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The self-perception of flexible coping with stress: A new measure and relations with emotional adjustment

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Abstract: Objective: To develop a theoretically grounded measure of self-perceived ability to cope with stress in a flexible (i.e. non-rigid) manner and test associations with well-being. **Method:** Participants in Study 1 ($N = 395$, 17–56 years) completed surveys to report flexible coping with stress and well-being. In Studies 2 ($N = 645$, 17–27 years) and 3 ($N = 558$, 12–19 years), youth completed surveys with the 18-item Self-Perception of Flexible Coping with Stress (SFCS), and coping and well-being measures. **Results:** Three SFCS factors were supported, which aligned to the conceptualization including multiple coping strategy use (multiple CSU), coping rigidity, and situational coping. The SFCS subscales had good reliability and were modestly correlated with each other. Also, multiple CSU and situational coping were linked to better mental health, emotion regulation, greater use of adaptive coping strategies, and better self-worth. Coping rigidity was linked with more symptoms of anxiety and depression, more emotion dysregulation, greater use of problem-coping behaviors, and lower self-worth. Older participants reported they were higher in flexible coping and sex differences in multiple CSU and situational coping were found. **Conclusions.** The SFCS, a measure of the deployment of a coping “toolbox” that could allow individuals to respond adroitly to stressors, is reliable, valid, and associated with well-being.

ABOUT THE AUTHORS

Melanie J. Zimmer-Gembeck PhD is a Professor in the School of Applied Psychology at Griffith University, Queensland, Australia. Her research interests and funded projects include work on stress, coping, emotion regulation and resilience; parent-child relationships; adolescent development as associated with couple (dating) and peer relationships; adolescent sexual behavior and sexuality; interpersonal rejection and sensitivity to rejection, and appearance-related concerns. She also directs The Family Interaction Program, a center that develops, pilots, evaluates, and disseminates innovative programs for children, adolescents, and families, focusing especially on building family supports for children aged 1 to 12. This research extends her focus on stress and the development of coping, providing a way to assess self-perceived capacity to cope flexibly with stress, which should improve with cognitive maturation and experience.

PUBLIC INTEREST STATEMENT

Individuals have to cope with life transitions at many ages and often have to manage social, medical, workplace, or academic stressors. This research introduces and tests a new measure of coping flexibility in response to stressful events, to determine its reliability and validity for use with adolescents and adults. Coping flexibility was defined, and the study results showed, that it can be measured reliably and is associated with better adjustment, as hypothesized. Coping flexibility will be useful for future research on coping responses and resilient responding to stressful events. The measure can be used to assess beliefs that one can be efficacious (i.e. effectual) by responding to stressors and challenges using multiple strategies (when needed), matching strategies to situations, and responding to stressful events with less rigidity. Coping flexibility is proposed to be a key modifiable coping skill that could boost resilience to stress and could be assessed as an outcome of interventions designed to improve coping and resilience.

Subjects: Health Psychology; Developmental Psychopathology; Stress in Children & Adolescents; Positive Psychology

Keywords: stress; coping; internalizing symptoms; general self-worth

1. Introduction

Individual differences in responding to stress have led scholars to investigate the specific responses to stress, such as problem-solving, avoidance, or support-seeking, which tend to be associated with better or worse outcomes following stress (Aspinwall & Taylor, 1977; Compas, Connor-Smith, Saltzman, Thomsen, & Wadsworth, 2001; Tamres, Janicki, & Helgeson, 2002; Zimmer-Gembeck & Skinner, 2011). In doing so, it has become increasingly clear that no single way of coping holds the key to successful adaptation. Instead, doing well in the face of stress is arguably linked to the maintenance of a profile of coping responses or access to a range of coping responses that can be effectively and flexibly deployed to match changing demands and characteristics of stressful episodes. Skills that are linked to this capacity has been referred to as coping flexibility or coping resilience (Cheng, Lau, & Chan, 2014; Skinner & Zimmer-Gembeck, 2016), flexible regulation or perceived ability to cope (Bonanno & Diminich, 2013; Burton & Bonanno, 2016), self-control and self-management (Mezo, 2009), or perceived control, including locus of control, self-efficacy, or perceived competence (Skinner & Zimmer-Gembeck, 2011). Thus, flexible coping as successful adaptation to stress is not a completely new idea, as even classic research with adults referred to coping flexibility and defined it as the use of a larger number of coping strategies or using different coping responses in distinct situations (e.g. Aspinwall & Taylor, 1977; Pearlin & Schooler, 1978). In other research, flexible coping with stress has been operationalized as cross-situation variability in coping (e.g. Zimmer-Gembeck, Skinner, Morris, & Thomas, 2013; Zimmer-Gembeck, Van Petegem, & Skinner, 2016), as a balanced profile of coping across different strategies (e.g. Herman-Stahl, Stemmler, & Petersen, 1995), or as encompassing cognitive flexibility (defined as “variability in the pattern of perceived controllability across situations”, p. 815, Cheng, 2001), as well as variation in coping strategies in different situations and how appropriate coping is for specific situations (Cheng, 2001). These ways of operationalizing coping flexibility have required researchers to measure and compare multiple ways of coping within and across different stressful events (Zimmer-Gembeck, Lees, Bradley, & Skinner, 2009; Zimmer-Gembeck et al., 2013, 2016), with researchers founding this approach on theory that suggests how the greater range of coping responses will reflect flexibility and be beneficial for functioning.

In one comprehensive approach, Cheng (2001) used a daily self-report measure plus experiments to capture coping variability across contexts, which she referred to as coping flexibility. In Study 1, she constructed a measure to assess the most stressful event each day (rating desirability, impact, and controllability of the event) and open-ended coping responses (then classified into “primary” problem-focused or emotion-focused by the participants themselves) over 6 days among 100 first-year university students. Coping variability was captured in two ways: as variation in controllability across situations and as variability in problem-focused or emotion-focused coping across situations. Using cluster analysis, these data were then used to determine individual membership in coping variability types: flexible ($n = 30$), active-inflexible ($n = 42$), passive-inflexible ($n = 8$), and active-inconsistent ($n = 20$). These clusters were replicated in a second study (Study 2, Cheng, 2001). In Study 1, flexible and passive-inflexible groups were lower in anxiety than the other two groups, whereas those classified as flexible were lower in depressive symptoms than the other three groups. Self-monitoring and social desirability did not differ between groups. The diary measure was also collected in the laboratory using experimentally induced stressors (one controllable memory test and reaction time task, and one uncontrollable mental IQ test with a high level of difficulty), and generally converged with and confirmed the results with the self-report diary measure.

