post-secondary education (51%). The study was conducted with the approval of the authors' institutional ethics committee.

2.2. Measures

2.2.1. Coping

The WCQ comprises 66 cognitive and behavioral coping items. As dispositional responses were sought, participants were asked “ways you usually deal with stressful situations”, with some items necessarily reworded (Folkman & Lazarus, 1988). For example, “I hoped for a miracle” became “I hope for a miracle”. Responses reflect the frequency with which each is used (“never”, “some-what”, “quite a bit”, “a great deal”), and are scored 0–3. Items are summed to provide eight scales (Confrontive Coping, 6 items, $\alpha = 0.53$; Distancing, 6 items, $\alpha = 0.49$; Self-Controlling, 7 items, $\alpha = 0.48$; Seeking Social Support, 6 items, $\alpha = 0.75$; Accepting Responsibility, 4 items, $\alpha = 0.63$; Escape-Avoidance, 8 items, $\alpha = 0.72$; Planful Problem Solving, 6 items, $\alpha = 0.74$; Positive Reappraisal, 7 items, $\alpha = 0.76$). A further 16 items are not included in these scales.

2.2.2. Personality

The Mini-IPIP is a 20-item version of the 50-item International Personality Item Pool (Goldberg, 1999). It assesses Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism (4 items per trait). Participants indicate their agreement with each item using a 5-point scale (“very inaccurate” to “very accurate”), with responses summed for each trait. Comparable convergent, discriminant and criterion-related validity to that of longer Big Five measures has been reported (Donnellan, Oswald, Baird, & Lucas, 2006), with internal consistency (α) ranging from 0.65 to 0.82. The current sample provided similar coefficients (0.67–0.81).

2.2.3. Stress

A revised Social Readjustment Rating Scale (Hobson & Delunas, 2001) comprising 51 life events was used. Participants indicate which they have experienced within the last year. Allocated stress points range from 22 (minor law violation) to 87 (death of spouse/mate). Life event stress was determined by summing the points associated with the events experienced. Participants were also asked to use a 4-point scale to provide an appraisal of the stress currently felt in relation to the events experienced (0 = “not at all stressful” to 3 = “extremely stressful”). Stress appraisal was the sum of the products of the stress points for each life event experienced and the relevant appraisal rating.

3. Results

An exploratory factor analysis was conducted with maximum likelihood extraction as it allows generalization from a sample to a population, and gives more weight to correlations with more

unique variance and less error variance (Kim & Mueller, 1985). Parallel Analysis criteria (Lautenschlager, 1989) identified five factors for retention (35% variance accounted for) with satisfactory goodness-of-fit ($\chi^2_{(1825)} = 2751.65$, $p < .001$). Varimax rotation was then used to maximize uniqueness. This model lacked clarity. Scales derived from Factors 1 and 4 were highly correlated ($r = -0.67$, $p < .001$), and Factor 3 was also correlated with Factor 1 ($r = -0.35$, $p < .001$) and Factor 4 ($r = 0.33$, $p < .001$). Factors 2 and 5 were also highly correlated ($r = 0.53$, $p < .001$). These observations suggested that as few as two unique constructs may be reflected in the data.

A two-factor solution (goodness-of-fit: $\chi^2_{(2014)} = 4028.05$, $p < .001$) accounted for 23% of variance. With loadings of 0.25 or above on their secondary factor, two Factor 1 items and four Factor 2 items were not considered further for scale membership. Inspection of the remaining top 20 items of each factor led to the labels of Adaptive Coping (Factor 1) and Maladaptive Coping (Factor 2) being applied. Table 1 shows original item numbers and scale membership, and factor loadings. Three parallel scales were tested from each factor (20, 10 and 5 items). In all cases these were uncorrelated, signifying a non-linear association between adaptive and maladaptive coping (Table 2). Conversely, all versions of both Adaptive ($r = 0.90$ – 0.95) and Maladaptive Coping ($r = 0.88$ – 0.95) were highly correlated. High α coefficients (Table 2) were also achieved for all versions suggesting that the shorter scales may be used with little loss of precision.

