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Coping Flexibility and Psychological Adjustment to Stressful Life Changes:

A Meta-Analytic Review

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## Abstract

Compared with the large body of literature on coping, coping flexibility has received relatively scant research attention, although more such studies have begun to emerge recently. Researchers have conceptualized coping flexibility in diverse ways: as a broad coping repertoire, a well-balanced coping profile, cross-situational variability in strategy deployment, a good strategy-situation fit, or the perceived ability to cope with environmental changes. This meta-analysis is the first to provide a summary estimate of the overall effect size and investigate cross-study sources of variation in the beneficial role of coping flexibility. The analysis covers all available studies conducted between 1978 and 2013 that empirically tested the relationship between coping flexibility and psychological adjustment. The results of a random-effects model revealed a small to moderate overall mean effect size ( $r = .23$ , 95% CI [.19, .28], 80% CRI [-.02, .49],  $k = 329$ ,  $N = 58,946$ ). More importantly, the magnitude of the positive link between coping flexibility and psychological adjustment varied with the conceptualization of such flexibility. Studies adopting the perceived ability or strategy-situation fit conceptualization yielded moderate effect sizes, whereas those adopting the broad repertoire, balanced profile, or cross-situational variability conceptualization yielded small effect sizes. In addition, the positive link between coping flexibility and psychological adjustment was stronger in samples from countries lower (vs. higher) in individualism and samples with higher (vs. lower) average ages. Individualism and age explained 10% and 13% of the variance, respectively. We discuss the conceptual problems and implications, and propose a synthesized conceptualization of coping flexibility.

*Keywords:* adaptation, coping, flexibility, life change, psychological adjustment, psychological well-being, stress

## Coping Flexibility and Psychological Adjustment to Stressful Life Changes:

### A Meta-Analytic Review

The motivational book *Who Moved My Cheese?* (Johnson, 1998) raises an important issue of how individuals develop strategies to cope with an ever-changing environment. Its author tells the story, in parable form, of two mice and two little people who live in a maze and whose mission is to find cheese each day. All four work very hard and are thus able to ensure an ample and regular cheese supply. They are happy and satisfied with their situation until one day they discover that all of their cheese is gone from its usual location. Without hesitation, the mice experiment with new ways to respond to their altered environment, and eventually discover a new source of cheese. In contrast, the two little people continue in the same vein and, as a result, have no cheese to eat. One of them finally conquers his fear of change, tries new approaches, and ends up finding a new source of cheese.

Johnson's best-selling book is an allegory for individual differences in reactions to stressful life changes. Some people are sensitive to and ready for such changes, and actively try various coping strategies to deal with the changing environment; whereas others feel surprised and uncomfortable when changes occur and resist formulating new strategies to cope with the altered environment. As transpires in this book, when handling the vicissitudes of life, individuals characterized by a flexible coping style (the mice) readily vary their strategies in accordance with situational change, whereas those with an inflexible coping style (the little people) tend to adhere to the same old strategies regardless of situational characteristics.

Coping flexibility refers to intra-individual variability in the deployment of diverse coping strategies and, more importantly, the capacity to exhibit such variability in a way that fosters adjustment to life changes (see e.g., Cantor & Fleeson, 1994; Mischel & Shoda, 2000). This construct stems from classic plasticity theory, as formulated by evolutionary development

biologists (Huxley, 1958), which postulates that adaptation to an ever-changing environment requires a flexible response system characterized by a broad repertoire of responses for handling diverse situational demands.

In the context of coping, flexibility in coping promotes psychological adjustment to stressful life changes. It is important to note that people do not react passively to environmental changes. Vital plasticity theory (Baldwin & Poulton, 1902) posits that individuals are self-initiating, self-organizing systems who are dynamically responsive to changing contexts, with the environment playing a merely secondary and eliciting role. Hence, coping flexibility occurs within individuals, specifically within their cognitive and behavioral systems, to counter fixity and provide a basis for adaptability. Coping flexibility thus equips individuals with the active responses necessary to deal effectively with a changing environment.

Although relatively little research attention has been paid to coping flexibility relative to coping in general (Bonanno & Burton, 2013), there has been growing interest in the beneficial role of coping flexibility in recent decades. Researchers have examined flexible coping using a vast array of conceptualizations, samples, and study designs, leading to considerable heterogeneity in the existing literature. We thus performed a meta-analysis to integrate the assorted findings and enhance the validity of the conclusions drawn from individual studies (see e.g., Borenstein, Hedges, Higgins, & Rothstein, 2009; Cooper, Hedges, & Valentine, 2009). Our two overarching aims were to provide an overall estimate of the magnitude of the hypothesized coping flexibility-psychological adjustment link and, more importantly, to identify the sources of variation in the diverse body of findings.

#### **Sources of Between-Study Variation in Beneficial Role of Coping Flexibility**

A thorough review of the literature suggests that two possible sources of variation in findings on the beneficial role of coping flexibility are (a) the way such flexibility has been

conceptualized and assessed and (b) the differing characteristics of the samples recruited. The following sections consider each source in turn.

### **Conceptualization and Measurement of Coping Flexibility**

We identified five major conceptualizations of coping flexibility in the literature. *Broad repertoire* and *balanced profile* refer to the structure of a flexible coping profile, whereas *cross-situational variability* and *strategy-situation fit* emphasize the interplay between strategy deployment and the environment. Finally, *perceived ability* refers to subjective appraisals of a range of skills that facilitate adjustment to situational change.

**Broad repertoire.** An early view defines coping flexibility as a broad repertoire of coping strategies that fosters psychological adjustment (Pearlin & Schooler, 1978). In this perspective, “effective coping depends not only on what we do, but also on how much we do” (Pearlin & Schooler, 1978, p. 14). The roots of this view lie in Offer’s (1973) theoretical discussion of normality, which postulates that individuals without mental health problems are characterized by a wide array of strategies that facilitate the handling of both internal and external sources of stress. Moreover, individuals who perceive their coping repertoire to contain numerous (vs. scant) strategies may experience a greater sense of coping efficacy, which in turn elicits more positive appraisals of stress (Pearlin & Schooler, 1978).

A camp of scholars has subscribed to the broad repertoire conceptualization of coping flexibility (e.g., Haythornthwaite, Menefee, Heinberg, & Clark, 1998; C. B. Lam & McBride-Chang, 2007). Some of these scholars have construed a broad coping repertoire as a large number of strategies implemented by individuals. To assess individual differences in the breadth of coping repertoire, researchers have adapted several popular measures of coping, including the Ways of Coping Questionnaire/Checklist (WCC/WCQ; Folkman & Lazarus, 1988) and COPE inventory (Carver, Scheier, & Weintraub, 1989), which require respondents to

indicate their tendency to endorse each coping option. The frequency of use of all coping options is then aggregated to obtain a sum score, with a higher score indicating a broader coping repertoire.

Other scholars defined a broad coping repertoire as the implementation of a wide range of coping strategies. For example, Lykes (1983) stated that “the wider the range of strategies an individual has at her or his command, the greater the potential for effective action” (p. 84). Hence, assessment of the breadth of a coping repertoire also involves a range score derived from aggregation of each type of coping strategy endorsed, with a broader coping repertoire referring to a wider range of deployed strategies.

**Balanced profile.** Unlike the aforementioned camp of scholars that posits a positive link between coping flexibility and the number or range of strategies used, another camp contends that flexible coping is characterized by the moderate use of strategies, which is represented by a well-balanced coping profile (e.g., Herman-Stahl, Stemmler, & Petersen, 1995; Kaluza, 2000). These scholars reason that individuals higher in coping flexibility tend not to have a strong preference for any particular type of strategy, resulting in a balanced coping profile with various types of strategy deployed at similar levels. In contrast, individuals lower in coping flexibility tend to apply their preferred type of strategy. They generally overuse one type of strategy while underusing other types, resulting in an imbalanced coping profile characterized by an unequal distribution among different types of strategy.

The balanced profile conceptualization stems from early theories of rigidity in the realms of educational and clinical psychology (e.g., Alvarez-Tostado, 1947; Goldstein, 1942). These theories postulate that rigidity is characterized by stereotypical, repetitive and unchanging behavior, and renders discrimination and switching between relevant and irrelevant stimuli difficult, thus hindering learning and daily functioning in a changing environment (see e.g.,

Dulaney & Ellis, 1997; Mischel, 1977). In personality studies, rigidity is closely linked to traits pertaining to stubbornness and resistance to change, such as dogmatism (Rokeach, 1960) and authoritarianism (Webster, Sanford, & Freedman, 1955). Cattell and Winder (1952) examined the factorial nature of rigidity and found it to comprise two factors: (a) resistance to switch to a new adaptive response and (b) failure to retain a newly learned adaptive response. Applying these notions to the context of coping, coping flexibility may be represented by less adherence to a particular type of coping strategy (i.e., low rigidity).

In addition to the conceptualization of flexible coping as the moderate use of an array of strategies (e.g., Aldridge & Roesch, 2008a; Staudinger & Fleeson, 1996), other psychologists have further enriched this conceptualization by specifying the elements of a balanced coping profile. The latter group maintains that a flexible coping profile is characterized by the largely equal deployment of two “super-strategies,” such as approach versus avoidant coping (e.g., Herman-Stahl et al., 1995; Krohne & Fuchs, 1991) or problem- versus emotion-focused coping (e.g., Kaluza, 2000; Shi & Lu, 2004). In this body of studies, coping flexibility is generally operationalized as a balanced coping profile, which is obtained from a graphical plot or statistical techniques such as cluster analysis and profile analysis (see e.g., Gan, Liu, & Zhang, 2004; Kaluza, 2000).

**Cross-situational variability.** Adopting a situational perspective, the cross-situational variability conceptualization of coping flexibility emphasizes changes in strategy deployment across an array of stressful events. This conceptualization is largely derived from the transactional theory of coping (Lazarus & Folkman, 1987), which positions coping as an ongoing, evolving process that occurs at the interface of changing personal and situational demands. This theory thus postulates that coping takes place in reaction to specific stressful situations. Unlike the broad repertoire and balanced profile conceptualizations, in which adaptive

coping is evaluated on an a priori basis (e.g., problem-focused coping is more useful), the cross-situational variability conceptualization considers coping effectiveness in association with contextual features and emphasizes the temporal and changing nature of coping (e.g., problem-focused coping is more useful in certain stressful situations than others). This conceptualization thus highlights the dynamic process underlying flexible coping.