Overall, the above approach to understanding variability in coping responses across stressor contexts (and related approaches; Bonanno & Diminich, 2013; Southward, Altenburger, Moss, Cregg, &

Cheavens, 2018; Zimmer-Gembeck et al., 2009) has substantial merit, but the assessment can be extensive and depends on additional statistical methods for data reduction (e.g. cluster analysis) that can be sample-specific. Partly because of these complications, there remains a substantial gap in the ability to measure flexible coping with stress in a manner that can be systematically assessed across studies, stressors, and populations, and in a way that is consistent with its multidimensional conceptualization. Drawing from and integrating existing descriptions and research on adaptive coping responses to stress and flexible coping (Bonanno & Burton, 2013; Bonanno & Diminich, 2013; Cheng et al., 2014; Kato, 2012; Mezo, 2009; Zimmer-Gembeck & Skinner, 2016) and supported by other measures that assess self-perceived ability to cope with stressful situations (e.g. the Perceived Ability to Cope with Trauma; Bonanno, Pat-Horenczyk, & Noll, 2011), our measure was designed to assess the self-perceived capacity for flexible coping with stressful events. More specifically, we designed the measure to assess the self-perceived capacity to 1) adapt to, adopt and select from a wide range of coping strategies when needed and 2) use coping responses in a flexible and adaptable way, understanding that coping responses can depend on the situations and different stressor demands may need different coping responses, rather than 3) being overly or too-rigidly tied to one type of coping response, regardless of the nature of the stressful event. This measure was also designed to expand on the one existing 10-item self-report measure, the Coping Flexibility Scale, which defined coping flexibility as the ability to “discontinue an ineffective coping strategy and produce and implement an alternative coping strategy” (Kato, 2012, p. 263). Although a useful measure, the author noted that it was unclear whether this measure captured all components of coping flexibility.

Important here is our focus on the *self-perceived capacity* for coping flexibility. By placing the focus more squarely on self-perceived capacity, we suggest that self-efficacy and perceived competence are relevant to coping flexibility, further differentiating our new measure from existing measurement approaches that rely purely on an assessment of a variety of different ways of coping to determine flexibility. Self-efficacy and perceived competence have a long history in the study of stress and coping (Skinner, 1995; Skinner & Zimmer-Gembeck, 2011), given that they are powerful personal resources that can aid goal setting and pursuit, as well as helping to maintain motivation and increase the ability to overcome stressful events and other obstacles (Bandura, 1997; Folkman, 1984; Taylor & Stanton, 2007). In fact, feelings of self-efficacy are sometimes difficult to differentiate from the coping process itself (Dweck, 1999; Folkman, 1984; Skinner, 1995). Thus, our aim was to develop a measure of self-perceived capacity for flexible coping, which we view as an assessment of beliefs that one can be flexible in coping responses when stress occurs.

2. Flexible coping with stress, distress, symptoms, and low self-worth

As validation measures for our new measure, we examined other measures of coping across three studies, including social support-seeking in Study 1, emotional coping using cognitive reappraisal and suppression and multiple ways of coping with interpersonal stress in Study 2, and coping with appearance concerns among adolescents in Study 3. In addition, we investigated multiple aspects of functioning as correlates of coping adaptability in each of the three studies. These aspects of functioning included symptoms of psychopathology (depression and anxiety), emotion dysregulation, and general self-worth (because self-worth is often lower among those with more symptoms of psychopathology; Harter, 2012).

We considered the above as potential correlates of our new measure of flexible coping with stress, because studies have shown that the utilization of multiple ways of coping is associated with better adjustment and fewer mental health problems (Boxer, Sloan-Power, Mercado, & Schappell, 2012; Shimazu & Schaufeli, 2007). Consistent with these past findings, variability in coping responses has been described as a response to stress that should alleviate or interfere with symptoms of psychopathology and distress (Babb, Levine, & Arseneault, 2010; Cheng, 2001; Cheng et al., 2014; Compas et al., 2001). Measurement strategies aimed at tapping greater coping variability have been shown to predict a number of positive

outcomes, including protecting individuals from the negative emotional or social impact of daily hassles (Galatzer-Levy, Burton, & Bonanno, 2012). However, in other studies, the use of a greater range of coping strategies has been associated with greater distress, which may be because greater distress (or higher levels of objective stress) often call for more coping of all kinds, making it difficult to coordinate responses or to know what coping strategies might be most effective and beneficial (Zimmer-Gembeck et al., 2009). Thus, because it seemed possible but uncertain, we wanted to test whether individuals' self-perceived and self-reported flexible coping with stress would have an association with symptoms of emotional health problems and general self-worth.

3. Flexible coping with stress, age, and biological sex

Age and biological sex were also examined as correlates of flexible coping with stress, with our first two studies focused on young adults and the third study of adolescents. Although there exists little research explicitly examining flexible coping with stress as a function of age, theory suggests that it should increase with age (Babb et al., 2010) even from the late teens to early or late 20s (Skinner & Zimmer-Gembeck, 2016; Zimmerman & Iwanski, 2014). Also, sex differences are prominent in the study of stress and coping (Nolen-Hoeksema, 2001; Zimmer-Gembeck & Skinner, 2008). For example, young women report more interpersonal stressors than men (Nolen-Hoeksema, 2001), women tend to report using more support seeking and more positive self-talk than men (Tamres et al., 2002), and there have been many studies identifying biological sex differences in ways of regulating emotion (e.g. Zimmerman & Iwanski, 2014). However, it is not known whether self-perceived capacity to be flexible when coping with stress differs between women and men. Given that symptoms of depression and anxiety are more common in females than in males beginning in at least early adolescence (Rose & Rudolph, 2006; Zimmer-Gembeck & Skinner, 2008), it may be that men would perceive they have more capacity for flexible coping with stress than women. Expecting this sex difference is consistent with the notion that flexible coping with stress should reduce or deflect some symptoms that may emerge when faced with stressful events or may be easier to enact when there is little interference from symptoms of emotional health problems.

4. The current studies

In summary, there were three aims of the current series of three studies. The first was to develop and provide a preliminary assessment of a novel measure of self-perceived flexible coping with stress, founded in contemporary theory and conceptualizations (Bonanno & Burton, 2013; Cheng et al., 2014; Zimmer-Gembeck & Skinner, 2016). Building from a recent systematic review, which included a summary of definitions of coping and flexible coping with stress (Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2011), we developed items to tap each of the important components that could be reliably self-assessed and reported. Our second aim was to examine how the capacity for flexible coping with stress was associated with specific coping behaviors, distress, symptoms of psychopathology, self-worth and emotion regulation, using measures with past evidence of reliability and validity. The third and final study aim was to identify whether self-perceived flexible coping with stress is greater with increasing age, and to compare flexible coping with stress between women and men. Approval for all studies was received from the Griffith University Human Research Ethics Committee.

5. Study 1

The aim of Study 1 was to identify the factor structure of an initial set of items designed to tap the three components of flexible coping with stress. In addition, the new measure was validated with a measure of support seeking, which is a common method of coping with stress among all age groups (Zimmer-Gembeck & Skinner, 2011). Other correlates that were examined included a measure of depression, general anxiety and stress, as well as measures of social anxiety and general self-worth.

5.1. Study 1 method

5.1.1. Participants and procedure

The participants were 395 university students ages 17 to 56 years ($M = 21.6$, $SD = 5.59$; 87% age 25 or under; 29% male and 71% female). Most (74%) of the participants reported that they would describe themselves as white Australian, 7% described themselves as Asian, and the remaining participants reported a diverse range of sociocultural backgrounds. Five participants were Australian First Peoples. Five participants failed to complete either the measure of general self-worth, the measure of depression, anxiety and stress, or the social anxiety measure, and were excluded from the analyses, resulting in a final sample size of 390 for these analyses.