Tables 3 and 4 present preliminary construct validity data. In Table 3, correlations with age, personality and stress measures are shown. Consistently, Adaptive Coping was unrelated to age, while maladaptive strategies were more likely from younger participants. In order of strength, Extraversion, Openness, Agreeableness and Conscientiousness were consistently positively associated with adaptive strategies. Neuroticism showed modest negative associations with Adaptive Coping but was strongly positively related to Maladaptive Coping. Conscientiousness was negatively related to Maladaptive Coping while Extraversion and Agreeableness showed no such association. The coefficients for Openness were small and inconsistent. Higher life event stress was indicative of greater endorsement of both adaptive and maladaptive styles, while current stress appraisal was positively associated with Maladaptive Coping, but shared no association with Adaptive Coping. Further, the re-analysis of current stress appraisal with coping controlling for life event stress produced equivalent results, albeit with slightly more modest associations with Maladaptive Coping.

Table 4 presents *t* test results that explore demographic differences in coping styles. Adaptive Coping varied only in terms of education, being consistently higher among participants with post-secondary education. Variations in Maladaptive Coping were present for all variables, dependent on the scale version. Females reported greater use of maladaptive strategies (10 items), participants with no partner used more maladaptive strategies (20 and 10 items), and those with post-secondary education recorded a lower use of maladaptive strategies (20 items). Note that for all significant analyses effect sizes were modest.

4. Discussion

These analyses sought to determine the number and nature of coping style dimensions inherent in the WCQ when measured in dispositional format. Only two unique factors could be extracted, proposed to reflect adaptive and maladaptive coping, respectively. Preliminary construct validity data for three reliable versions of each of these coping styles, comprising 20, 10 and 5 items, respectively, was then provided. The independence of the two styles was maintained regardless of the length of the scales, further reinforcing the fundamental distinction between adaptive and maladaptive coping, and providing scale options that are rarely available.

It is perhaps surprising that, from among 66 items, only two factors could be realistically supported. An important observation is that the five factors initially extracted were far from

Table 1. Items, scale membership, and factor loadings for a two-factor solution

Item		Original Scale	Adaptive Loading	Maladaptive Loading
23.	I change or grow as a person.	PR	0.68	−0.02
20.	I am inspired to do something creative about the problem.	PR	0.67	−0.06
30.	I come out of the experience better than when I went in.	PR	0.63	−0.05
52.	I come up with a couple of different solutions to the problem.	PPS	0.59	−0.08
39.	I change something so things will turn out all right.	PPS	0.58	0.14
15.	I look for the silver lining, so to speak; I try to look on the bright side of things.	D	0.58	0.04
64.	I try to see things from the other person's point of view.	–	0.57	0.02
26.	I make a plan of action and follow it.	PPS	0.56	−0.13
31.	I talk to someone who can do something concrete about the problem.	SSS	0.55	−0.07
49.	I know what has to be done, so I double my efforts to make things work.	PPS	0.54	0.01
48.	I draw on my past experiences; I have been in a similar situation before.	PPS	0.51	−0.06
63.	I think about how a person I admire would handle the situation and use that as a model.	SC	0.49	0.00
8.	I talk to someone to find out more about the situation.	SSS	0.49	−0.08
38.	I rediscover what is important in life.	PR	0.49	0.09
56.	I change something about myself.	PR	0.47	0.22
5.	I bargain or compromise to get something positive from the situation.	–	0.46	0.08
2.	I try to analyze the problem in order to understand it better.	–	0.45	−0.15
46.	I stand my ground and fight for what I want.	CC	0.42	−0.01
42.	I ask advice from a relative or friend I respect.	SSS	0.40	0.06
36.	I find new faith.	PR	0.40	0.18
58.	I wish that the situation goes away or somehow is over with.	EA	0.67	−0.05
59.	I have fantasies or wishes about how things might turn out.	EA	0.66	0.11
57.	I daydream or imagine a better time or place than the one I am in.	–	0.64	0.05
9.	I criticize or lecture myself.	AR	0.55	0.03
21.	I try to forget the whole thing.	D	0.53	−0.21
55.	I wish that I could change what has happened or how I feel.	–	0.52	−0.01
11.	I hope for a miracle.	EA	0.52	−0.03

(Continued)

Item		Original Scale	Adaptive Loading	Maladaptive Loading
33.	I try to make myself feel better by eating, drinking, smoking, using drugs, or medications, etc.	EA	0.47	-0.03
50.	I refuse to believe that it has happened.	EA	0.47	0.00
29.	I realize that I have brought the problem on myself.	AR	0.46	0.15
43.	I keep others from knowing how bad things are.	SC	0.44	-0.08
47.	I take it out on other people.	EA	0.41	-0.18
61.	I prepare myself for the worst.	-	0.37	0.16
25.	I apologize or do something to make up.	AR	0.37	0.22
40.	I generally avoid being with people.	EA	0.36	-0.18
6.	I do something that I don't think will work, but at least I do something.	CC	0.36	-0.01
12.	I go along with fate; sometimes I just have bad luck.	D	0.35	-0.11
53.	I accept the situation, since nothing can be done.	-	0.35	-0.05
14.	I try to keep my feelings to myself.	SC	0.27	-0.18
17.	I express anger to the person(s) causing the problem.	CC	0.25	-0.05