Some researchers who subscribe to this conceptualization (e.g., Murphy, 2001; C. L. Thompson, 2000; Westman & Shirom, 1995; Williams, 2002) have examined the contingencies between strategy deployment and changing situations, proposing that changes in coping strategies account for the adaptive aspect of coping flexibility. To assess the cross-situational variability in strategy deployment, these researchers have modified general coping measures such as the WCC/WCQ by including a variety of stressful vignettes (e.g., Katz, Kravetz, & Grynbaum, 2005; Lester, Smart, & Baum, 1994). Respondents' task is to rate the same set of coping responses in various vignettes (e.g., social vs. non-social stressful events). An index of coping flexibility is then derived by computing the discrepancy or range in the deployment of various strategies in response to diverse types of stressful event. Studies have documented moderate within-person consistency in response to the same type of stressor, but low within-person consistency across diverse types of stressor (e.g., Compas, Forsythe, & Wagner, 1988; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986). These findings provide evidence that coping responses are not static, and individuals tend to alter their strategies as a stressful event unfolds.

Several situation-based measures have also been developed on the basis of the cross-situational variability conceptualization. For instance, the Coping Styles and Flexibility Inventory (CSFI; Williams, 2002) comprises a variety of hypothetical stressful scenarios. A coping flexibility index is derived by aggregating the standard deviations of a respondent's

ratings of several coping styles for each stressful scenario and then averaging the aggregate scores for various scenarios. A higher coping flexibility index score indicates greater cross-scenario variability in the deployment of multiple coping modes.

In addition, the Flex instrument (C. E. Schwartz & Daltroy, 1999) is a non-questionnaire assessment method involving card-sorting procedures. Respondents are first instructed to identify a stressful event in each of six major life domains, such as physical health and work. In each domain, they then assign 20 coping response cards to a seven-column matrix ranging from *most unlike me* to *most like me*, after which two statistical techniques can be used to compute a coping flexibility index based on changes in column position between card sorts. First, Spearman's rank correlation coefficients are calculated between each card sort, and then averaged across card sorts (C. E. Schwartz & Daltroy, 1999). Second, the square root of the sum of squares is computed for each card, with the mean scores for all card sorts recorded (Lester, 1992). A higher composite score indicates greater coping flexibility across the six life domains.

**Strategy-situation fit.** The strategy-situation fit conceptualization is similar to cross-situational variability in its situational focus, but differs from it in highlighting the match between the characteristics of coping strategies and the specific demands of stressful events. This conceptualization is largely derived from person-situation interactionist theories (Magnusson, 1999; Mischel & Shoda, 2000), which propose that adjustment to a constantly changing environment constitutes the interplay of response characteristics and situational demands. In other words, individuals adapt to environmental changes by responding in distinct manners, and response variability is deemed adaptive only if the responses can meet an array of specific situational demands.

This interactionist perspective views coping flexibility as a deliberate process that delineates purposeful changes in strategy deployment (C. E. Schwartz & Daltroy, 1999). Hence, individuals

may alter their strategies in accordance with changes in situational demands. Although little consistency is apparent at the level of specific strategy, pattern regularity can be identified in intra-individual variations in strategy deployment if those variations are guided by changing situational demands (Mischel, 2004). Such stability holds meaning for variable coping patterns and, more importantly, fosters psychological adjustment to a changing environment. Variable but maladaptive coping responses, in contrast, are driven largely by fluctuating personality characteristics (e.g., weak or dependent personality) rather than environmental changes (see Paulhus & Martin, 1988). Hence, the strategy-situation fit conceptualization proposes that variable coping patterns that represent stable, meaningful changes should be distinguished from those reflecting random fluctuations in coping responses.

Watanabe, Iwanaga, and Ozeki (2002) expanded the scope of this conceptualization by proposing event controllability as a situational factor influencing coping effectiveness. They further defined coping flexibility as “the management of coping strategies in correspondence to changes of controllability in stressful situations” (Watanabe et al., 2002, p. 32). To test this proposition, their team designed an experimental paradigm that allowed direct comparison between subjective perceptions of control and the objective situational characteristics of event controllability. Although a sense of control is generally regarded as a personal strength (e.g., Fava & Ruini, 2003; Ryff & Singer, 2008), this study demonstrates that individuals characterized by heightened levels of perceived control tend to use problem-solving strategies regardless of the controllability of stressful tasks, and these individuals generally report more severe psychological and physiological stress symptoms compared to others who are more flexible in coping.

Cheng (2003, 2009) similarly included the cognitive process as a major component of coping flexibility, with such flexibility viewed as “(a) variability in cognitive appraisal and

coping patterns across stressful situations, and (b) a good fit between the nature of coping strategies and situational demands” (Cheng, 2001, p. 816). The mechanism underlying flexible cognitive appraisal entails an *if ... then* perceptual process (see Chiu, Hong, Mischel, & Shoda, 1995; Shoda, Mischel, & Wright, 1993): *If* the stressful situation is controllable, *then* one will attempt to directly change the problem or external event. *If* the stressful situation is uncontrollable, *then* one will attempt to alter one’s own thoughts, feelings, or both. Dynamic cognitive appraisal and situational appropriateness in strategy deployment are thus key ingredients of coping flexibility.

The Coping Flexibility Questionnaire (CFQ; Cheng, 2001) is an open-ended situation-based measure developed in accordance with the strategy-situation fit conceptualization. The CFQ assesses respondents’ appraisals of situational characteristics and their specific coping responses to a series of stressful events. Coping flexibility is measured by (a) a coping profile that indicates how frequently each type of coping strategy is deployed in controllable and uncontrollable stressful events, respectively; and (b) raters’ coding of a goodness-of-fit score derived from the transactional theory of coping (Lazarus & Folkman, 1987).

**Perceived ability.** The flexible coping criteria for all four of the aforementioned conceptualizations are defined by researchers, whereas the perceived ability conceptualization adopts a phenomenological approach that assesses coping flexibility by individuals’ subjective appraisals of their own ability to deploy diverse coping strategies to deal with environmental changes (e.g., Boerner, 2004; Slangen-de Kort, Midden, Aarts, & Van Wagenberg, 2001). Although two people may deploy the same strategy to cope with stress, each may apply that strategy to serve distinct coping goals (Stone & Neale, 1984). Perceptual processes can thus best be understood from the perceivers’ perspective (e.g., Creswell, 1998; Schwandt, 2000). Accordingly, investigators adopting the perceived ability conceptualization generally rely on

self-report measures to assess the range of abilities involved in flexible coping responses, as outlined in the following.

According to Brandtstädter's (2009) dual-process theory of coping, coping flexibility constitutes a goal adjustment process by which individuals alter their coping goals to adapt to stressful events. Such accommodative revisions to coping goals and strategies are proposed to mitigate both the threat posed by stressful events and perceived vulnerability to psychological distress during a stressful encounter. This definition of coping flexibility has been widely adopted (e.g., Kranz, Bollinger, & Nilges, 2010; Niessen, Heinrichs, & Dorr, 2009; Smout, Koudstaal, Ribbers, Janssen, & Passchier, 2001; Tobin & Raymundo, 2010), and has informed development of the Flexible Goal Adjustment Scale (FGAS; Brandtstädter & Renner, 1990). The FGAS assesses dispositional differences in accommodative flexibility, which refers to the tendency to alter coping goals in accordance with situational constraints (Brandtstädter & Renner, 1990). A higher score indicates a greater perceived ability to modify one's coping goals in a changing environment.

Kato (2012) refined the flexible goal adjustment process by proposing an additional process that precedes it. In his view, people must be able to recognize that a strategy no longer works (i.e., undertaking an evaluation coping process) before they can implement an alternative strategy to deal with the challenges posed by a current stressful event (i.e., engaging in an adaptive coping process). Individuals who display coping flexibility are capable of both evaluation and adaptive coping processes, and several coping skills facilitate the occurrence of these processes. Specifically, evaluation coping denotes the abilities to understand a changing environment, constantly monitor and appraise the consequences of coping, and cease adherence to an ineffective strategy; whereas adaptive coping denotes the abilities to generate and deploy alternative strategies in an attempt to handle new challenges. The Coping Flexibility Scale (CFS;

Kato, 2012) assesses these two flexible coping processes. The results provide support for the relative independence of these processes, although both are related to psychological well-being.

Bonanno, Pat-Horenczyk, and Noll (2011) adopted the perceived ability conceptualization to examine flexible coping in the context of traumatic events, and posited that coping effectively with trauma involves flexible use of two coping processes: forward focus and trauma focus. The forward focus process is facilitated by the abilities to distract oneself from a traumatic event, retain one's goals and plans, remains relaxed, pacify distressed feelings, maintain a sense of humor, generate positive thoughts, and be sensitive to others' needs and well-being. The trauma focus process, in contrast, is facilitated by the abilities to avoid social interactions, focus on the traumatic event and appreciate its emotional and cognitive significance, generate realistic thoughts, as well as review and amend one's goals and plans. These two coping processes were measured by the Perceived Ability to Cope with Trauma (PACT; Bonanno et al., 2011) scale. To reveal respondents' flexible deployment of the forward- and trauma-focused strategies, Bonanno et al. derived a coping flexibility index by (a) aggregating the standardized scores for each of the two subscales, (b) calculating the discrepancy between these subscale scores, and (c) subtracting the sum score from the discrepancy score. The findings showed both coping processes to be essential for psychological adjustment to traumatic events (Bonanno et al., 2011; Galatzer-Levy, Burton, & Bonanno, 2012).

### **Sample Characteristics**

In addition to the conceptualization and measurement of coping flexibility, sample characteristics may also account for the between-study variations in the beneficial role of coping flexibility in previous research. Our review of the literature indicates that individualism, socioeconomic status (SES), age, and gender are possible moderators. Specifically, the positive link between coping flexibility and psychological adjustment may be stronger for members of

societies lower (vs. higher) in individualism, individuals from a lower (vs. higher) SES stratum, older (vs. younger) people, and women (vs. men).

**Individualism.** Cross-cultural theories put forward that differences in the beneficial role of coping flexibility may exist at the cultural level. The person-culture match hypothesis states that when people reside in a social milieu in which others hold the same values, the experience of “shared reality” may “validate” their responses and in turn foster greater psychological well-being (Fulmer et al., 2010, p. 1564). Applying this hypothesis to the context of coping, a particular coping style will be culturally approved if it is consistent with the values and norms of the society in which it is deployed, and such cultural approval will facilitate psychological adjustment to stressful events for members of that society.