University students were approached on campus during the week prior to the start of the semester (i.e. “orientation week”), informed about the study, and completed the survey under the supervision of a research assistant. Participants were also recruited through the first-year psychology research participation program. Participants recruited during orientation week received a small chocolate bar, whereas those recruited through the research participation program received a small amount of course credit (.5 of a mark).

5.1.2. Measures

5.1.2.1. Flexible coping with stress. To prime participants, survey items were framed by a definition of stress and ways of managing or adapting to stress (*Stress includes events like having an argument with someone, losing something that's important, not meeting a goal like passing a test or getting something you worked for, or having to do something scary. These types of stressful events are sometimes called stressors. Stress happens to everyone and coping is the way you might deal with stress or to help yourself feel better when under stress.*). After these questions, participants responded to 40 items. Items tapped (1) the use of multiple coping strategies or shifting between strategies when needed (e.g. *I can come up with lots of ways to make myself feel better if I am stressed*), (2) mapping strategy use to stressor requirements (e.g. *No matter what the stress, I seem to keep doing the same thing to cope with it*, reverse-coded), and (3) changing strategy use to improve adaptation to stress (e.g. *When things continue to be stressful, I try new ways to cope*). In total, 23 items were worded to reflect flexible coping with stress and the other 17 items were worded to reflect coping rigidity or low coping flexibility. Response options ranged from 1 (*not at all true*) to 7 (*totally true*).

Items were developed following the completion of a review of research on coping with stress, which included a review of theoretical descriptions and definitions of coping, and cognitive and emotional adaptability and flexibility when encountering and responding to stressful events (Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2011). In addition, all items were vetted by two coping experts prior to their use. Further information is provided in the Results section.

5.1.2.2. Depression, anxiety, and stress. The 21-item Depression, Anxiety and Stress Scale (DASS-21; Lovibond & Lovibond, 1995) was used to assess symptoms of emotional maladjustment and feelings of distress. Respondents were prompted to indicate the presence of each symptom over the previous week. An example item is: “I felt that I had nothing to look forward to”. Responses ranged from 0 (*did not apply to me at all*) to 3 (*applied to me very much or most of the time*). Total scores were calculated by summing all items, so that higher scores indicated more emotional distress; Cronbach's α in the present study was .94.

5.1.2.3. Social anxiety. The 30-item Social Anxiety Questionnaire for Adults (SAQ-A30; Caballo, Salazar, Irurtia, Arias, & CISO-A Research Team, 2010) was used to measure symptoms of social anxiety. Respondents indicate their level of unease, stress, or nervousness in the situations described in each item (e.g. making new friends, speaking in public, and asking a neighbour to stop making noise). Response options ranged from 1 (*not at all or very slight unease*) to 5 (*very high*).

or extremely high unease). Total scores were calculated by summing all items, so that a higher score indicated higher social anxiety; Cronbach's α was .96.

5.1.2.4. General self-worth. Six items from the Self-Perception Profile for Adolescents (SPP-A; Harter, 1985) were used to measure general self-worth. The SPPA employs an alternate choice format, where each of the five items contains two opposite descriptions (e.g. "Some people are very happy being the way they are" BUT "Other people would like to be different"). Each participant was first asked to decide which of the pair of statements best reflected him or her, and then to indicate whether that particular statement is "really true" or "sort of true" of him or her. Response options were scored from 1 (low self-worth) to 4 (high self-worth), and total scores were calculated by summing all items. In the present study, Cronbach's α was .82.

5.1.2.5. Support-seeking. Two items from the Social Adjustment Scale—Self report (SAS; Weissman, Prusoff, Thompson, Harding, & Myers, 1978) were used to assess support-seeking. The items assess participants' ability to talk about feelings and problems over the previous two weeks with relatives and a partner. Responses ranged from 1 (*I was often able to talk about my feelings with at least one relative [my partner]*) to 5 (*I was never able to talk about my feelings*). Items were reversed and, for those with a partner, the two items were averaged.

6. Study 1 results

6.1. Item reduction, factor analyses, and reliability

6.1.1. Item reduction and factor analyses

After examining correlations of the 40 items, one item was excluded that had low correlations with all other items ($< .20$). The remaining 39 items were evaluated to assess whether they met two assumptions of EFA (Hair, Black, Babib, Anderson, & Tatham, 2006). First, Bartlett's Test of Sphericity was significant, $\chi^2(741) = 7002.4, p < .01$, indicating an acceptable number of significant correlations among variables. Second, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy for the overall sample was good (.93).

EFA was conducted using principle axis factoring (PAF) with oblique rotation. PAF was used given that this method is recommended for psychological data because it allows for measurement error (Xia, Green, Hu, & Thompson, 2018). In-line with best practices, the number of factors to extract was based on Velicer's MAP test and parallel analysis (Hayton, Allen, & Scarpello, 2004; O'Connor, 2000). When we conducted a PAF extracting a set number of three factors, they had eigenvalues of 11.23, 3.63, and 3.24. Moreover, Velicer's MAP test and parallel analysis supported the extraction of three factors, with three eigenvalues of 11.08, 3.58, and 2.96, with all three eigenvalues greater than the first three eigenvalues calculated using parallel analysis (O'Connor, 2000). The pattern matrix showed high loadings (.35 or above) and no high crossloadings for 31 items, two items that did not load highly on any factor, and six crossloading items. Thus, we removed the latter eight items one at a time, starting with the two with low loadings, and the PAFs were repeated.

Of the 31 items in the final PAF, all items had high and positive loadings on only one factor except for one item with a negative loading on the first factor and one item with a low loading (.31) on the third factor. Thus, these two items were removed, and the remaining 29 items were subjected to another PAF. Eleven items loaded highly only on the first factor (see Table 1). This factor was labeled multiple CSU (Multiple CSU, eigenvalue = 8.92, variance 29.1%), as all items tapped individuals' confidence in using multiple and new coping strategies. Ten items loaded highly on only the second factor, labeled situational coping (eigenvalue = 2.87, variance = 7.8%), which was represented by items that reflected an understanding of using different coping strategies for different situations. Eight items loaded highly on only the third and final factor. The third factor was labeled coping rigidity (eigenvalue = 2.53, variance = 6.6%), as all items referred to rigid use of the same coping strategies or lack of ability to change strategies. In this final PAF, 43.5% of

Table 1. Studies 1, 2 and 3 Loadings for Self-Perceived Flexible Coping with Stress (SFCS) (*items included in Studies 2 and 3)