Note: PR = positive reappraisal; PPS = planful problem solving; D = distancing; SSS = seeking social support; SC = self-controlling; CC = confrontive coping; EA = escape-avoidance; AR = accepting responsibility; — = no original scale. Item numbers are those of Folkman and Lazarus (1988). 5-, 10-, and 20-item versions are demarcated by bold horizontal lines.

Table 2. Descriptive data for proposed coping scales

Adaptive	M	(SD)	α	Maladaptive	M	(SD)	α	r
5 items	7.9	(2.8)	0.78	5 items	6.2	(3.2)	0.76	-0.01
10 items	16.2	(5.1)	0.85	10 items	11.4	(5.4)	0.81	-0.03
20 items	30.8	(8.9)	0.88	20 items	22.3	(8.3)	0.84	-0.04

distinct. Plausible labels were (1) Planful Problem Solving, (2) Escape-Avoidance (with Accepting Responsibility), (3) (inverse of) Social Support (with Self-Controlling), (4) (inverse of) Positive Reappraisal, and (5) Escape-Avoidance, Distancing and Confrontive Coping. Yet the decision to rotate only two factors resulted in a much clearer interpretation. The lack of correlation between the scales derived from the two factors is distinctive and speaks to the independence of these coping styles. This provides confidence in the ability of the proposed scales to discriminate between participants reporting, for example, a clear reliance on one style over the other, or the tendency to use both styles. Current alternative measures of adaptive and maladaptive coping, such as in the MAX (Moritz et al., 2016), share a significant negative correlation. Yet as noted by Moritz et al. (2016) themselves, there is no reason to suggest that adaptive and maladaptive styles should be reciprocal (opposing poles of a continuum). They further note that the study of concurrent coping styles, as reflected in the current research, has emerged only relatively recently.

Table 3. Correlations between coping styles and age, personality and stress

	Adaptive Coping			Maladaptive Coping		
	20 items	10 items	5 items	20 items	10 items	5 items
Age	-.03	-.02	-.08	-.24***	-.22***	-.20***
Personality						
Openness	.35***	.35***	.36***	.05	.10	.12*
Conscientiousness	.14*	.16**	.13*	-.36***	-.33***	-.29***
Extraversion	.38***	.37***	.35***	-.04	.01	-.04
Agreeableness	.29***	.28***	.24***	-.10	-.03	-.05
Neuroticism	-.13*	-.17**	-.14*	.43***	.41***	.35***
Stress						
Life event stress	.23***	.19***	.21***	.29***	.29***	.22***
Current stress appraisal	.09	.08	.10	.36***	.35***	.32***
Appraisal (controlling for stress)	-.07	-.05	-.04	.24***	.23***	.24***

Note: * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed).

Table 4. Coping style differences for demographic characteristics

	Adaptive Coping						Maladaptive Coping					
	20 items		10 items		5 items		20 items		10 items		5 items	
	<i>M (SD)</i>	$t(\eta_p^2)$	<i>M (SD)</i>	$t(\eta_p^2)$	<i>M (SD)</i>	$t(\eta_p^2)$	<i>M (SD)</i>	$t(\eta_p^2)$	<i>M (SD)</i>	$t(\eta_p^2)$	<i>M (SD)</i>	$t(\eta_p^2)$
Gender												
Males	30.1 (9.2)	1.37 (.01)	16.0 (5.6)	0.71 (.00)	7.9 (2.9)	0.52 (.00)	21.7 (8.2)	1.06 (.00)	10.7 (5.3)	2.28* (.02)	5.8 (3.2)	1.81 (.01)
Females	31.4 (8.6)		16.4 (4.7)		8.0 (2.8)		22.7 (8.4)		12.1 (5.4)		6.5 (3.2)	
Marital status												
Partner	30.3 (8.1)	1.17 (.01)	16.1 (4.9)	0.42 (.00)	7.8 (2.6)	1.32 (.01)	21.3 (7.4)	2.42* (.02)	10.8 (4.8)	2.39* (.02)	5.9 (2.9)	1.80 (.01)
No partner	31.6 (9.9)		16.4 (5.6)		8.2 (3.2)		23.7 (9.4)		12.4 (6.1)		6.6 (3.6)	
Education												
Secondary	28.9 (9.4)	3.73*** (.04)	15.1 (5.3)	3.90*** (.05)	7.3 (2.9)	3.69*** (.04)	23.2 (8.7)	2.09* (.01)	11.9 (5.7)	1.63 (.01)	6.5 (3.4)	1.78 (.01)
Post-secondary	32.6 (8.0)		17.3 (4.8)		8.5 (2.7)		21.3 (7.8)		10.9 (5.0)		5.9 (3.0)	