The cultural dimension of individualism may have bearing on the beneficial role played by coping flexibility. According to the theory of cultural self-construal (Markus & Kitayama, 1999), countries with higher levels of individualism such as Australia and Canada place greater importance on personal needs and desires, and their members tend to view themselves as autonomous and abstracted from the environment. Having a consistent self-view and behaving accordingly are valued in these countries, and self-consistency may be more crucial than flexible responses to situational demands for psychological well-being among their people (Heine, Lehman, Markus, & Kitayama, 1999; Suh, 2002). In contrast, countries with lower levels of individualism such as Japan and Malaysia place greater importance on the intricate relationship between individuals and their environment (Nisbett, Peng, Choi, & Norenzayan, 2001). Such cultural beliefs that prevail can be traced to Asian philosophical doctrines emphasizing that all entities in the universe are inter-related and exist in a persistent state of flux and change (Qian, 2001). Hence, the members of societies lower (vs. higher) in individualism are more likely to perceive the self as malleable and to endorse a situational view of behavior (Norenzayan, Choi,

& Nisbett, 2002). Drawing on the person-culture match hypothesis, we hypothesize that the association between coping flexibility and psychological adjustment is stronger in societies with lower (vs. higher) levels of individualism.

**SES.** Apart from cultural values and norms, social conditions and circumstances may also influence flexible coping styles. Such a notion is derived from the social-cognitive theory of social class (Kraus, Piff, Mendoza-Denton, Rheinschmidt, & Keltner, 2012), which conceptualizes SES as the social context shaping one's thoughts, feelings, and behavior. Individuals with a lower SES are posited to have more restricted opportunities to pursue goals, and their decisions and behavior are more constrained by their relatively scarce resources. The low SES group thus cultivates a contextualist social-cognitive style that fosters attunement to the cues embedded in the social milieu. People with a higher SES, in contrast, may possess relatively abundant resources that in turn create more opportunities and more favorable conditions for realizing their goals. The high SES group is thus characterized by a solipsistic social-cognitive style that centers around a deep sense of personal control and environmental mastery. Such hypothesized SES-based differences in cognitive style have received empirical support (e.g., Kraus, Côté, & Keltner, 2010; Stephens, Fryberg, & Markus, 2011). Given that sensitivity to situational cues is an important cognitive mechanism underlying the flexible coping process (Cheng, 2003; Cheng & Cheung, 2005), it is reasonable to infer that individuals with a lower (vs. higher) SES are readier to deploy flexible coping strategies.

Previous studies have demonstrated that individuals from different SES strata are exposed to distinct stressful experiences. People from a lower stratum, for example, generally encounter a greater number and variety of stressful life changes (e.g., Baum, Garofalo, & Yali, 1999; S. Cohen, Doyle, & Baum, 2006). Ironically, these people have more limited access to both the economic (e.g., money, tools) and sociocultural (e.g., networks of professionals, political power)

resources necessary to deal with life changes (e.g., Kincheloe & Steinberg, 2007; Reibert & Jannings, 2012). The personal resource of flexible coping capacity may thus be more crucial to the psychological adjustment of individuals with a lower SES than that of those with a higher SES, as the latter are endowed with more ample external resources on which to draw. We thus posit a stronger positive association between coping flexibility and psychological adjustment among individuals from a lower (vs. higher) SES stratum.

**Age.** Research on senescence suggests that the strength of the relationship between coping flexibility and psychological adjustment varies by age. The primary tenet of the dual-process theory of coping (Brandtstädter & Rothermund, 2002) is that individuals cope by either actively amending their environment to fit the circumstances (i.e., by undertaking an assimilation process) or adjusting their personal preferences and goals to fit environmental demands (i.e., by undertaking an accommodation process). The theory further postulates that the accommodation process is essential for successful aging (Brandtstädter, 2009). As people become older, they adopt more accommodative strategies to deal with the constraints imposed by senescence, such as bereavement issues and impaired sensory functions. Such developmental changes, which are characterized by greater flexibility in adjusting one's expectations to one's limitations, may explain the sustained well-being of older people despite the numerous problems inherent in aging (e.g., Mroczek & Kolarz, 1998; Stone, Schwartz, Broderick, & Deaton, 2010). There is indeed empirical evidence showing that the deployment of such strategies enable the elderly to cope with disability and deteriorating health (e.g., Hall, Chipperfield, Heckhausen, & Perry, 2010; Rothermund & Brandtstädter, 2003).

Based on the aforementioned theoretical notions and empirical evidence, we hypothesize that age may explain the variability in the strength of the link between coping flexibility and psychological adjustment because older individuals experience greater functional limitations and

perceive more senescence-related uncontrollability (e.g., Mullen, McAuley, Satariano, Kealey, & Prohaska, 2012; Murabito et al., 2008). Younger individuals, in contrast, tend to experience far fewer functional limitations, and thus are more capable of taking direct actions to handle most stressful events. Hence, the hypothesized link between coping flexibility and psychological adjustment may not be as strong for younger people as for their older counterparts.

**Gender.** In view of some prior studies revealing differences in coping ability between men and women (e.g., Kaiseler, Polman, & Nicholls, 2012; Tamres, Janicki, & Helgeson, 2002), we posit that the hypothesized coping flexibility-psychological adjustment link varies by gender. Some studies have further shown women to exhibit a wider repertoire of coping strategies than men (e.g., Ptacek, Smith, & Zanas, 1992; Tamres et al., 2002), and this difference may be explained by the distinct types of stressful events commonly encountered by the genders.

Role constraint theory (Rosario, Shinn, Mørch, & Huckabee, 1988) posits that social roles exert a greater influence on coping preferences than do gender roles. Today, fewer men and women adhere to their traditional social roles than in the past. Growing educational opportunities for women imply this gender group now constitutes a significant portion of the workforce in many countries (e.g., Chen, 2001; Nordenmark, 2002), and research shows more women than men to play multiple social roles (e.g., Nordenmark, 2002; Nyman, Spak, & Hensing, 2012). In the workplace, female employees are often expected to be more adroit than their male counterparts in dealing with interpersonal issues, but to perform on par with men in other life domains (Eagly, Makhijani, & Klonsky, 1992). At the same time, women's growing breadwinner role has not replaced their traditional role as caregivers, but rather has been added to their caregiving role (Gaunt, 2013; Gershuny, Bittman, & Brice, 2005). Coping flexibility may thus help women to successfully navigate their multiple social roles and deal with conflicting expectations, suggesting that this coping ability confers greater role adjustment benefits upon

women than men. Hence, we hypothesize that the positive association between coping flexibility and psychological adjustment is stronger for women (vs. men).

## **Method**

### **Inclusion and Exclusion Criteria**

A major aim of this meta-analytic review was to provide a summary estimate of the magnitude of the hypothesized link between coping flexibility and psychological adjustment. We thus included all available research reports completed between 1978 and 2013 that tested the association between coping flexibility and at least one measure of psychological adjustment or maladjustment.

Studies were excluded on the basis of four criteria: (a) the study contained no empirical data; (b) it failed to provide sufficient statistical information to extract or estimate effect sizes; (c) it was described in an abstract for which the full text was unavailable; and (d) it has a small sample size (i.e.,  $\leq 10$  participants) that can bias meta-analytic findings (Hunter & Schmidt, 2004).

### **Literature Search Strategies**

**Multiple-database searches.** To obtain an initial pool of potentially pertinent articles, we searched 14 online databases via ProQuest: (a) Applied Social Sciences Index and Abstracts, (b) British Nursing Index, (c) COS Conference Papers Index, (d) ERIC, (e) MEDLINE, (f) Published International Literature on Traumatic Stress, (g) ProQuest Dissertations and Theses Abstracts and Indexes: Health and Medicine, (h) ProQuest Dissertations and Theses Abstracts and Indexes: Social Sciences, (i) ProQuest Education Journals, (j) ProQuest Research Library: Health and Medicine, (k) ProQuest Research Library: Social Sciences, (l) PsycINFO, (m) Social Services Abstracts, and (n) Sociological Abstracts. Both social science and health/medical databases were searched because community and patient samples were the participant

populations relevant to our meta-analysis.

In searching the aforementioned databases, we paired the keyword *coping* with a series of wildcards—*flexib\* OR consisten\* OR variation\* OR variability\* OR versat\* OR goodness-of-fit*—to locate both studies that directly assessed the construct of coping flexibility (which is also referred to as *coping versatility* or a *good strategy-situation fit*) and those that examined variations (vs. consistencies) in strategy deployment. We utilized wildcards to broaden the searches to include more potentially relevant reports. For instance, the wildcard *flexib\** allowed us to identify studies examining either coping flexibility or flexible coping. The initial database searches were conducted on January 28, 2013, with follow-up searches accomplished on January 27, 2014. The searches were limited to research reports completed between January 1, 1978 and December 31, 2013. The search output was 14,985 records. After scanning the titles and abstracts, we found 175 articles relevant to our topic.

**Ancestry and descendancy searches.** In addition to multiple-database searches, we tried to expand the pool of relevant reports by adopting both the ancestry and descendancy approaches. For the ancestry search, we culled the reference lists of the review papers and relevant reports identified in the database searches, thereby identifying an additional 33 articles.

For the descendancy or citation index search, we used the Web of Science databases to locate additional reports citing those articles already identified for inclusion, leading to an additional 21 articles.

**Personal contacts.** Although we included research materials reported in any language, the coverage of the databases used in the aforementioned searches is strongly focused on English-language articles. However, our literature review shows that considerable work on coping flexibility has been carried out by Chinese, German, and Japanese scholars, who may also publish papers in their native languages. In an attempt to retrieve more non-English articles, we

asked two Chinese, two German, and two Japanese researchers to perform database searches in their native tongues. The result was an additional 16, 20, and 13 reports published in Chinese, German, and Japanese, respectively.

To retrieve more unpublished materials, we placed requests on online forums and listservs (e.g., Society for Personality and Social Psychology, International Association of Cross-Cultural Psychology) and contacted scholars who had published more than two articles on coping flexibility in the past decade. We received replies from 17 researchers, eight of whom provided us with relevant materials. If the materials or abstracts lacked adequate information for subsequent coding, we approached their authors to obtain the required information or a full report. An additional 19 reports were obtained using these approaches. The data included in this meta-analysis were confined to those received by February 28, 2014.

Taken together, the foregoing search strategies resulted in 297 unique abstracts or full-text reports. Adopting the aforementioned inclusion and exclusion criteria, we then excluded 44 book chapters, reviews, discussion papers, and qualitative studies (e.g., Chronister & Chan, 2007; Tsai & Tsai, 2007); 34 reports that did not assess the coping flexibility construct (e.g., Barbee, 1996; Fivush & Sales, 2006); 26 reports that did not measure any relevant criterion variables (e.g., Babb, Levine, & Arseneault, 2010; Cheng & Cheung, 2005); 43 reports that did not test the relationship between coping flexibility and psychological adjustment (e.g., Moss, 1991; Radovanovic, 1993); 30 reports that did not contain statistics for extracting or computing effect sizes (e.g., Aldridge & Roesch, 2008a; Saito & Kamimura, 2011); and 30 abstracts for which the full-text reports were unavailable (e.g., Tooley et al., 2010; Vanunu-Yaacobi, 1986). As a result, 90 selected reports were coded in our meta-analysis. As some of the reports adopted a multiple-study design or recruited more than one sample, the dataset comprises 101 separate studies with 122 independent samples.