Items	Study 1 PAF (N = 395)			Study 2 CFA (N = 645)			Study 3 CFA (N = 558)		
	Multiple CSU	Situational coping	Coping rigidity	Multiple CSU	Situational coping	Coping rigidity	Multiple CSU	Situational coping	Coping rigidity
*I can easily find new ways to cope with stress if needed.	.86	-	-	.80			.76		
*Even when the stress is new to me, I can come up with a way to deal with it.	.85	-	-	.76			.75		
When I'm dealing with stress, I can do or think many different things to cope.	.78	-	-	X			X		
*When I need to, I can change how I deal with stress.	.71	-	-	.72			.80		
*I can use many different ways to cope with a new stressor.	.71	-	-	.72			.87		
I can come up with lots of ways to make myself feel better if I am stressed.	.70	-	-	X			X		
*When stress has not improved, I can find new ways to try to cope.	.69	-	-	.72			.82		
When the way I'm coping with stress isn't working, I try something different.	.68	-	-	X			X		
*I can change how I cope with stress.	.67	-	-	.80			.76		
When things continue to be stressful, I try new ways to cope.	.66	-	-	X			X		
If the way I'm coping with stress isn't working, I can try a new way of coping.	.61	-	-	X			X		
*The way I cope with stress usually depends on what is happening to me.	-	.59	-		.60			.50	
There are many different ways to cope with stress.	-	.57	-		X			X	
*Some ways of coping work best for some stress, but other ways of coping work best for other stress.	-	.53	-		.68			.66	
*Using the same coping response is not always helpful.	-	.53	-		.52			.40	
Someone can learn how to cope better by trying new things.	-	.52	-		X			X	

(Continued)

Table 1. (Continued)

Items	Study 1 PAF (N = 395)			Study 2 CFA (N = 645)			Study 3 CFA (N = 558)		
	Multiple CSU	Situational coping	Coping rigidity	Multiple CSU	Situational coping	Coping rigidity	Multiple CSU	Situational coping	Coping rigidity
*Sometimes changing the usual way of coping with stress can be helpful.	-	.51	-		.53			.76	
If a way of coping is not working, it is best to try and find a new way to cope.	-	.48	-		X			X	
*It is best to try many different ways of coping with a stressor.	-	.45	-		.56			.56	
*Coping with every stressor in the same way doesn't work well for me.	-	.45	-		.53			.51	
In order to find the best way to cope, changing what you do or think can be a good idea.	-	.41	-		X			X	
*No matter what the stress, I seem to keep doing the same thing to cope with it.	-	-	.65			.70			.47
*I have only one good way to cope with stress.	-	-	.62			.57			.77
*It is usually not helpful to try a different way to cope with stress.	-	-.32	.58			.50			.52
*My way of coping with stress hasn't really changed much over time.	-	-	.54			.46			.59
*I don't really have more than one way to cope with stress.	-	-	.53			.88			.82
*Even if how I cope with something bad doesn't seem to help, I keep trying it.	-	-	.51			.28			.39
Even if what I do to cope with a problem isn't helping, I seem to keep coping in the same way.	-	-	.51			X			X
It is almost impossible for people to change how they cope with stress.	-	-	.48			X			X

Note. PAF = principle axis factoring. CFA = confirmation factor analysis. Mult CSU = multiple coping strategy use.

—Values less than |.25| are not shown.

X = Item not included in 18-item SFCS.

Fit for Study 2 CFA: $\chi^2(127) = 400.5, p < .01, CFI = .97, RMSEA = .058$ (90% CI .051 to .064, $p = .02$).

Fit for Study 3 CFA: $\chi^2(119) = 453.32, p < .001, CFI = .92, RMSEA = .071$ (90% CI .064 to .078, $p < .001$).

Standardized loadings are reported.

the variance in the items was accounted for by the three factors: multiple CSU, situational coping, and coping rigidity. Cronbach’s α for the items loading on each of the three factors were .93 for multiple CSU, .80 for situational coping, and .80 for coping rigidity. The correlations between the factors in the PAF were: $r = .28$ between multiple CSU and situational coping, $r = -.32$ between multiple CSU and coping rigidity, and $r = -.18$ between situational coping and coping rigidity, all $p < .001$.

6.2. Descriptive statistics and validation of the flexible coping with stress subscales

To create scores for each of the subscales of Self-Perceived Flexible Coping with Stress (SFCS), we averaged the corresponding items for each dimension. To assess validity of the subscales, we examined correlations with measures of emotional maladjustment/distress. As can be seen in Table 2, on average, participants had moderate levels of self-perceived flexible coping capacity, scoring at about the mid-point of the scale for multiple CSU and situational coping. Coping rigidity was also moderate, on average. Correlations between the three coping flexibility subscales are also shown in Table 2. Multiple CSU was significantly and positively associated with situational coping, and both of these subscales were significantly and negatively associated with coping rigidity¹.

In support of measure validity, two of the SFCS subscales (multiple CSU and coping rigidity) demonstrated statistically significant convergent validity with measures of self-worth and support seeking and divergent validity with depression, anxiety, and distress symptoms (see Table 3). In contrast to these significant findings, situational coping was not significantly correlated with symptoms, self-worth, or support-seeking.

6.3. Age associations and sex differences in the SFCS subscales

Correlations between the SFCS subscales and age are also shown in Table 3. As anticipated, age was positively associated with multiple CSU and situational coping, and negatively associated with

Table 2. Correlations, Means, and SDs of Self-Perceived Flexible Coping with Stress (SFCS) Subscales

Study#	SFCS subscales	Multiple CSU	Coping rigidity	Situational coping
1 (N = 395)	Multiple coping strategy use	–		
	Coping rigidity	–.39**	–	
	Situational coping	.30**	–.19**	–
2 (N = 645)	Multiple coping strategy use	–		
	Coping rigidity	–.25**	–	
	Situational coping	.39**	–.31**	–
3 (N = 558)	Multiple coping strategy use	–		
	Coping rigidity	–.19**	–	
	Situational coping	.34**	–.09*	–
All studies, 12–18 years (n = 893)	Multiple coping strategy use	–		
	Coping rigidity	–.22**	–	
	Situational coping	.36**	–.17**	–
All studies, 19+ years (n = 705)	Multiple coping strategy use	–		
	Coping rigidity	–.29**	–	
	Situational coping	.34**	–.28**	–
1	M (SD)	4.17 (1.20)	3.37 (1.13)	4.83 (0.87)
2	M (SD)	4.11 (1.46)	3.40 (1.31)	4.73 (1.16)
3	M (SD)	4.21 (1.26)	3.77 (1.13)	4.58 (0.95)

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

coping rigidity, indicating that older participants reported higher levels of utilization of multiple coping strategies, felt more capable of matching coping responses to situations, and endorsed that rigid coping was less true for them.² When comparing average levels, men reported higher multiple CSU than women, whereas women reported more situational coping than men (see Table 4). Coping rigidity did not significantly differ between men and women.

6.4. Study 2

The aim of Study 2 was to confirm the three-factor structure of the final 18-item SFCS in a large group of young adults. In addition, the SFCS subscales were validated with measures of cognitive reappraisal and suppression in response to stress and negative emotions. We also validated the subscales of the SFCS against participants' anticipated coping responses reported following presentation of a standardized set of vignettes describing interpersonal stressors, which are frequent and very salient forms of stress for older adolescents and young adults (Bullock, Cave, Fildes, Hall, & Plummer, 2017; Spirito, Stark, Grace, & Stamoulis, 1991). Other correlates that were investigated included measures of depression, anxiety, and emotion dysregulation.

6.5. Study 2 method

6.5.1. Participants and procedure

Study 2 participants were 645 students, 17 to 27 years ($M = 19.8, SD = 2.60$, 65.3% female). Here, 74% identified as white, 11% as Asian, and 3% as Australian First Peoples or Pacific Islander, and the remaining participants reported a diverse range of sociocultural backgrounds. Most participants were domestic students (70%), with 57% currently living with their parents. A further 7% of participants reported living alone and 2% reported living in shared student accommodation. Finally, 57% of the participants reported their parents were married or living together, with 34% identifying their parents as either divorced or separated. Overall, 649 students completed parts of the survey, but four were excluded from this study because they did not complete most coping items. The procedure followed was the same as in Study 1.