Note: * $p < .05$; ** $p < .01$; *** $p < .001$ (two-tailed).

Primary support that the identified constructs may be labelled “adaptive” and “maladaptive” was evident from item content (i.e., face validity), and also from previous similar scales in the literature (Badura et al., 1997; Meyer, 2001; Moritz et al., 2016; Roger et al., 1993; Rohland, 2000; Tuncay et al., 2008). The putative adaptive scales were heavily represented by items previously reported as members of the Positive Reappraisal and Planful Problem Solving scales, with modest representation from Seeking Social Support. Three adaptive coping items had not previously loaded on a WCQ scale (e.g., “I try to analyze the problem in order to understand it better”). Overall, the adaptive scale characterizes a person who deals with stressors through personal growth, optimism, solution-focused actions, creativity, and flexibility.

The maladaptive scales predominantly tapped former Escape-Avoidance and Accepting Responsibility scales and, again, items not previously represented in WCQ scales also contributed (e.g., “I wish that I could change what had happened or how I felt”). A person scoring highly on maladaptive coping could be characterized as engaging in denial, self-criticism, and passivity. While this content and label largely accord with a consensus view of the nature of “maladaptive” coping, it could perhaps be argued that emotional distancing at a time of significant crisis is in fact adaptive for those who find the stress experience overwhelming. The need for further validity testing against external criteria such as successful/unsuccessful adaptation to stressors is therefore encouraged.

Preliminary construct validity was also supportive of the naming of the derived scales. For example, personality is a key predictor of how individuals choose to deal with stressors (Carver & Connor-Smith, 2010), and has previously been linked to adaptive and maladaptive styles. The current results largely replicated previous observations. Specifically, associations involving extraversion, openness and conscientiousness with adaptive coping, and neuroticism with maladaptive coping, are common (Bouchard et al., 2004; Carver & Connor-Smith, 2010; Panayiotou et al., 2014; Watson & Hubbard, 1996). The current data additionally linked agreeableness with adaptive coping. Further, while conscientiousness has primarily been positively related to an adaptive style, the current data demonstrated a negative association with maladaptive coping. Importantly, all associations with personality were consistent across parallel adaptive and maladaptive scales, respectively.

Stress and coping relationships were also relatively consistent across the three scale versions. The observation that higher maladaptive scores were associated with a higher current stress appraisal reflects previous research illustrating that maladaptive rather than adaptive coping is more directly related to stress outcomes (Mahmoud et al., 2012; Meng & D’Arcy, 2016). The finding that both adaptive and maladaptive coping styles were higher as more stress was experienced is also consistent with previous research (Holahan & Moos, 1987; Holton et al., 2015; Parasuraman & Hansen, 1987). Further, the significant partial correlations between current stress appraisal and coping styles, controlling for the amount of life stress experienced, suggest that the increased use of maladaptive strategies occurs when and if the stress experienced is appraised more negatively, while the use of adaptive coping strategies appears to be independent of the level of appraisal. Beyond this observation, it is also clear that the greater experience of stress mandates the engagement of more coping responses *per se*, demonstrated by the endorsement of higher levels of both coping styles, perhaps individually chosen to deal with specific stressors. It may be that such a pattern would not be observed if situational coping responses were sought, forcing respondents to nominate strategies for a single stress experience.

Demographic characteristics provided less consistent relationships, with the exception of age. While adaptive coping was not related to age, the use of a maladaptive style decreased with maturity. Although there is limited research on age-related coping styles (Rubio, Dumitrache, Cordon-Pozo, & Rubio-Herrera, 2016), this association has been noted previously (Ben-Zur, 2002; Diehl et al., 2014). Beyond age there were indications that maladaptive coping was

more likely among women, those without a current life partner, and those with less education. However, these effects were variable across the three scale versions. Conversely, adaptive coping was strongly and consistently used by those with at least post-secondary education, replicating the findings of Holahan and Moos (1987). No other demographic effects were evident for adaptive coping.