### **Characteristics of Meta-analytic Dataset**

Of the 90 selected reports, 67% were peer-reviewed publications, 8% were non-peer-reviewed publications, and 25% were unpublished. Only 4% of the work therein was conducted before 1989, with 24% and 50% carried out in the 1990s and 2000s, respectively, and the remaining 22% completed between 2010 and 2013. These figures indicate that the body of literature on coping flexibility has grown substantially since 2000.

Of the 101 separate studies considered, 14% adopted the broad repertoire conceptualization, 11% the balanced profile conceptualization, 20% the cross-situational variability conceptualization, 22% the strategy-situation fit conceptualization, and 33% the perceived ability conceptualization. In assessing coping flexibility, most (68%) employed measures specifically developed for assessing this construct. In assessing the relevant criterion variables, 77% of the studies included at least one measure of psychological maladjustment, and the remainder included at least one measure of psychological adjustment. With regard to the research method, the vast majority (81%) used self-report questionnaires, with 8% adopting informant reports and 7% employing an experimental design. Four percent were intervention studies.

For the 122 independent samples, the number of participants ranged from 25 to 890, with an average of 173 ( $SD = 142.26$ ). On average, 58% of the participants were women, and the mean age was 33.53 years ( $SD = 16.48$ ). Most (80%) of the samples were classified into the middle SES stratum, whereas 17% and 3% were classified into the lower/lower-middle and upper-middle/upper strata, respectively. Participants were recruited in 11 countries or territories in six geographical regions, including North America (Canada and the United States), Western Europe (Germany and the Netherlands), Central Europe (Greece), the Middle East (Israel), East Asia (Hong Kong, Japan, and Mainland China), and South Asia (the Philippines and Singapore). The first four are countries higher in individualism according to Hofstede's cultural dimensions

framework, whereas the others are lower in individualism (see Hofstede, Hofstede, & Minkov, 2010).

### **Measures of Coping Flexibility**

Seven major measures of coping flexibility were identified in the pool of studies examined. Two of these measures are modified general coping measures, and the others are specifically designed to assess coping flexibility.

**Modified general coping measures.** Among the various coping measures adapted for studying coping flexibility, our review shows that the WCC/WCQ (Folkman & Lazarus, 1980, 1988) is the most popular, being used in seven of the selected studies. There is evidence of its validity for assessing the coping flexibility construct (e.g., Park, Folkman, & Bostrom, 2001; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990).

The COPE inventory (Carver et al., 1989) is another common measure that has been modified to gauge coping flexibility. It was used in four of the selected studies, most of which adopted its situational form. Relative to the WCC/WCQ, little effort has been made to validate this inventory's use in measuring coping flexibility.

Some of the other questionnaires, which were employed only once or twice, were modified from general coping measures such as the Coping Strategy Indicator (Amirkhan, 1990) and Measure of Daily Coping (Stone & Neale, 1984). Although there is considerable empirical evidence supporting the validity of these questionnaires in assessing coping in general, there is limited such evidence for their use as measures of coping flexibility.

**Specific measures of coping flexibility.** Among the various measures developed for assessing coping flexibility, the most widely used in the selected reports were the CFQ (Cheng, 2001) and FGAS (Brandtstädter & Renner, 1990), each of which was adopted in 17 studies. Both questionnaires have demonstrated good psychometric properties in previous studies (e.g., Saito

& Kamimura, 2011; Schmitz, Saile, & Nilges, 1996; Slangen-de Kort et al., 2001; Zong et al., 2010).

Apart from these specific measures of coping flexibility, the CSFI (Williams, 2002), the Flex instrument (Lester et al., 1994), and the PACT scale (Bonanno et al., 2011) were employed in four, six, and five selected reports, respectively. All of these measures display adequate reliability and validity (e.g., Burton et al., 2012; Fresco, Williams, & Nugent, 2006; Gerfen, 2008).

In addition, several questionnaires or interview schedules were also constructed to examine coping flexibility in the selected studies. Validation data were reported for some of the instruments, including the Coping Flexibility Scale (Kato, 2012) and the COFLEX (Vriezekolk et al., 2012), but not for others (e.g., Kirsh, McGrew, & Passik, 2004; Radovanovic, 1993).

### **Measures of Psychological Adjustment**

The criterion variable of psychological adjustment is a broad construct, and an array of instruments has been used to assess psychological adjustment or maladjustment. Table 1 presents a list of the criterion measures used in the present pool of selected reports. The majority of these studies adopted a single measure, although a few studies used a combination of items from two measures (Blalock, McEvoy DeVellis, Holt, & Hahn, 1993; Brandtstädter & Renner, 1990; Compas, 1996).

Most of the criterion measures and their translated versions have been well validated (see e.g., R. W. Lam, Michalak, & Swinson, 2005; Robinson, Shaver, & Wrightsman, 1991), although there are quite a few exceptions (Bonanno et al., 2011; Brandtstädter & Baltes-Götz, 1990; Cheng, Hui, & Lam, 1999, 2000; Chu, 2002; Mino & Kanemitsu, 2006; Shea, 1986; Slangen-de Kort et al., 2001; Westphal, Seivert, & Bonanno, 2010).

### **Coding Procedures**

Two raters carried out the coding task for this meta-analysis independently. One of them holds a doctoral degree in social psychology, and the other holds a Master's degree in social psychology and was a doctoral candidate when conducting the coding task. They both had prior training in data coding and advanced statistics, and had performed meta-analyses in the areas of cross-cultural, health, and social psychology. Both raters were blind to the research aims and hypotheses throughout the coding process.

The triangulation method was used during coder training to enhance inter-rater reliability. Specifically, the two raters coded 20% of the selected reports on their own. They then met and discussed any discrepancies in their sets of coding, and any remaining issues of uncertainty were subsequently resolved in consultation with the first author in a follow-up meeting. After the training, each rater coded all of the selected reports independently, and the data were then checked by a research assistant who was not involved in the coding task. The aforementioned procedures for resolving discrepancies were repeated upon completion of the entire coding task. Inter-rater reliability ranged from 87% to 100% in the final coding, indicating considerable agreement between the raters.

### **Coding of Effect Sizes**

The Pearson product-moment correlation coefficient ( $r$ ) was adopted as the common metric for effect size estimation in this meta-analysis. Both raters extracted the  $r$  value between coping flexibility and a relevant criterion variable from all of the selected reports. If a particular study did not report any correlation coefficients, the raters recorded other relevant statistics (e.g., means and standard deviations, univariate  $F$  values, or  $t$  values) and then converted these data into  $r$  values in accordance with the formulas outlined by Cooper et al. (2009).

### **Coding of a Priori Moderators**

In addition to effect sizes, the raters also coded two clusters of a priori moderators, which

included the conceptualization and measurement of coping flexibility as well as sample characteristics. Table 2 summarizes the coding results for these moderators.

**Conceptualization and measurement of coping flexibility.** For the conceptualization of coping flexibility, the two raters gave ratings according to the five major types identified in the present literature review: (a) broad repertoire, (b) balanced profile, (c) cross-situational variability, (d) strategy-situation fit, and (e) perceived ability.

For the measurement of coping flexibility, both raters categorized each instrument as a general coping measure (0) or specific measure of coping flexibility (1). They also classified each criterion measure as positive (psychological adjustment = 0) or negative (psychological maladjustment = 1). We were interested in whether the magnitude of the effect size estimates differed between the positive and negative criterion measures, but found no statistically significant differences ( $b = .01, p = .79$ ). Hence, we reversed the arithmetic sign of all  $r$  values yielded by the measures of psychological maladjustment, with a larger effect size indicating a stronger association between coping flexibility and psychological adjustment for all the selected reports.

**Sample characteristics.** The raters also coded four sample characteristics: age, gender composition, SES, and individualism. They recorded the average age (or age range if the average age was unavailable) and gender composition (i.e., proportion of female participants) of each independent sample from data extracted directly from the selected reports.

In the present dataset, 86% of the participants were adults, 9% were preteens or teenagers, and 5% were elderly. The median age was 30. Samples whose average age was less than or equal to 30 were categorized into a younger subgroup comprising preteens, teenagers, and young adults, whereas those whose average age was greater than 30 fell into the older subgroup comprising middle-aged and older adults.

To code SES, the two raters first recorded its direct indicators, proxy indicators, or other relevant information described in the selected reports, with each independent sample then classified into one of five strata (lower, lower/middle, middle, upper/middle, and upper) according to the national socioeconomic classification standards of its own country (e.g., Galobardes, Shaw, Lawlor, Lynch, & Davey Smith, 2006; Zhong & Huang, 2012). As very few samples in our dataset fell into both extremes, we reduced the number of SES subgroups to three (lower/lower-middle, middle, upper-middle/upper) to improve the classification rate. We also created a pair of dummy variables to represent this trichotomous variable, with the lower/lower-middle SES subgroup assigned as the reference level and coded as 0 for both variables. In addition, we sent requests to the authors of all selected reports to check the consistency between the authors' and raters' codings. The two sets of coding display adequate reliability ( $\kappa = .82$ ), thus indicating the validity of the latter set.

In addition to individual-level SES indicators, the raters also extracted two relevant country-level indicators from the World Development Indicators database (World Bank Group, 2013): Gross National Index (GNI) per capita and unemployment rate. As both of these values varied not only by country but also by year, these indicators were coded according to the country in which the sample was recruited and the specific year in which the work was completed.

To code the cultural dimension of individualism, the raters assigned an individualism score to each independent sample according to the country in which the data were collected. The individualism scores were extracted from Hofstede's (2014) quantitative indices, which rank countries along the cultural dimension of individualism. His set of cultural indices was derived from a large-scale international project, and the criterion and discriminant validities of these indices have been confirmed in previous multinational surveys (e.g., Newbury & Yakova, 2006; S. H. Schwartz, 1994).