6.5.2. Measures

6.5.2.1. Flexible coping with stress. To shorten the SFCS to an 18-item measure with items balanced across subscales, we selected six items from each factor identified in Study 1 for inclusion in Study 2. We did this by selecting the highest loading item on each factor in Study 1, and then selecting additional items that comprehensively covered the content of each factor, but also reduced item repetition. These items are marked in Table 1 with an asterisk. The Cronbach's α s for the six items used to assess each subscale were .96 for Multiple CSU, .86 for situational coping, and .87 for coping rigidity.

6.5.2.2. Depressive symptoms. The Center for Epidemiologic Studies for Depression Scale—Short form (CES-D; Radloff, 1977) was used to assess depressive symptoms. Participants rated each statement from 1 (*rarely or none of the time—less than one day*) to 4 (*most or all of the time—5 to 7 days*). Summing responses created composite scores, with higher scores indicating more symptoms. Cronbach's α was .83.

6.5.2.3. Anxiety symptoms. The State-Trait Anxiety Inventory (STAI; Spielberger & Gorsuch, 1983) was used to measure dispositional anxiety. Participants rated each statement from 1 (*rarely or none of the time—less than one day*) to 4 (*most or all of the time—5 to 7 days*). Summing responses created composite scores, with higher scores indicating more symptoms. Cronbach's α was .92 for anxiety symptoms.

6.5.2.4. Emotion dysregulation. Emotion dysregulation was measured using items drawn from the Emotion Regulation Inventory (ER-2; Roth, Assor, Niemiec, Ryan, & Deci, 2009; e.g. "usually, if I get a feeling of sadness/worry, it paralyzes me"). Response options ranged from 1 (*strongly disagree*)

to 5 (*strongly agree*). Items were averaged to form a composite score, where a higher score represented greater emotion dysregulation. Cronbach's α was .87.

6.5.2.5. Cognitive reappraisal and expressive suppression. Cognitive reappraisal and expressive suppression, which are often measured as adaptive and maladaptive coping or emotion regulation strategies, respectively, were measured using the 10-item Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Subscales on the ERQ tap cognitive reappraisal (e.g. "when I want to feel less negative emotion, I change the way I'm thinking about the situation") and expressive suppression (e.g. "I control my emotions by not expressing them"). Response options range from 1 (*strongly disagree*) to 7 (*strongly agree*). Items were averaged, so that higher scores indicated more reappraisal or suppression. In the current study, Cronbach's α was .88 for reappraisal and .75 for suppression.

6.5.2.6. Coping responses to interpersonal stress. The Behavioral Responses to Rejection Scale (BRR; Zimmer-Gembeck & Nesdale, 2013) was used to assess participants' coping responses when facing possible peer rejection. Each participant was presented with three scenarios (e.g. *You finish a lecture just before lunchtime and head off across campus to meet up with your friends at your usual spot. As you approach them you see that they are in animated conversation and that there is lots of laughter. Just then, a couple of them notice you, something is said, and suddenly the conversation stops. The group immediately breaks up with people heading off in different directions. Nobody looks at you.*). Each scenario was followed by eight items to assess four coping responses of social withdrawal (e.g. *try to avoid situations where you have to mix with others*), opposition (e.g. *argue with your friends or others*), rumination (i.e. *keep worrying and thinking about it*), and distraction (i.e. *do something fun with friends*), with response options from 1 (*disagree strongly*) to 5 (*agree strongly*). Total scores were formed by averaging across all relevant items across the three scenarios. Cronbach's α = .88 for social withdrawal, .85 for retribution, .81 for rumination, and .70 for distraction.

6.6. Study 2 results

6.6.1. Confirmatory factor analyses (CFA)

The CFA of the 18-item SFCS was conducted using AMOS with maximum likelihood estimation. The latent factors were free to covary. The results supported the three-factor structure. As shown in Table 1, all loadings were .60 or above (with the exception of .48 for one coping rigidity item). The model had a good fit to the data, $\chi^2(127) = 400.5, p < .001, CFI = .97, RMSEA = .058$ (90% CI .051 to .064, $p = .02$).

6.6.2. Descriptive statistics and correlations of SFCS subscales with other measures

As can be seen in Table 2, average scores for the SFCS subscales were similar to those reported in Study 1. In addition, multiple CSU was significantly and positively associated with situational coping, and both of these subscales were significantly negatively associated with coping rigidity.

As in Study 1, multiple CSU had significant negative correlations with symptoms—including depression, anxiety and emotion dysregulation—and multiple CSU was also negatively associated with the coping responses of social withdrawal, opposition, and rumination, which are often considered maladaptive responses to stress (see Table 3). Multiple CSU was positively associated with cognitive reappraisal and the use of distraction to cope with interpersonal stress, which can both be adaptive especially when faced with uncontrollable stressors.

Correlations showed that respondents who reported more coping rigidity were higher in depressive symptoms, anxiety symptoms, and emotion dysregulation. Coping rigidity was also positively associated with expressive suppression, social withdrawal, and opposition to cope with interpersonal stress, all generally considered maladaptive coping responses. Finally, coping rigidity was negatively associated with coping using distraction. Regarding situational coping, respondents who reported greater levels of situational coping tended to report fewer depressive and social anxiety symptoms, and more use of cognitive reappraisal.

Table 3. Correlations of Self-Perceived Flexible Coping with Stress (SFCS) Subscales with Other Measures

Study #	Measure	SFCS subscales		
		Multiple CSU	Coping rigidity	Situational coping
1	Depression, Anxiety and Stress (DASS)	-.30**	.22**	.04
	Social anxiety (SAQ-A30)	-.14**	-.01	.07
	General self-worth (SPP-A)	.36**	-.26**	.03
	Support-seeking (SAS)	.21**	-.10*	.07
	Age	.13**	-.24**	.12*
2	Depressive symptoms (CES-D)	-.44**	.17**	-.12**
	Anxiety symptoms (STAI)	-.52**	.20**	-.12**
	Emotion dysregulation (ER-2)	-.44**	.20**	-.06
	Cognitive reappraisal (ERQ)	.41**	-.04	.21**
	Expressive suppression (ERQ)	-.07	.15**	-.06
	Social withdrawal (BRR)	-.27**	.10*	-.04
	Opposition (BRR)	-.09*	.10*	-.06
	Rumination (BRR)	-.33**	.05	-.01
	Distraction (BRR)	.15**	-.10*	.06
	Age	.13**	-.25**	.07
3	Depressive symptoms (MFQ)	-.40**	.12**	-.07
	Social anxiety (SAS-A)	-.43**	.15**	-.05
	Emotion dysregulation (DERS)	-.50**	.22**	-.07
	General self-worth (SPP-A)	.50**	-.20**	.09*
	Positive thoughts (ARBD)	.34**	-.11**	.12**
	Stop thoughts (ARBD)	.06	-.01	.20**
	Distraction (ARBD)	-.03	.02	.18**
	Age	.11**	.03	.05

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

Note. S1 $N = 390$. S2 $N = 645$. S3 $N = 558$. CSU = coping strategy use. Measure used is noted in parentheses. DASS = Depression, Anxiety and Stress Scales. SAQ-A30 = Social Anxiety Questionnaire for Adults. SPP-A = Self-Perception Profile for Adolescents. SAS = Social Adjustment Scale. CES-D = Center for Epidemiological Studies for Depression Scale. STAI = State-Trait Anxiety Inventory. ER-2 = Emotion Regulation Inventory. ERQ = Emotion Regulation Questionnaire. BRR = Behavioral Responses to Rejection Scale. MFQ = Mood and Feelings Questionnaire. SAS-A = Social Anxiety Scale for Adolescents. DERS = Difficulties in Emotion Regulation Scale. ARBD = Adolescent Responses to Body Dissatisfaction.