There are alternate theories (e.g., sex role, socialization) to support either similarities or differences in the use of coping styles by men and women (Gattino, Rollero, & Piccoli, 2014; Kaiseler et al., 2012; Sigmon, Stanton, & Snyder, 1995). Kaiseler et al. (2012) suggest both biological and social reasons why men and women use different coping styles in similar stressful conditions (dispositional), and also note that differences in situational coping may reflect differential appraisals of stressors rather than an overall preference for a coping style. Generally, there is limited information on gender for the WCQ. Commonly, no gender differences are reported in situational format (Porter et al., 2000). Similarly, few gender differences were found using a dispositional format in the current study. However, the one noted effect was in line with Hampel and Petermann's (2005) research with adolescents, illustrating that females report higher maladaptive scores. More common is that women simply report more coping efforts than men overall, regardless of style (Kaiseler et al., 2012; Tamres et al., 2002). This was not supported by the current data.

4.1. Future research

While the adaptive and maladaptive measures reported are extremely encouraging for those who desire brief, pragmatic scales, caveats are in order. Clearly, replication is necessary (in both situational and dispositional form), as is further validation in general. Consideration of criterion validity, for example, and convergent validity against existing coping measures are clear next steps. Such studies should involve large, representative samples and apply confirmatory factor analysis as a more stringent test of the factor structures nominated. This has not been attempted in the current paper due to cautions against using both exploratory and confirmatory procedures with the same data (Kline, 2016). Further, given the size of the WCQ (66 items), splitting the current sample into development and validation samples (approximately 150 participants in each) would particularly compromise the development analyses. The availability of a larger sample would also allow more complex statistical techniques such as multiple group structural equation modeling, latent profile analysis or multidimensional scaling to be considered which may be of value in testing the measurement invariance of the proposed scales. Finally, context may influence item responses. Therefore, an important test will be whether the proposed scales have the same properties, such as internal reliability, when items are not presented as components of the 66-item WCQ.

Beyond psychometric issues, fruitful inquiry will involve the description of the patterns of use of adaptive and maladaptive coping styles. Given the uncorrelated nature of the scales, high scores on one do not automatically equate to low scores on the other. That is, adaptive and maladaptive do not represent two ends of a single continuum. Rather, their association is likely to be complex, perhaps varying according to a range of individual differences. The current analyses have not addressed whether one particular style predominates for individuals. Cluster analysis or latent class analysis may prove informative in characterizing specific patterns of use of the two styles. Finally, as coping styles may best be considered to be sets of behaviors that mediate the relationship between stress (or stressors) and outcomes, future research should also seek to determine whether the proposed maladaptive and adaptive scales effectively predict differential successful/unsuccessful outcomes as might be suggested by the labels "maladaptive" and "adaptive".

4.2. Conclusion

Providing operationalization of the higher order adaptive and maladaptive coping style constructs, these analyses have proposed three empirically sound measures for each in dispositional format derived from an existing instrument. While the terms are frequently used descriptively, it is rare that specific adaptive and maladaptive measures are available. The

choice of scales of differing length with equal reliability is even less common. The longer scales may be employed when number of items is not an issue and slightly greater measurement precision is perhaps desired, while the shorter scales may prove ideal when longer scales are not practical. It is suggested that these scales would allow both researchers and practitioners to assess adaptive and maladaptive coping styles with greater confidence than offered by existing options.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Competing Interests

No conflicts of interests were declared.

Author details

Lynsey J. Brown¹

E-mail: lynsey.brown@flinders.edu.au

ORCID ID: <http://orcid.org/0000-0003-2379-4272>

Malcolm J. Bond¹

E-mail: malcolm.bond@flinders.edu.au

ORCID ID: <http://orcid.org/0000-0002-1137-7175>

¹ College of Medicine and Public Health, Flinders University
 Adelaide, Australia.

Disclosure of Interest

The authors report no conflict of interest.

Citation information

Cite this article as: The pragmatic derivation and validation of measures of adaptive and maladaptive coping styles, Lynsey J. Brown & Malcolm J. Bond, *Cogent Psychology* (2019), 6: 1568070.