It is noteworthy that some of the selected studies were conducted in multi-ethnic societies, and these samples thus comprise participants of diverse ethnicities. Following the recommendations of Van Hemert (2011), the raters did not assign individualism scores to samples in which most or all of the participants differed from those typical of the population at large. The six such studies (Aldridge & Roesch, 2008b; Frazier, Newman, & Jaccard, 2007; Perry, 1999; Reyes, 2011; Shea, 1986; Tobin & Raymundo, 2010) in our dataset were conducted in the United States, and more than half of their participants were from ethnic minority groups, namely African-, Asian-, and Latino-Americans (United States Census Bureau, 2012). We excluded the data from these six studies only when performing moderator analyses that included the cultural dimension of individualism.

### **Meta-Analytic Procedures**

Some studies reported more than one effect size, and correlations derived from a single report are likely to be more similar than those derived from another (see e.g., Fischer & Boer, 2011). We addressed this issue of dependence by performing three-level meta-analysis with the effect size estimates nested within studies (see e.g., Konstantopolous, 2011). The advantage of this type of meta-analysis is that it examines both within- and between-study variations. We used the metaSEM package (Cheung, 2012) for the three-level meta-analysis and the metafor package (Viechtbauer, 2010) for sensitivity analysis in the R statistical environment (R Development Core Team, 2012).

We tested a random-effects model rather than a fixed-effects model because we considered the differences between sample effect size and population effect size to be attributable to both sampling errors and other sources of randomly distributed variability (i.e., random effects) rather than to sampling errors alone (i.e., fixed effects; see e.g., Lipsey & Wilson, 2001). More importantly, the random-effects model has been found more accurate for testing heterogeneous

population effects (Hedges & Vevea, 1998).

**Mean effect size analyses.** Three major sets of meta-analysis were conducted. The first set was mean effect size analyses scrutinizing the magnitude and directionality of the hypothesized link between coping flexibility and psychological adjustment. The maximum-likelihood estimation method was used to obtain the parameter estimates, and we followed J. Cohen's (1988) definitions (i.e., small effect size:  $.10 \leq r < .30$ , moderate effect size:  $.30 \leq r < .50$ , and large effect size:  $r \geq .50$ ) to interpret the magnitude of the effect sizes.

We also obtained two estimates of variability. For the 95% confidence interval (CI), a boundary excluding 0 suggests that the mean effect size differs from 0 in at least 97.5% of the cases in repeated-estimation procedures (see e.g., Lipsey & Wilson, 2001). For the 80% credibility interval (CRI), a wide boundary or boundary including 0 suggests the operation of one or more moderators (see e.g., Whitener, 1990).

**Heterogeneity tests.** The second set of meta-analysis comprised heterogeneity tests carried out to reveal whether the effect sizes yielded by the selected pool of studies varied according to certain characteristics. Specifically, we first conducted Cochran's  $Q$ -tests to determine whether the population effect sizes were heterogeneous across studies (Hedges & Olkin, 1985). The extent of heterogeneity was then quantified by modified  $I^2$  indices, which indicated the percentage of cross-study variance that was due to study characteristics rather than sampling errors (Higgins & Thompson, 2002). In testing the moderating effects, the explained variance ( $R^2$ ) was computed at both Level 2 (within study) and Level 3 (between studies; Raudenbush, 2009). However, here we reported the  $R^2$  values at Level 3 alone because researchers are generally interested in between-sample variation. The studies with missing moderators were removed before performing the moderator analyses. A statistically significant  $Q$ -statistic and large  $I^2$  index indicated that the population effect sizes were not identical across studies,

suggesting the necessity of carrying out the following third set of meta-analysis.

**Moderator and subgroup analyses.** The moderator analyses in the third set were performed to explain the non-sampling variance in effect sizes. Such results allowed evaluation of whether the magnitude of the hypothesized coping flexibility-psychological adjustment link varied according to sample characteristics (i.e., individualism, SES, age, and gender composition).

If one or more statistically significant moderating effects were present, we conducted subgroup analyses to further investigate the strength and directionality of each significant effect. A statistically significant  $Q_B$  value indicated reliable differences between two subgroups. If a moderator contained more than two levels, subgroup analyses were conducted for each subgroup pair.

### **Validity of Meta-Analytic Findings**

**Study quality.** The studies included in any meta-analysis vary considerably in terms of methodological rigor, and those with methodological flaws are likely to bias the overall findings (see e.g., Conn & Rantz, 2003). To examine the potential moderation effects of study quality in this meta-analysis, each selected report was evaluated in terms of four dimensions, as described below.

First, the same two raters adopted the criteria of Holmbeck et al. (2008) to assess measurement quality. A score of 1 was assigned to “well-established” measures with (a) at least two refereed articles published by different research teams, (b) adequate information allowing for evaluation and replication (e.g., full item list, scoring method), and (c) detailed statistics constituting strong validation evidence. A score of 0.67 was assigned to “approaching well-established” measures with (a) at least two refereed articles published by the same or different research teams, (b) adequate information for evaluation and replication, and (c) weak or

no validation data. A score of 0.33 was assigned to “promising” measures with (a) publication of a refereed article, (b) adequate information for evaluation and replication, and (c) weak or no validation data. Finally, a score of 0 was assigned to measures that failed to meet these criteria.

For the studies that adopted more than one coping flexibility or psychological adjustment measure, the various scores were aggregated and then divided by the number of measures employed. For instance, a study using a well-established measure and a promising measure of psychological adjustment received an average score of 0.67 [i.e.,  $(1 + 0.33)/2$ ].

Second, both raters evaluated the quality of study design. Specifically, they assigned 1 point if a selected report sought to reduce common method bias (see e.g., Chang, Van Witteloostuijn, & Eden, 2010) by adopting one or more of four measures: (a) the use of more than one research method, (b) the recruitment of more than one source of informant (e.g., participants and their peers), (c) the inclusion of more than one time point for assessment, and (d) the involvement of more than one location or medium for data collection. No points were given if a selected study failed to address such a bias.

Third, the raters appraised the adequacy of statistical power by first checking whether a study reported power analysis results. If such data were unavailable, retrospective power analyses were conducted using G\*Power software (version 3.1.2; Faul, Erdfelder, Lang, & Buchner, 2007). Following J. Cohen’s (1988) recommendations, a score of 1 was assigned to a study with sufficient statistical power (i.e., statistical power  $\geq .80$  at a significance level of .05), and a score of 0 otherwise.

Finally, both raters assessed sample representativeness, awarding a study 1 point for employing a probability sampling method (see e.g., Som, 1995; S. K. Thompson, 2002) and 0.5 points if the data were drawn from community samples with assorted demographic characteristics (e.g., wide age range, multiple regions). No points were awarded if no such efforts

had been made.

**Publication bias.** We also assessed the possible presence of two major types of publication bias. The first type of such bias refers to the greater likelihood of studies yielding statistically significant (vs. null) findings to be submitted and accepted for publication (see e.g., Rothstein, Sutton, & Borenstein, 2005; Sutton, Song, Gilbody, & Abrams, 2000). Moderator analysis can address this issue by revealing whether the mean effect size varies according to three types of publication status (i.e., refereed journal publication, non-refereed journal publication, unpublished work). This trichotomous variable was represented by a pair of dummy variables, with refereed journal publication assigned as the reference level and coded 0 for both dummy variables.

Sensitivity analysis is another technique that can reveal possible changes in effect size estimates as the extent of selection bias varies (Vevea & Woods, 2005). To perform this analysis, we used four commonly tested models. The first, the “moderate one-tailed selection” model, assumes a high probability of including studies yielding statistically significant results in the expected direction (i.e., positive correlations), but a .50 probability of including studies yielding non-significant results or those in the opposite direction (i.e., negative correlations). The second, the “severe one-tailed selection” model, assumes a .10 probability of including studies yielding non-significant results or those in an opposite direction. The third, the “moderate two-tailed selection” model, assumes a .60 probability of including studies yielding non-significant results in either direction. The final model, the “severe two-tailed selection” model, assumes a .25 probability of including studies yielding non-significant results in either direction. Publication bias is a concern if the effect size estimates change considerably under the operation of different types of selection bias because dissimilar conclusions can be drawn.

The second type of publication bias refers to the greater probability of larger-scale (vs.

small-scale) studies to be published because these studies are widely assumed to have a better research design and more heterogeneous sample (see e.g., Rothstein et al., 2005; Sutton et al., 2000). To check for such a bias, we used the popular funnel-plot approach (see e.g., Sterne & Harbord, 2004). An inverted, roughly symmetrical funnel plot suggests the absence of this type of publication bias. We also used the trim-and-fill method, which is commonly employed to both identify and adjust for the bias arising from a set of unpublished studies (see e.g., Duval, 2005).

**Selective reporting.** Finally, *p*-curve analysis (Simonsohn, Nelson, & Simmons, 2014) allows the detection of selective reporting by researchers who “file-drawer” certain parts of their studies to reach statistical significance ( $p < .05$ ). A *p*-curve represents a distribution of *p* values for a subset of studies reporting statistically significant findings. It will skew to the right if a true effect exists and to the left if selective reporting is prevalent.

## Results

### Magnitude and Directionality of Coping Flexibility-Psychological Adjustment Link

Before conducting the main analyses, we identified possible outliers using a boxplot (Greenhouse & Iyengar, 2009) but detected no extreme outliers. Our dataset comprises 329 effect size estimates, which follow an approximate normal distribution (skewness =  $-.09$ ,  $SE = .14$ ; kurtosis =  $.97$ ,  $SE = .27$ ).

**All studies.** The three-level meta-analysis yielded an overall mean effect size of  $.23$  (median  $r = .24$ ),<sup>1</sup> with a 95% CI ranging from  $.19$  to  $.28$  ( $k = 329$ , total  $N = 58,946$ ). Consistent with previous theoretical proposals, our findings reveal a positive link between coping flexibility and psychological adjustment. According to J. Cohen’s (1988) criteria, this link is of small to moderate magnitude.

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<sup>1</sup> Highly similar effect size estimates were obtained from other two-level mean effect size analyses:  $r = .24$  (95% CI  $[.22, .27]$ ) for the Hedges-Olkin method and  $r = .23$  (95% CI  $[.20, .25]$ ) for the Schmidt-Hunter method.

Further, the 80% CRI ranged widely (-.02 to .49), and the test of homogeneity was statistically significant:  $Q(328) = 8495.33, p < .0001$ . With regard to the degree of heterogeneity, the  $I^2$  statistic (59%) indicated that non-sampling errors constituted the main source of variability in the data. According to the guidelines of Higgins, Thompson, Deeks, and Altman (2003), the pool of selected reports had a high degree of heterogeneity, indicating considerable cross-study variance in effect sizes.

**Studies by conceptualization type.** Given that the selected reports conceptualized coping flexibility in distinct manners, we conducted stratified main effect size analyses for each of the five conceptualizations. The results showed that the effect sizes were all in the same direction but differed in the magnitude of the association (see upper panel of Table 3).