6.6.3. Age associations and biological sex differences in the SFCS subscales

Correlations between the SFCS subscales and age are shown in Table 3. Age was positively associated with multiple CSU and negatively associated with coping rigidity. Age and situational coping were not significantly correlated. On average, men reported a higher level of multiple CSU, but men and women did not differ in reports of situational coping or coping rigidity (see Table 4).

6.7. Study 3

The aim of Study 3 was to confirm the three-factor structure of the final 18-item SFCS measure in a group of younger participants (aged 12 to 19 years). In addition, the SFCS subscales were validated with measures of coping with appearance concerns, which is one of the three most common concerns of youth (Bullot et al., 2017). The correlates that were investigated included depressive and social anxiety symptoms, emotion dysregulation, and general self-worth.

Table 4. Results of t-tests Comparing Self-Perceived Flexible Coping with Stress (SFCS) Subscales between Men and Women

Study #	SFCS subscales	Men	Women	Comparison
1		n = 114	n = 281	t(388)
	Multiple coping strategy use	4.40 (1.15)	4.09 (1.14)	2.47*
	Coping rigidity	3.33 (0.99)	3.29 (1.06)	0.36
2	Situational coping	4.85 (0.80)	5.13 (0.74)	-3.22**
		n = 220	n = 425	t(643)
	Multiple coping strategy use	4.45 (1.46)	3.94 (1.44)	4.26**
3	Coping rigidity	3.42 (1.36)	3.38 (1.28)	0.39
	Situational coping	4.68 (1.15)	4.76 (1.16)	-0.84
		n = 225	n = 333	t(556)
	Multiple coping strategy use	4.58 (1.16)	3.99 (1.29)	5.26**
	Coping rigidity	3.76 (1.10)	3.77 (1.15)	-0.10
	Situational coping	4.54 (0.98)	4.60 (0.94)	-0.67

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

6.8. Study 3 method

6.8.1. Participants and procedure

Study 3 participants were 558 high-school students aged 12 to 17 years ($n = 273$) and university students aged 19 years or younger ($n = 285$) (total sample $M = 16.0, SD = 1.5$, 59.7% female). Overall, 256 participants were age 16 or under and 302 were age 17 to 19 years. Totally, 91% identified as Caucasian/white, 7% identified as Asian, and 2% identified as other sociocultural background. Six participants did not answer this question.

High-school participants from two schools completed the survey online, whereas surveys were completed by students at a third school during class time. Each high-school student received a \$20 gift voucher for participation. University participants were recruited with the same procedure as described in Study 1. In both cases, the SFCS was included within a larger questionnaire, which took about 40 min to complete for high school students and 30 min to complete for university students.

6.8.2. Measures

6.8.2.1. Flexible coping with stress. The 18-item SFCS was completed by all participants to assess multiple CSU, situational coping, and coping rigidity (see Table 1). The Cronbach's α for the six items used to assess each subscale was .91 for multiple CSU, .75 for situational coping, and .79 for coping rigidity.

6.8.2.2. Depressive symptoms. Depressive symptoms were assessed by the Mood and Feelings Questionnaire—Short (MFQ; Angold et al., 1995), which has a series of 13 descriptive phrases about feelings or behaviors recently (e.g. "I felt miserable or unhappy"). Items were rated from 1 (*not true*) to 5 (*very true*) and the total score ranged from 13 to 65 with higher scores indicating more depressive symptoms. Cronbach's α was .95.

6.8.2.3. Social anxiety symptoms. Social anxiety symptoms were assessed using the Social Anxiety Scale for Adolescents (SAS-A; La Greca & Stone, 1993). Here, 18 descriptive items (e.g. "I worry about doing something new in front of others") were rated on a 5-point scale from 1 (*not true*) to 5 (*very true*), with higher scores indicating higher social anxiety symptoms. Cronbach's α was .95 for the total scale.

6.8.2.4. Emotion dysregulation. Emotion dysregulation was measured with the 36-item Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004; e.g. "When I'm upset, I have difficulty

concentrating”). Items were rated on a 5-point scale from 1 (*never*) to 5 (*almost always*) and were averaged to yield a total score, with higher scores indicating more emotional dysregulation. Totally, 11 items are reverse scored. Cronbach’s α was .88.

6.8.2.5. General self-worth. Five items from the SPP-A (Harter, 1985) were used to measure general self-worth. For each item, participants indicated which of a pair of opposite descriptions (e.g. “Some people are very happy being the way they are” BUT “Other people would like to be different”) reflected him or her and then indicated whether that particular statement was “really true” or “sort of true” of him or her. Response options were transferred to be scored from 1 (*low self-worth*) to 4 (*high self-worth*), and averaged to create a total score, with a higher score indicating more self-worth. Cronbach’s α was .84.

6.8.2.6. Coping with appearance concerns. Eight items drawn from the self-acceptance and compensatory thinking subscales of the Adolescent Responses to Body Dissatisfaction (ARBD; Maxwell & Cole, 2012) were used to tap three adaptive cognitive coping strategies in relation to appearance concerns, using positive thoughts (e.g. Say to yourself or thought “I am perfect the way I am”, 3 items, Cronbach’s α = .87), stopping negative thoughts (e.g. “Tell yourself to stop thinking about it”, 3 items, Cronbach’s α = .77), and using distraction (e.g. “ Try to put it out of your mind”, 2 items, Cronbach’s α = .82). Response options ranged from 1 (*Not at all*) to 4 (*A lot*). Items were averaged so that higher scores indicated more utilization of each coping response.

6.9. Study 3 results

6.9.1. Confirmatory factor analysis

In confirmatory factor analysis, the results supported the three-factor structure with an acceptable fit, $\chi^2(119) = 454.31$, $p < .001$, CFI = .92, RMSEA = .071 (90% CI .064 to .078, $p < .001$). As shown in Table 1, most loadings were .50 or above (with the exception of a loading of .47 for one item on the multiple CSU subscale, a loading of .40 for one item on the situational coping subscale, and a loading of .39 on the coping rigidity subscale).