References

- Ayers, T. S., Sandler, I. N., West, S. G., & Roosa, M. W. (1996). A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of Personality*, 64, 923–958.
- Badura, A. S., Reiter, R. C., Altmaier, E. M., Rhomberg, A., & Elas, D. (1997). Dissociation, somatization, substance abuse, and coping in women with chronic pelvic pain. *Obstetrics & Gynecology*, 90, 405–410. doi:10.1016/S0029-7844(97)00287-1
- Ben-Zur, H. (2002). Coping, affect and aging: The roles of mastery and self-esteem. *Personality and Individual Differences*, 32, 357–372. doi:10.1016/S0191-8869(01)00031-9
- Billings, A. G., & Moos, R. H. (1981). The role of coping resources in attenuating the stress of life events. *Journal of Behavioral Medicine*, 4, 139–157.
- Bouchard, G., Guillemette, A., & Landry-Léger, N. (2004). Situational and dispositional coping: An examination of their relation to personality, cognitive appraisals, and psychological distress. *European Journal of Personality*, 18, 221–238. doi:10.1002/(ISSN)1099-0984
- Carver, C. S. (1997). You want to measure coping but your protocol's too long: Consider the brief COPE. *International Journal of Behavioral Medicine*, 4, 92–100. doi:10.1207/s15327558ijbm0401_6
- Carver, C. S., & Connor-Smith, J. (2010). Personality and coping. *Annual Review of Psychology*, 61, 679–704. doi:10.1146/annurev.psych.093008.100352
- Carver, C. S., & Scheier, M. F. (1994). Situational coping and coping dispositions in a stressful transaction. *Journal of Personality and Social Psychology*, 66, 184–195.
- 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.
- Catanzaro, S. J., Wasch, H. H., Kirsch, I., & Mearns, J. (2000). Coping-related expectancies and dispositions as prospective predictors of coping responses and symptoms. *Journal of Personality*, 68, 757–788.
- Cohen, F., & Lazarus, R. S. (1973). Active coping processes, coping dispositions and recovery from surgery. *Psychosomatic Medicine*, 35, 375–389.
- Cook, S. W., & Heppner, P. P. (1997). A psychometric study of three coping measures. *Educational and Psychological Measurement*, 57, 906–923. doi:10.1177/0013164497057006002
- Diehl, M., Chui, H., Hay, E. L., Lumley, M. A., Gruhn, D., & Labouvie-Vief, G. (2014). Change in coping and defense mechanisms across adulthood: Longitudinal findings in a European American sample. *Developmental Psychology*, 50, 634–648. doi:10.1037/a0033619
- Donnellan, M. B., Oswald, F. L., Baird, B. M., & Lucas, R. E. (2006). The Mini-IPIP Scales: Tiny-yet-effective measures of the big five factors of personality. *Psychological Assessment*, 18, 192–203. doi:10.1037/1040-3590.18.2.192
- Edwards, J. R., & O'Neill, R. M. (1998). The construct validity of scores on the ways of coping questionnaire: Confirmatory analysis of alternative factor structures. *Educational and Psychological Measurement*, 58, 955–983. doi:10.1177/0013164498058006007
- Folkman, S., & Lazarus, R. S. (1988). *Ways of coping questionnaire: Sampler set manual, test booklet, scoring key*. Redwood City: Consulting Psychologists Press.
- Gattino, S., Rollero, C., & Piccoli, N. (2014). The influence of coping strategies on quality of life from a gender perspective. *Applied Research in Quality of Life*, 10, 689–701. doi:10.1007/s11482-014-9348-9
- Goldberg, L. R. (1999). A broad-bandwidth, public-domain, personality inventory measuring the lower-level facets of several five-factor models. In I. Mervielde, I. J. Deary, F. De Fruyt, & F. Ostendorf (Eds.), *Personality psychology in Europe* (Vol. 7, pp. 7–28). Tilburg: Tilburg University Press.
- Greenaway, K. H., Louis, W. R., Parker, S. L., Kalokerinos, E. K., Smith, J. R., & Terry, D. J. (2015). Measures of coping for psychological well-being. In G. Boyle, D. H. Saklofske, & G. Matthews (Eds.), *Measures of personality and social psychology constructs* (pp. 322–351). London: Elsevier.
- Hampel, P., & Petermann, F. (2005). Age and gender effects on coping in children and adolescents. *Journal of Youth and Adolescence*, 34, 73–83. doi:10.1007/s10964-005-3207-9
- Hobson, C. J., & Delunas, L. (2001). National norms and life-event frequencies for the revised social readjustment rating scale. *International Journal of Stress Management*, 8, 299–314. doi:10.1023/A:1017565632657
- Holahan, C. J., & Moos, R. H. (1987). Personal and contextual determinants of coping strategies. *Journal of Personality and Social Psychology*, 52, 946–955.
- Holton, M. K., Barry, A. E., & Chaney, J. D. (2015). Employee stress management: An examination of adaptive and