The positive links between coping flexibility and psychological adjustment were small in magnitude for the studies adopting the broad repertoire ( $r = .12$ ), cross-situational variability ( $r = .12$ ), and balanced profile ( $r = .19$ ) conceptualizations. The links were moderately strong, in contrast, for the studies adopting the strategy-situation fit ( $r = .27$ ) and perceived ability ( $r = .32$ ) conceptualizations.

We then performed subgroup analyses to compare the magnitude of the effect sizes between each possible pair of conceptualizations. There was a statistically weaker mean effect size for the studies adopting the broad repertoire conceptualization than for those adopting the perceived ability or strategy-situation fit conceptualization:  $Q_B(1) = -3.57$  and  $-2.25, ps < .01$ . Similarly, studies adopting the cross-situational variability conceptualization yielded statistically weaker mean effect sizes than those adopting the perceived ability or strategy-situation fit conceptualization:  $Q_B(1) = -3.08$  and  $-2.01, ps < .02$ . The magnitude of the coping flexibility-psychological adjustment link was similar for all other conceptualization pairs.

**Studies by measurement type.** We also examined whether the strength of the mean effect

sizes differed between studies using general coping measures and those using specific measures of coping flexibility. Subgroup analyses revealed statistically significant differences in strength between these two clusters of measures:  $Q_B(1) = -2.55, p = .005$ . The mean effect size was significantly weaker for the general measures of coping ( $r = .15$ ) than for those constructed specifically to assess coping flexibility ( $r = .27$ ; see lower panel of Table 3).

### **Moderating Effects of Sample Characteristics**

We also conducted mixed-effects meta-analysis to scrutinize whether the strength of the hypothesized coping flexibility-psychological adjustment link varied according to four sample characteristics.

**Individualism.** The results were consistent with our predictions in showing a statistically significant moderating effect of individualism ( $b = -.0022, p = .0046$ ), which accounted for 10% of the variance in the positive relationship between coping flexibility and psychological adjustment.<sup>2</sup>

Subgroup analyses further revealed statistically significant differences between countries higher in individualism and those lower in this cultural dimension [ $Q_B(1) = -1.98, p = .02$ ], with the positive link generally stronger for the latter cluster of countries ( $r = .29, 95\% \text{ CI } [.22, .36], k = 111, N = 23,524$ ) than the former ( $r = .20, 95\% \text{ CI } [.14, .25], k = 199, N = 30,229$ ).

**SES.** SES was examined at both the country and individual levels in this study. The moderating effects of GNI and the unemployment rate were statistically non-significant ( $bs = -.0027$  and  $.0058, ps > .23$ ) in the country-level analyses, whereas the moderating effects of SES were marginally significant ( $bs = .13$  and  $.10, ps > .06$ ) in the individual-level analyses.

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<sup>2</sup> Some cross-cultural psychologists have argued that individualism and collectivism represent two relatively independent dimensions (Markus & Kitayama, 1999; Oyserman, Coon, & Kimmelmeier, 2002). As such, we also included Oyserman et al.'s collectivism indices in another culture-moderated meta-analysis. The results yielded a similar conclusion that the positive link between coping flexibility and psychological adjustment was stronger for countries higher (vs. lower) in collectivism ( $b = .2198, p = .0023$ ).

Subgroup analyses further revealed significantly stronger coping flexibility-psychological adjustment links for the lower/lower-middle SES subgroup ( $r = .34$ , 95% CI [.24, .45],  $k = 51$ ,  $N = 6,647$ ) than for the middle SES subgroup ( $r = .21$ , 95% CI [.16, .27],  $k = 244$ ,  $N = 47,656$ ),  $Q_B(1) = 2.15$ ,  $p = .02$ . There was also a trend for the lower/lower-middle SES subgroup to yield stronger such links than the upper-middle/upper SES subgroup ( $r = .25$ , 95% CI [.22, .29],  $k = 10$ ,  $N = 1,831$ ), although the differences were marginally significant,  $Q_B(1) = 1.59$ ,  $p = .06$ . These trends were consistent with our predictions.

**Age.** As expected, age explained 13% of the variance in the positive link between coping flexibility and psychological adjustment, constituting a statistically significant explanatory factor ( $b = .0033$ ,  $p = .0011$ ).

In the subgroup analyses, the mean effect size was .16 (95% CI [.11, .22];  $k = 153$ ,  $N = 26,837$ ) for the younger subgroup and .32 (95% CI [.26, .38];  $k = 154$ ,  $N = 25,416$ ) for the older subgroup, and this difference was statistically significant [ $Q_B(1) = 3.85$ ,  $p < .0001$ ].

In addition to the median split method, we adopted several alternative criteria for categorizing the data into different sets of age subgroups and found highly similar results. Specifically, the subgroup differences were replicable when we used (a) a tertile split that compared the upper and lower thirds [ $Q_B(1) = 6.29$ ,  $p < .0001$ ], (b) a mean  $\pm 0.5$  SD split that compared the two extreme subgroups with the middle one omitted [ $Q_B(1) = 6.41$ ,  $p < .0001$ ], and dichotomization using an optimized cutoff point of 35 years [i.e., 60th percentile;  $Q_B(1) = 6.44$ ,  $p < .0001$ ]. These consistent findings provide evidence that the moderating effects of age are robust, with the positive relationship between coping flexibility and psychological adjustment significantly stronger for the samples with higher (vs. lower) average ages.

**Gender composition.** Finally, the results revealed the gender composition did not account for the variation in the coping flexibility-psychological adjustment association ( $b = .05$ ,  $p = .41$ ).

In other words, the strength of this association did not vary by the proportion of women (vs. men) in a given sample.

### **Validity of Meta-Analytic Findings**

Although the aforementioned findings were largely consistent with our hypotheses, it was important to detect the possible effects of study quality, publication bias, or selective reporting. We thus conducted several validity checks.

**Study quality.** First, we analyzed the moderating effects of five indicators—quality of coping flexibility measures, quality of criterion measures, study design, statistical power, and sample representativeness—but none of which was statistically significant (*bs* ranging from  $-.08$  to  $.09$ ,  $ps > .08$ ). Hence, the quality of the selected studies had no confounding effects on the observed positive links between coping flexibility and psychological adjustment.

**Publication bias.** Second, we conducted moderator analyses to find out whether the magnitude of the observed links varied by the publication status of the selected studies, but such moderating effects were not statistically significant ( $bs = -.10$  and  $.03$ ,  $ps > .05$ ).

We also performed sensitivity analyses to investigate whether distinct conclusions would be drawn if various selection models were adopted. Table 4 summarizes the results for all such models. The adjusted estimates yielded by models with varying types of selection bias were highly similar to the unadjusted estimates yielded in the main analyses. The largest difference between the adjusted and unadjusted estimates was less than  $.03$ , indicating that distinct types of selection bias were unlikely to have influenced our core meta-analytic findings.

Figure 1 depicts a funnel plot with effect size plotted against sample size. The Egger's test (Egger, Smith, Schneider, & Minder, 1997) showed that this plot was roughly symmetrical ( $z = .24$ ,  $p = .81$ ). Similarly, the trim-and-fill method also failed to identify any asymmetric cases. Taken together, all these findings show that publication bias is not a concern.

**Selective reporting.** The *p*-curve analysis revealed an estimated true effect size of .20, which was of a similar magnitude to and in the same (i.e., positive) direction as the overall observed effect size ( $r = .23$ , 95% CI [.19, .28]). The right-skewed *p*-curve shown in Figure 2 suggests low likelihood of selective reporting in the pool of reports included in this meta-analysis, thus further demonstrating the evidential value of our findings.

### Discussion

This is the first meta-analysis to provide a summary estimate of the hypothesized link between coping flexibility and psychological adjustment. The results indicate that greater coping flexibility is related to higher levels of psychological adjustment, although such a positive link is of small to moderate magnitude. More importantly, we found the magnitude of this observed link to differ among studies adopting distinct conceptualizations of coping flexibility. Specifically, there is a stronger link for studies adopting the perceived ability or strategy-situation fit conceptualization but a weaker link for those adopting the broad repertoire or cross-situational variability conceptualization.

### Conceptual Problems and Implications

The present meta-analysis makes a conceptual contribution to the literature by affording a broad theoretical understanding of the beneficial role of coping flexibility. Our comprehensive review has outlined the major conceptualizations of such flexibility proposed by different scholars, and the literature will benefit from the resulting enhanced understanding of the usefulness of these conceptualizations distinguished through our synthesis of empirical data.

**Broad repertoire.** This meta-analysis compares the strength of the hypothesized coping flexibility-psychological adjustment link in studies adopting distinct conceptualizations of coping flexibility. The results reveal a modest link ( $r = .12$ ) in studies adopting the broad repertoire conceptualization. Although this conceptualization is useful in embodying a spectrum

of coping strategies, it may have several limitations. First, it is based on the hypothesis of “more coping, better coping,” with the adaptive nature of coping flexibility proposed to be associated with a broad repertoire of diverse coping strategies. Some studies examining this hypothesis have found support for it (e.g., Arathuzik, 1991; Bliss, Garvey, Heinold, & Hitchcock, 1989; Remien, Rabkin, Williams, & Katoff, 1992), whereas others have not (e.g., Gossop, Green, Phillips, & Bradley, 1990; Pearlin & Schooler, 1978). These mixed findings may be the result of the failure of this hypothesis to distinguish effective strategies that meet situational demand from ineffective ones that reflect personal vulnerability (Moser & Annis, 1996). Desirable outcomes are unlikely if a broad coping repertoire primarily comprises the latter category of strategies.

Second, conceptualizing coping flexibility in terms of a broad coping repertoire may overlap with the construct of coping complexity, which refers to the use of a vast number of coping strategies regardless of the objective or subjective perception of the situational characteristics (see C. Cohen, 1987). Coping flexibility and coping complexity seem to be conceptually similar, but the two constructs differ when the adaptive aspect is considered. Coping flexibility is an adaptive quality because it fosters adjustment to a changing environment. Coping complexity, in contrast, is often deemed maladaptive because it reflects random attempts of using abundant strategies without sufficient persistence for the effectiveness of these strategies to emerge, and such attempts may overwhelm an individual’s resources (see C. Cohen, 1987). Failure to distinguish between these two constructs may lead to a misinterpretation of findings (e.g., Cheng, 2003; Paulhus & Martin, 1988).