6.9.2. Descriptive statistics and correlations

Multiple CSU was significantly and positively associated with situational coping, and both of these subscales were significantly and negatively associated with coping rigidity (see Table 2). Moreover, consistent with Studies 1 and 2, multiple CSU had significant negative correlations with depression, social anxiety, and emotion dysregulation, and was positively associated with general self-worth and using positive thoughts to cope with appearance concerns (see Table 3). Also, consistent with Studies 1 and 2, coping rigidity showed the opposite pattern; it was positively associated with depression, social anxiety, and emotion dysregulation, and negatively associated with general self-worth and using positive thoughts to cope with appearance concerns. Situational coping had a positive association with general self-worth and was positively associated with using positive thoughts, stopping negative thoughts, and using distraction to cope with appearance concerns.

6.9.3. Age associations and biological sex differences in the SFCS subscales

Age had a significant positive correlation with multiple CSU, but age was not significantly associated with situational coping or coping rigidity (see Table 3). On average, young men reported a significantly higher level of multiple CSU, but young men and women did not differ in reports of situational coping or coping rigidity (see Table 4).

7. Consolidated results

In a final set of analyses, we merged data from Studies 1, 2, and 3 ($N = 1598$) to examine whether the SFCS factor structure was invariant by age group. Age ranged from 12 to 56 years ($M = 19.14$, $SD = 3.80$), with 98% age 27 or under. For this merged data, Cronbach’s α was .93 for multiple CSU, .80 for situational coping and .83 for rigidity. In addition, we conducted a mini meta-analysis (Goh, Hall, & Rosenthal, 2016) for tests of gender differences in SFCS subscale scores.

7.1. Factor structure invariance by age

Each participant was classified into one of two large and relatively equivalent size groups based on age (age 12–18 years, $n = 893$, 56%; Age 19+ years, $n = 705$, 44%). We differentiated participants into these two age groups based on evidence that the cognitive capacity for understanding and implementing a greater range of coping strategies differs in emerging and young adults relative to adolescents (Skinner & Zimmer-Gembeck, 2016). Age groups differed in situational coping, $M_{\text{age}12-18} = 4.63$, older $M_{19+} = 4.79$, $F(1,1596) = 9.81$, $p = .002$, and in coping rigidity, $M_{\text{age}12-18} = 3.71$, older $M_{19+} = 3.28$, $F(1,1596) = 51.33$, $p < .001$, with older participants reporting more self-perceived capacity for situational coping and less coping rigidity than younger participants. There was no significant age difference in multiple CSU, $M_{\text{age}12-18} = 4.11$, older $M_{19+} = 4.22$, $F(1,1596) = 2.68$, $p = .10$.

A two-group model was next fit to test whether the factor structure was invariant by age group (younger and older; age 12 to 18 years or age 19+ years, respectively). The difference in the fit of the model with all factor loadings free to vary by group and the fit of the model with all factor loadings fixed to group equality was significant, $\Delta\chi^2(15) = 36.13$, $p < .01$. Upon further analyses, there was support for a significant (but small) difference in the size of the factor loadings for situational coping by age group; loadings were slightly weaker for those age 12–18 years (.44 to .79) compared with those age 19+ years (.59–.85). Factor loadings for multiple CSU and coping rigidity did not significantly differ between the two age groups (multiple CSU .80 to .84 and .79 to .88 and rigidity .41 to .87 and .43 to .85 for age 12–18 relative and age 19+ years, respectively). Finally, we compared the fit of a model with only the correlations between factors fixed to be age group equivalent to a model that freed correlations to differ. The fits of these two models did not significantly differ, suggesting that the correlations between factors did not differ for those age 12–18 compared with those age 19+ years, $\Delta\chi^2(3) = 4.67$, $p > .05$ (see Table 2 for the correlations between SFCS subscales for the younger and older age groups).

7.1.1. Mini meta-analysis of participant sex effects

The mini meta-analysis of participant sex comparisons across the three studies, when assuming a fixed effect of participant sex, revealed a significant medium effect for multiple CSU ($r = .17$, Cohen's $d = .35$, $p < .001$), with males endorsing a higher level of multiple CSU than females. There was also a significant small effect of participant sex on situational coping ($r = .06$, Cohen's $d = .13$, $p = .012$), with females reporting more situational coping capacity than males. There was no significant effect of participant sex on coping rigidity ($r = .01$, Cohen's $d = .02$, $p = .632$). The results did not differ substantially when a random effect analysis was conducted. There was no evidence of heterogeneity of effect sizes across studies.

8. Discussion

The findings of the current studies provide background on a new, theoretically based measure of coping adaptability and flexibility, referred to as SFCS. The SFCS is a promising way to assess a self-perceived capacity for flexible coping, which we view as an assessment of beliefs that one can be efficacious (i.e., effectual) by responding to stressors and challenges using multiple strategies (when needed), matching strategies to situations, and responding to stressful events with less rigidity. Multiple areas within psychology have highlighted the importance of stress and coping adaptability and flexibility—in cognitions, in emotional responding, and in coping (Bonanno & Burton, 2013; Bonanno & Diminich, 2013; Cheng et al., 2014; Skinner & Zimmer-Gembeck, 2016; Zimmer-Gembeck & Skinner, 2016). As yet, however, there have been very few measures available for researchers to use in assessing the self-perceived capacity to engage in a flexible deployment of a coping repertoire, including calling upon a diverse set of coping strategies when needed, while also attempting to match coping responses to the requirements of particular situational stressors and avoiding rigid use of a single coping response. Overall, our findings support the utility of the SFCS as a brief, reliable, and valid self-report measure of three aspects related to flexible coping responses to stress, which conform to definitions that have

been elucidated in multiple theories of adaptive and maladaptive stress response patterns and resilient or maladaptive outcomes following stressful events (Bonanno & Diminich, 2013; Cheng et al., 2014; Herman-Stahl et al., 1995; Pearlin & Schooler, 1978; Zimmer-Gembeck et al., 2009, 2013). The measure has a sound factor structure in adults and also has a sound factor structure that does not significantly differ in young (age 12–18 years) and older (age 19+, with most under age 28) age groups.

8.1. Factor structure of the SFCS

Factor analyses revealed that the SFCS captures three discrete and modestly correlated subscales, which were consistent with definitions from multiple areas of the literature. These three subscales were multiple CSU, situational coping, and coping rigidity. The multiple CSU factor captured the conception of a wide “tool box” of options for coping with stressors and the ability to turn to alternate coping strategies as needed. The situational coping factor captured the awareness that not all stressors call for the same manner of coping and that it may be necessary to employ different strategies to match specific stressors. The coping rigidity factor captured a third, distinct factor that tapped a non-tractable, narrow perception of coping strategies. Interestingly, coping rigidity was only modestly associated with multiple CSU and was not simply the reverse of it. In fact, situational coping and coping rigidity had only a small negative correlation with each other, especially when used with teenagers in Study 3.

Our empirical results closely matched our initial notions of the distinct ways in which individuals deploy different strategies to handle and manage difficulties and stressors in a way that fosters adjustment. Thus, in future research, researchers should examine each of the three subscales of multiple CSU, situational coping, and coping rigidity, individually. This would allow researchers to detect potential differences in the consequences or antecedents of the three dimensions, as were seen in the current study.