- maladaptive coping strategies on employee health. *Work*, 53, 299–305. doi:10.3233/WOR-152145
- Kaiseler, M., Polman, R. C. J., & Nicholls, A. R. (2012). Gender differences in appraisal and coping: An examination of the situational and dispositional hypothesis. *International Journal of Sport Psychology*, 43, 1–14.
- Kim, J., & Mueller, C. W. (1985). *Factor analysis: Statistical methods and practical issues*. Newbury Park: Sage.
- Kline, R. B. (2016). *Principles and practice of structural equation modelling* (4th ed.). New York, NY: Guilford Press.
- Lautenschlager, G. J. (1989). A comparison of alternatives to conducting Monte Carlo analyses for determining parallel analysis criteria. *Multivariate Behavioral Research*, 24, 365–395. doi:10.1207/s15327906mbr2403_6
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. New York, NY: Springer.
- Livneh, H., & Martz, E. (2007). An introduction to coping theory and research. In E. Martz & H. Livneh (Eds.), *Coping with chronic illness and disability* (pp. 3–27). New York, NY: Springer.
- Lundqvist, L. O., & Ahlström, G. (2006). Psychometric evaluation of the ways of coping questionnaire as applied to clinical and nonclinical groups. *Journal of Psychosomatic Research*, 60, 485–493. doi:10.1016/j.jpsychores.2005.08.019
- Mahmoud, J. S., Staten, R., Hall, L. A., & Lennie, T. A. (2012). The relationship among young adult college students' depression, anxiety, stress, demographics, life satisfaction and coping styles. *Issues in Mental Health Nursing*, 33, 149–156. doi:10.3109/01612840.2011.632708
- Meng, X., & D'Arcy, C. (2016). Coping strategies and distress reduction in psychological well-being? A structural equation modelling analysis using a national population sample. *Epidemiology and Psychiatric Sciences*, 25, 370–383. doi:10.1017/S2045796015000505
- Meyer, B. (2001). Coping with severe mental illness: Relations of the Brief COPE with symptoms, functioning, and well-being. *Journal of Psychopathology and Behavioral Assessment*, 23, 265–277. doi:10.1023/A:1012731520781
- Moritz, S., Jahns, A. K., Schröder, J., Berger, T., Lincoln, T. M., Klein, J. P., & Göritz, A. S. (2016). More adaptive versus less maladaptive coping: What is more predictive of symptom severity? Development of a new scale to investigate coping profiles across different psychopathological syndromes. *Journal of Affective Disorders*, 191, 300–307. doi:10.1016/j.jad.2015.11.027
- Panayiotou, G., Kokkinos, C. M., & Kapsou, M. (2014). Indirect and direct associations between personality and psychological distress mediated by dispositional coping. *The Journal of Psychology: Interdisciplinary and Applied*, 148, 549–567. doi:10.1080/00223980.2013.817375
- Parasuraman, S., & Hansen, D. (1987). Coping with work stressors in nursing: Effects of adaptive versus maladaptive strategies. *Work and Occupations*, 14, 88–105. doi:10.1177/0730888487014001005
- Parker, J. D. A., Endler, N. S., & Bagby, R. M. (1993). If it changes, it might be unstable: Examining the factor structure of the Ways of Coping Questionnaire. *Psychological Assessment*, 5, 361–368. doi:10.1037/1040-3590.5.3.361
- Porter, L. S., Marco, C. A., Schwartz, J. E., Neale, J. M., Shiffman, S., & Stone, A. A. (2000). Gender differences in coping: A comparison of trait and momentary assessments. *Journal of Social and Clinical Psychology*, 19, 480–498. doi:10.1521/jscp.2000.19.4.480
- Ptacek, J. T., Pierce, G. R., & Thompson, E. L. (2006). Finding evidence of dispositional coping. *Journal of Research in Personality*, 40, 1137–1151. doi:10.1016/j.jrp.2005.12.001
- Roger, D., Jarvis, G., & Najarian, B. (1993). Detachment and coping: The construction and validation of a new scale for measuring coping strategies. *Personality and Individual Differences*, 15, 619–626. doi:10.1016/0191-8869(93)90003-L
- Rohland, B. M. (2000). A survey of burnout among mental health center directors in a rural state. *Administration and Policy in Mental Health*, 27, 221–237.