Finally, the broad repertoire conceptualization of coping flexibility presents a static view, which reflects the existence of a large number or wide range of strategies in a person’s coping profile at a given moment. Hence, this conceptualization addresses only strategies that are currently available for use. Moreover, it describes and explains flexible coping without reference

to the context, and is thus unable to capture the process by which individuals respond and adapt to a changing environment. How, when, and under what circumstances various strategies are deployed thus remain unknown.

**Cross-situational variability.** Our findings also indicate a modest link ( $r = .12$ ) between coping flexibility and psychological adjustment in studies adopting the cross-situational variability conceptualization. Rather than defining coping effectiveness on an a priori basis, as in the broad repertoire conceptualization, this conceptualization defines such effectiveness as the deployment of diverse strategies to handle distinct stressful events. The cross-situational variability conceptualization is instructive in delineating the dynamic process underlying coping flexibility, which evolves from the interplay between individual and environment.

This conceptualization also has several weaknesses because mere variations in strategy deployment do not necessarily foster psychological adjustment to environmental changes. Such variations can instead indicate randomness in response or maladaptive personality characteristics, such as overdependence and a weak character (see Paulhus & Martin, 1988; C. E. Schwartz, Peng, Lester, Daltroy, & Goldberger, 1998 for a discussion). Instead of using different strategies in response to changing circumstances, some people may change their strategies for reasons of personality or mood, and such changes may occur without a coherent pattern (Cheng & Cheung, 2005). Therefore, the cross-situational variability in coping patterns emphasized in this conceptualization may be a necessary but insufficient condition for psychological adjustment to take place.

Further, the chaos theory of human physiology emphasizes that flexibility should not be interpreted as “chaos” in the sense of disorganization or randomness (Goldberger, Rigney, & West, 1996). Rather, this theory highlights the concept of functional flexibility that refers to a constrained kind of randomness represented by a predictable pattern, implying the need to

distinguish between adaptive flexible coping (functional flexibility) and maladaptive flexible coping (dysfunctional flexibility; see Paulhus & Martin, 1988). In this view, the cross-situational variability conceptualization is unable to differentiate the variable use of coping strategies from the beneficial role of coping flexibility.

### **Toward a Synthesized Conceptualization of Coping Flexibility**

In contrast to those studies adopting the two aforementioned conceptualizations, studies adopting the strategy-situation fit or perceived ability conceptualization reveal relatively strong links ( $r_s = .27$  and  $.32$ ) between coping flexibility and psychological adjustment. Integrating the latter body of studies implies that coping flexibility involves both (a) the formulation of strategies that match specific situational demands and (b) the possession of higher-order or “meta” coping skills that facilitate flexible strategy deployment. Figure 3 depicts a graphical representation of this synthesized conceptualization, in which the flexible coping process occurs in three main stages: planning, execution, and feedback.

**Strategy-situation fit.** In the planning stage, individuals seek to make sense of stressful circumstances and decide which strategies to deploy for handling the diverse demands of a stressful encounter (Shoda et al., 1993). The strategy-situation fit conceptualization advances our understanding of what facilitates psychological adjustment to a changing environment. Although this conceptualization is similar to the cross-situational variability conceptualization in referring to a variable coping pattern across situations, we found highly dissimilar findings for the two conceptualizations. Our results indicate that the adaptive component of flexible coping refers to a match between coping strategies and situational demands rather than to cross-situational variations in strategy deployment per se.

To select the most appropriate strategy for handling the specific demands of a stressful event, individuals need to appraise stressful events from multiple perspectives (e.g., outcome

controllability, perceived impact) and assess the trade-offs between the strengths and limitations of various coping responses (Chiu et al., 1995; Shoda et al., 1993). After doing so for several stressful events, these individuals can synthesize the resulting information to devise a set of flexible strategies that meets the diverse demands of a stressful encounter (e.g., tackling the problem if its outcome is changeable and changing oneself if the outcome cannot be altered).

It is important to note that a good strategy-situation fit, and the adaptive outcomes associated with it, for a particular stressful encounter or time point may not constitute a good fit for another situation or point in time. We thus emphasize the importance of shifts among different forms of cognitive appraisals and strategies in the coping repertoire as different phases of a stressful encounter unfold. Such shifts, which contribute to adaptive outcomes, should not involve random changes (C. E. Schwartz & Daltroy, 1999), but rather a meaningful and predictable pattern of coping that unveils a match between the goals of coping strategies and the characteristics of stressful events (Cheng, Chiu, Hong, & Cheung, 2001; Mischel, 2004).

**Meta coping skills.** After planning for flexible coping strategies that match specific situational demands, individuals implement the resulting decisions in the execution stage. According to Kato's (2012) dual-process model of coping flexibility, the attainment of this stage-specific goal involves two meta coping skills: evaluation and adaptation. When faced with stressful life changes, individuals need to assess the current situation and relinquish coping strategies previously found to be ineffective (Brandtstädter, 2009; Kato, 2012). These individuals also need to reevaluate strategies that have worked in the past because some of these strategies may no longer be effective for handling the current situation (Brandtstädter, 2009; Saito & Kamimura, 2011). Failure to abandon such ineffective strategies will impede the deployment of new ones that are more appropriate for dealing with different stressful events. Besides, alternate use among several types of strategy is also important because overusing a particular type can be

overwhelming, particularly following a traumatic event (e.g., Bonanno et al., 2011; Gupta & Bonanno, 2011).

Although the new strategies deployed in the execution stage are potentially useful for meeting the challenge of a current stressor, the effectiveness of these strategies should be constantly checked because the strategies may fail to operate smoothly under certain circumstances. The meta coping skill of monitoring facilitates such checking at the feedback stage, which may occur after the execution stage or concurrently with it (Bonanno et al., 2011). The monitoring process can be carried out by the individuals concerned or by interacting with others (Bonanno & Burton, 2013). If the resulting feedback suggests the chosen strategies are ineffective in the present situation, individuals may need to plan again and choose another strategy or set of strategies (Kato, 2012; Saito & Kamimura, 2011). Moreover, even if a deployed strategy meets the specific situational demands at a particular time point, its usefulness still requires subsequent monitoring because the demands of a stressful encounter can vary over time in an ever-changing environment (Bonanno & Burton, 2013; Cheng, 2001).

Taken together, our meta-analytic review indicates that psychological adjustment involves cognitive astuteness of how to select the type of coping strategy most suitable for the situation at hand and when to flexibly deploy strategies to meet the specific demands of a changing environment. The review also shows the implementation of three types of meta coping skills—evaluation, adaptation, and monitoring—for flexible coping to take place effectively.

### **Research Caveats and Future Directions**

The present findings further reveal that the magnitude of the link between coping flexibility and psychological adjustment varies by the cultural dimension of individualism and by the sample characteristics of age. As predicted, this positive link is stronger for older (vs. younger) samples. Despite the wide age range (8 to 85 years) in the pool of studies examined, only 5% of

the samples were elderly. Given that coping flexibility may be more beneficial for older individuals (Brandtstädter, 2009), a fruitful direction for future research would be to focus on the elderly for more nuanced analysis of the age differences observed in our study; for instance, comparisons between adults and elderly adults or among different cohorts of the elderly (i.e., young-old, old-old, vs. oldest-old; e.g., Hirdes, 2006; Solhaug, Romuld, Romild, & Stordal, 2012). For an even more thorough scrutiny of age differences, researchers may conduct longitudinal studies over an extended time period to unveil developmental changes in coping flexibility over the life span (e.g., from childhood to adulthood).

This meta-analytic review has also revealed a stronger link between coping flexibility and psychological adjustment in countries lower (vs. higher) in individualism. Although these cultural findings are consistent with our hypotheses, it is important to reiterate that our dataset comprises samples from 11 cultural regions, the majority of which are developed countries with a relatively high level of economic growth and advanced technological infrastructure (International Monetary Fund, 2013). Such a relatively narrow range of countries limits the generalizability of our findings to developing or underdeveloped countries, whose populations need to cope with myriad changes in social structure and interpersonal relationships (e.g., Cheng et al., 2011; Scott, 1995). Hence, more effort should be made to investigate the role of coping flexibility in less developed countries undergoing rapid societal changes.

Although our findings failed to show a statistically significant moderating effect of SES, we identified a trend suggestive of a stronger link between coping flexibility and psychological adjustment in the lower/lower-middle SES subgroup compared with the other SES subgroups, and this trend is in line with our hypothesis. One possible reason for the marginally significant findings is that the samples under study were overwhelmingly drawn from the middle SES stratum, rendering between-sample comparisons difficult. Although the middle class constitutes

the majority in many countries worldwide (Wheary, 2009), it is also important to investigate samples drawn from understudied (upper SES) and at-risk (lower SES) populations to facilitate in-depth explorations of coping flexibility and psychological adjustment in various SES strata.

Another possible explanation for the marginally significant findings lies in the assessment of SES. As most of the selected studies did not investigate SES differences in coping flexibility, very few reported socioeconomic indices or direct stratification measures of SES. We thus relied on single SES indicators or conceptually relevant proxies in formulating our socioeconomic classifications. It is worth noting that SES is a highly complex construct that a single indicator may be unable to capture fully (e.g., Lareau & Conley, 2008). Also, various SES measures may differ greatly in nature (e.g., El-Sheikh et al., 2013). For example, some measures function as causal indicators that exert influence over the latent variable of SES, whereas others function as effect indicators that are influenced by the latent variable (see e.g., Bollen & Bauldry, 2011). Researchers examining the effects of SES on coping flexibility should differentiate between causal and effect SES indicators and should assess this predictor using validated composite measures or multiple-category classification schemes (see e.g., Callahan & Eyberg, 2010; Krieger, Williams, & Moss, 1997).

This study also failed to identify the hypothesized moderating effects of gender possibly because men and women tend to play similar roles in both the workplace and home (Lindsey, 2011). For instance, despite the traditional nurturing role that gender stereotypes assign to women, the number of stay-at-home fathers has grown steadily in recent years (e.g., Chesley, 2011; Rochlen, McKelley, & Whittaker, 2010). The problems faced by men and women today may become more similar in nature, thus requiring more or less the same repertoire of coping skills. Hence, coping flexibility may benefit both genders in a similar manner.

It should be noted that our study investigated the gender composition of the samples as an

indicator because such data were readily accessible from most of the selected reports. The results thus indicate only a lack of differences between men and women. It is possible that there are as-yet-unidentified differences in gender-related characteristics such as gender-role identification and behavior. Compared to individuals bound by identities closely associated with traditional masculine or feminine gender roles, research have shown androgynous individuals to demonstrate better understanding of situational demands and deploy more situation-appropriate coping responses (Cheng, 2005), and the androgynous group also exhibits greater psychological adjustment in stressful encounters (C. B. Lam & McBride-Chang, 2007; Prakash et al., 2010). Such findings suggest that gender role is a better indicator of individual differences in coping flexibility compared to gender composition. Future studies may find it fruitful to explore the beneficial effects of other relevant types of flexibility, such as gender- and social-role flexibility.