8.2. SFCS subscales as correlated with symptoms, self-worth, and specific ways of coping

Across the three studies, which included different measures, the three subscales of the SFCS converged in anticipated ways with symptoms of emotional problems, such as depression and anxiety, and self-worth, providing good preliminary evidence that the use of varied coping strategies (rather than a single, designated approach) is associated with better mental health. Importantly too, correlations between emotional maladjustment and multiple CSU (negative associations) as well as coping rigidity (positive associations) were moderate. Moreover, situational coping was also positively associated with better mental health, but associations were not as numerous or as large as found for multiple CSU and coping rigidity. This suggests that all three dimensions of coping flexibility are related to, yet distinct from, internal experiences of emotional distress.

The three subscales of the SFCS were also related in predicted ways with other measures of coping and regulation, including general measures of support seeking (Study 1), emotion dysregulation (Study 2 and 3), cognitive reappraisal (Study 2), and expressive suppression (Study 2), as well as coping with specific stressors common in youth, such as maladaptive responses to peer rejection (Study 2) and appearance concerns (Study 3). Multiple CSU and situational coping were each associated with more use of coping responses that are often considered more adaptive, such as cognitive reappraisal, and less use of those considered maladaptive, such as rumination (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Zimmer-Gembeck, 2016), whereas the reverse pattern was found for coping rigidity.

The findings of moderate (rather than strong) correlations of flexible coping with stress across measures of symptoms, self-worth, and specific ways of coping are especially useful from a measurement standpoint because, as argued by many researchers (e.g. Vitaliano, Maiuro, Russo, & Becker, 1987), the magnitude of stress that is experienced is often embedded within coping assessments. For instance, approaches that measure a given individual's various listed or endorsed ways of coping may be confounded by number of stressors or the intensity of reaction to a stressor encountered (Zimmer-Gembeck et al., 2013). Hence, a greater number of strategies can covary

with greater stress that has necessitated their use or because an individual reacts more intensively to a particular stressful event. In a similar manner, a greater number of coping strategies may be reported because none have been especially effective to date, reflecting an almost frenetic approach to responding or dealing with stress.

We have operationalized a more general orientation tapping an individual's appraisals of the extent to which they would be efficacious and adopt coping strategies as needed, which may be especially practical for assessing individuals' evolving coping responses, helping to explain resilient outcomes in the face of stress. For example, the subscales of the SFCS would be well-suited for measuring intervention-induced changes in coping. Because program involvement is likely to concomitantly diminish participants' exposure to certain stressors (e.g. non-supportive or disorganized parenting), employing an assessment of flexible coping with stress to measure program-induced change could be especially fruitful.

Surprisingly, the situational coping subscale, although moderately related to both multiple CSU and coping rigidity factors, and highly reliable, was not consistently associated with emotional maladjustment or self-worth across all three studies. Nevertheless, situational coping was found to be particularly relevant to positive coping responses to appearance concerns among adolescents (Study 3). One potential explanation for this finding is that the subscale tapped attempts at matching coping to stressor, but not necessarily successful pairing of strategy to stressor. In other words, the subscale does not necessarily reflect *efficacious* matching, nor its associated reductions in mental health symptoms. Perhaps, then, situational coping is more important as a covariate of specific coping responses when the measure of coping under examination as a correlate is directly tied to a specific situation, such as coping with appearance concerns, and directly asks about responses that should be useful within that specific situation.

8.3. Flexible coping with stress: associations with age and biological sex

Our results revealed age trends in relation to both multiple CSU and, in Studies 1 and 2 of older participants, coping rigidity. These findings seem to indicate that deployment of more varied strategies for coping and less rigid adherence to a single approach were more common among older relative to younger participants. This was the case even within the restricted age-range of our samples (with most participants under age 25), but the associations were larger in the cohorts with a wider age range (Studies 1 and 2) than in adolescents only (Study 3). In addition, analyses of the merged data from all three studies showed that the factor loadings for situational coping were not as strong among younger (age 12 to 18 years) participants relative to older (age 19+) participants. Thus, some expansion to individuals' coping skill toolbox, especially in the later teen years and the 20s, whereby the understanding that manifold options may be available and swapping out strategies can sometimes be useful, likely occurs naturally, through developmental maturation and associated trial and error. We theorize, too, that many educational opportunities and social supports are likely successfully scaffolding these skills.

As expected, we found several differences when comparing the self-perceived capacity for flexible coping with stress between men and women, both in each study and in the mini meta-analysis that was conducted. Men were higher in their endorsement of multiple CSU than women across all three studies. This finding of a gender difference mirrors other research on coping and biological sex, which often finds that men report more adaptive coping with stress compared with women (Tamres et al., 2002). Yet, women were higher in situational coping in one of the three studies, and there was a small effect in the mini meta-analysis, suggesting that there may be some sex difference in self-perceived capacity for situation coping, but it appears to be small and further research is needed to address this issue.

8.4. Study limitations and future research

We describe a reliable and theoretically informed self-report measure of flexible coping with stress that was tested across three studies. Yet, the studies did have limitations. First, it would be

worthwhile to investigate, in future research, measurement equivalence across ages, as we theorize that from puberty onward we should expect to see developmental increases in multiple CSU and decreases in coping rigidity (Zimmer-Gembeck & Skinner, 2011). We also suspect that an understanding of situation coping develops with increasing age and experience. Exploration of the development of coping flexibility, particularly in relation to development of abstract thinking, prospective memory, self-reflection, and future planning, would be especially productive (Modecki, Zimmer-Gembeck, & Guerra, 2017). Second, we did not assess test-retest reliability of the SFCS and this certainly would provide useful supplementary information, particularly about the short-term stability of coping flexibility, and thus the measure's functionality for assessing change (e.g. within coping-focused interventions). Third, we did not include a more traditional coping inventory measure in the studies. In future research, we expect that assessing both coping flexibility and the specific strategies used will be useful adjuncts in studies of adversity, stress responding, and mental or physical health outcomes. We encourage future research that includes both the SFCS, as a measure of general personal adaptability and efficacious use of generalized styles of coping, coupled with an assessment of specific ways of copings that are used in response to stress.

9. Conclusion

We designed the SFCS to afford researchers a theoretically based, reliable measure of self-perceived tractable responding to stress, which is brief and can be used in surveys with adolescents or adults. Because the literature continues to point to being flexible, agile, adaptable, and creative in the face of stress by having the capacity to call on different coping responses and to know how to deploy different responses across different situations effectively, coping flexibility (and low rigidity) is arguably a crucial construct for characterizing resilience in the face of challenges and difficulties. Future research is needed to trace the developmental progression of flexible coping with stress overtime to guide our understanding of how individuals enhance their selection of coping strategies among a variety of options. Research that tracks flexible coping with stress alongside exposure to stressors and challenge, psychopathology symptoms, and skills associated with successful coping deployment (e.g. abstract thinking, emotion regulation) will help to better identify causal (and also modifiable) mechanisms that promote flexible coping and so guide improvement of interventions and studies of resilience.

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Competing interests

The authors declare no competing interests.

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Notes

1. Pearson's r s changed by no more than .015 in magnitude when the 36 individuals over 28-year-old were excluded from the analyses, all p -values remained < .001.

2. The correlation with age was $r = .10$ ($p = .069$) for multiple CSU, $r = .12$ ($p = .020$) for situational coping, and $r = -.24$ ($p = .001$) for coping rigidity when the 36 individuals over 28 years of age were excluded from the analyses.

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