- Rózsa, S., Purebl, G., Susánszky, É., Kö, N., Szádóczy, E., Réthelyi, J., ... Kopp, M. (2008). Dimensions of coping: Hungarian adaptation of the ways of coping questionnaire. *Journal of Mental Health and Psychosomatics*, 9, 217–241.
- Rubio, L., Dumitrache, C., Cordon-Pozo, E., & Rubio-Herrera, R. (2016). Coping: Impact of gender and stressful life events in middle and in old age. *Clinical Gerontologist*, 39, 468–488. doi:10.1080/07317115.2015.1132290
- Sasaki, M., & Yamasaki, K. (2005). Dispositional and situational coping and mental health status of university students. *Psychological Reports*, 97, 797–809. doi:10.2466/pr0.97.3.797-809
- Schwartz, J. E., Neale, J., Marco, C., Shiffman, S. S., & Stone, A. A. (1999). Does trait coping exist? A momentary assessment approach to the evaluation of traits. *Journal of Personality and Social Psychology*, 77, 360–369.
- Schwarzer, R., & Schwarzer, C. (1996). A critical survey of coping instruments. In M. Zeidner & N. S. Endler (Eds.), *Handbook of coping: Theory, research, applications* (pp. 107–132). New York: Wiley.
- Senol-Durak, E., Durak, M., & Elagöz, F. Ö. (2011). Testing the psychometric properties of the Ways of Coping Questionnaire (WCQ) in Turkish university students and community samples. *Clinical Psychology and Psychotherapy*, 18, 172–185. doi:10.1002/cpp.677
- Sigmon, S. T., Stanton, A. L., & Snyder, C. R. (1995). Gender differences in coping: A further test of socialization and role constraint theories. *Sex Roles*, 33, 565–587. doi:10.1007/BF01547718
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin*, 129, 216–269.
- Stanton, A. L., Kirk, S. B., Cameron, C. L., & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. *Journal of Personality and Social Psychology*, 78, 1150–1169.
- Tamres, L. K., Janicki, D., & Helgeson, V. S. (2002). Sex differences in coping behavior: A meta-analytic review and an examination of relative coping. *Personality and Social Psychology Review*, 6, 2–30. doi:10.1207/s15327957PSPR0601_1
- Tobin, D. L., Holroyd, K. A., Reynolds, R. V., & Wigul, J. K. (1989). The hierarchical factor structure of the coping strategies inventory. *Cognitive Therapy and Research*, 13, 343–361. doi:10.1007/BF01173478
- Tuncay, T., Musabak, I., Engin Gök, D., & Kutlu, M. (2008). The relationship between anxiety, coping strategies and characteristics of patients with diabetes. *Health and Quality of Life Outcomes*, 6, 79. doi:10.1186/1477-7525-6-79
- Watson, D., & Hubbard, B. (1996). Adaptational style and dispositional structure: Coping in the context of the five-factor model. *Journal of Personality*, 64, 737–774. doi:10.1111/jopy.1996.64.issue-4



© 2019 The Author(s). This open access article is distributed under a Creative Commons Attribution (CC-BY) 4.0 license.

You are free to:

Share — copy and redistribute the material in any medium or format. Adapt — remix, transform, and build upon the material for any purpose, even commercially.

The licensor cannot revoke these freedoms as long as you follow the license terms.

Under the following terms:

Attribution — You must give appropriate credit, provide a link to the license, and indicate if changes were made.

You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use.

No additional restrictions

You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits.



***Cogent Psychology* (ISSN: 2331-1908) is published by Cogent OA, part of Taylor & Francis Group.**

Publishing with Cogent OA ensures:

- Immediate, universal access to your article on publication
- High visibility and discoverability via the Cogent OA website as well as Taylor & Francis Online
- Download and citation statistics for your article
- Rapid online publication
- Input from, and dialog with, expert editors and editorial boards
- Retention of full copyright of your article
- Guaranteed legacy preservation of your article
- Discounts and waivers for authors in developing regions

Submit your manuscript to a Cogent OA journal at www.CogentOA.com