### **Concluding Remarks**

Our meta-analytic review has identified a moderately strong positive link between coping flexibility and psychological adjustment in studies adopting the strategy-situation fit or perceived ability conceptualization of coping flexibility. In light of these findings, we formulate a synthesized conceptualization, which proposes that coping flexibility denotes cognitive astuteness in formulating coping strategies to meet specific situational demands and the possession of meta coping skills that foster the implementation of flexible coping strategies.

The enhanced understanding of coping flexibility facilitated by this review raises a number of interesting yet unexplored questions. For instance, some people are more flexible than others, but to what extent is such an individual difference inherent or learned from experience? Is it possible that some individuals with a variable coping profile are more flexible in certain situations but less flexible under other circumstances, whereas others consistently display flexible behavior regardless of the situational characteristics? Which personality and situational

factors influence such differences in intra-individual coping flexibility? The list of unexplored issues seems endless because the flexible coping process is highly complex in nature. Theory development on this complex construct is still ongoing, and scholars interested in the topic are encouraged to continue adding to the growing literature on coping flexibility.

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Table 1

*Measures of Psychological Adjustment and Maladjustment Adopted in Selected Reports*

| Construct  | Measure   |
|--|---|
|  | Psychological Adjustment  |
| Psychological well-being   | Asian Subjective Well-Being Scale (Chu, 2002)   |
|  | General Self-Efficacy Scale (Schwarzer, 1993)   |
|  | Life Orientation Test (Scheier & Carver, 1985)  |
|  | Multidimensional Psychological Well-Being Scale (Ryff & Keyes, 1995)  |
|  | Multiple Affect Adjective Checklist (Zuckernum & Lubin, 1985)   |
|  | Positive and Negative Affect Schedule (Watson & Clark, 1999)  |
|  | Ryff Happiness Scale (Ryff, 1989)   |
|  | Satisfaction with Life Scale (Diener, Emmons, Larsen, & Griffin, 1985)  |
|  | Self-created measures of psychological well-being (Bonanno et al., 2011; Mino & Kanemitsu, 2006; Shea, 1986; Slangen-de Kort et al., 2001; Westphal et al., 2010) |
|  | Subscale of Harter Self-Perception Profile (Harter, 1985)   |
| Subscale of Marburg Questionnaire on Habitual Well-being (Basler, 1999)          |   |
| Subscale of Multidimensional Personality Questionnaire (Zuckernum & Lubin, 1985) |   |
| Quality of life  | General Quality of Life Inventory (Li, Hao, & Yang, 1995)   |
|  | SF-12/SF-36 Health Survey (Ware et al., 2008)   |
|  | Psychological Maladjustment   |
| Anxiety  | Beck Anxiety Inventory (Beck & Steer, 1990)   |
|  | Competitive Sports Anxiety Inventory-2 (Martens, Burton, Vealey, Bump, & Smith, 1990)   |
|  | Looming Maladaptive Style Questionnaire (Riskind, Williams, Gessner, Chrosniak, & Cortina, 2000)  |
|  | Revised Children Manifest Anxiety Scale (Reynolds & Richmond, 1985)   |

- State-Trait Anxiety Inventory (Spielberger, 1983)
- Subscale of Arthritis Impact Measurement Scale (Meenan, Mason, Anderson, Guccione, & Kazis, 1992)
- Subscale of Hopkins Symptom Checklist/Brief Symptom Inventory (Derogatis, 1993; Derogatis & Fitzpatrick, 2004)
- Subscale of Impact of Rheumatic Diseases on General Health and Lifestyle Questionnaire (Huiskes, Kraaimaat, & Bijlsma, 1990)
- Subscale of Mental Health Inventory (Ritvo et al., 1997)
- Subscale of Profile of Mood States (McNair, Lorr, & Droppleman, 1992)
- Visual analog scale (Cheng et al., 1999, 2000)
- Zung Self-Rating Anxiety Scale (Zung, 1971)
- Depression Beck Depression Inventory (Beck, Brown, & Steer, 1996)
- Center for Epidemiologic Studies Depression Scale (Radloff, 1977),
- Children's Depression Inventory (Kovacs, 1992)
- Self-developed depression index (Brandtstädter & Baltes-Götz, 1990)
- State-Trait Depression Scales (Spielberger, 1995)
- Subscale of Arthritis Impact Measurement Scale
- Subscale of Freiburg Personality Inventory (Fahrenberg, Hampel, & Selg, 1989)
- Subscale of General Health Questionnaire (Goldberg, 1978)
- Subscale of Hopkins Symptom Checklist/Brief Symptom Inventory
- Subscale of Impact of Rheumatic Diseases on General Health and Lifestyle Questionnaire
- Subscale of Mental Health Inventory
- Subscale of Profile of Mood States
- Subscale of Youth Self-Report (Achenbach & Edelbrock, 1987)
- Psychological General Health Questionnaire
- distress Hopkins Symptom Checklist/Brief Symptom Inventory
- Mental Health Inventory
- Profile of Mood States

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Psychophysiological reactivity in a laboratory setting (Cheng, 2003, Study 2; Gerfen, 2008; Watanabe et al., 2002)

Table 2

*Major Characteristics of Reports Included in Meta-Analyses*

| Selected report              | <i>N</i> | Gender<br>(%<br>female) | Mean age/<br>Age range<br>(years) | Individualism | Socioeconomic status | CF<br>conceptualization | CF<br>measure |
|------------------------------|----------|-------------------------|-----------------------------------|---------------|----------------------|-------------------------|---------------|
| Aldridge & Roesch, 2008      | 354      | 49                      | 15.5                              | N/A           | Lower/Lower-middle   | BP                      | General       |
| Barrett, 2006                | 121      | 52                      | 24.8                              | Individualist | Middle               | CV                      | General       |
|                              |          |                         |                                   |               |                      | CV                      | Specific      |
| Barrett, 2009                | 148      | 49                      | 24.7                              | Individualist | Middle               | CV                      | Specific      |
| Blalock et al., 1993         | 85       | 73                      | 51.6                              | Individualist | N/A                  | BR                      | General       |
| Boerner, 2004                | 107      | 65                      | 67.6                              | Individualist | Middle               | PA                      | Specific      |
| Bonanno et al., 2004         | 101      | 66                      | 18.1                              | Individualist | Middle               | SF                      | Specific      |
| Bonanno et al., 2011         |          |                         |                                   |               |                      |                         |               |
| STUDY 2                      | 315      | 65                      | 26.1                              | Collectivist  | Upper-middle/Upper   | PA                      | Specific      |
| STUDY 3                      | 106      | 65                      | 21.0                              | Individualist | Middle               | PA                      | Specific      |
| Brandtstädter & Renner, 1990 |          |                         |                                   |               |                      |                         |               |
| PRELIMINARY STUDY            | 206      | 47                      | 34.4                              | Individualist | Middle               | PA                      | Specific      |
| MAIN STUDY                   | 890      | 50                      | 34-63                             | Individualist | Middle               | PA                      | Specific      |
| Brown et al., 1986           |          |                         |                                   |               |                      |                         |               |
| SAMPLE 1                     | 287      | 52                      | 8-13                              | Individualist | N/A                  | BR                      | General       |
| SAMPLE 2                     | 200      | 52                      | 14-18                             | Individualist | N/A                  | BR                      | General       |
| Burton et al., 2012          |          |                         |                                   |               |                      |                         |               |
| SAMPLE 1                     | 95       | 68                      | 47.8                              | Individualist | Middle               | PA                      | Specific      |
| SAMPLE 2                     | 116      | 84                      | 45.7                              | Collectivist  | Middle               | PA                      | Specific      |

|                                      |     |     |      |               |                    |    |          |
|--------------------------------------|-----|-----|------|---------------|--------------------|----|----------|
| Cappeliez & Robitaille, 2010         | 493 | 61  | 70.3 | Individualist | Middle             | PA | Specific |
| Carver et al., 1993                  | 59  | 100 | 58.0 | Individualist | Middle             | BR | General  |
| Chang & Lim, 2007                    | 248 | 80  | 20.0 | Collectivist  | Middle             | PA | Specific |
| Cheng, 2001 (STUDY 2)<br>Cheng, 2003 | 100 | 50  | 19.2 | Collectivist  | Middle             | CV | Specific |
| STUDY 1                              | 200 | 56  | 19.7 | Collectivist  | Middle             | SF | Specific |
| STUDY 2                              | 120 | 61  | 22.2 | Collectivist  | Middle             | SF | Specific |
| STUDY 3                              | 100 | 57  | 38.0 | Collectivist  | Lower/Lower-middle | SF | Specific |
| Cheng, 2009                          | 74  | 57  | 28.1 | Collectivist  | Middle             | SF | Specific |
| Cheng, Chan, et al., 2012            |     |     |      |               |                    |    |          |
| SAMPLE 1                             | 153 | 27  | 56.3 | Collectivist  | Middle             | SF | Specific |
| SAMPLE 2                             | 180 | 31  | 54.2 | Collectivist  | Middle             | SF | Specific |
| Cheng & Cheung, 2005                 | 72  | 57  | 21.1 | Collectivist  | Middle             | SF | Specific |
| Cheng et al., 1999                   | 90  | 47  | 52.5 | Collectivist  | Lower/Lower-middle | SF | Specific |
| Cheng et al., 2000                   | 120 | 50  | 39.4 | Collectivist  | Lower/Lower-middle | SF | Specific |
| Cheng, Kogan, et al., 2012           | 161 | 66  | 31.7 | Collectivist  | Middle             | SF | Specific |
| Cheng et al., 2007                   | 64  | 67  | 40.4 | Collectivist  | Middle             | SF | Specific |
| Clinton, 2010                        | 52  | 37  | 32.0 | Individualist | Middle             | BP | General  |
| Coifman, 2008                        | 75  | 65  | 50.6 | Individualist | Middle             | SF | Specific |
| Compas, 1996                         | 134 | 55  | 15.6 | Individualist | N/A                | BR | General  |
| Compas et al., 1988                  | 65  | 77  | 19.6 | Individualist | Upper-middle/Upper | CV | General  |
| Frazier et al., 2007                 | 590 | 74  | 44.6 | N/A           | Middle             | PA | Specific |
| Fresco et al., 2006                  | 263 | 78  | 21.3 | Individualist | Middle             | CV | Specific |
| Galatzer-Levy et al., 2012           | 155 | 63  | 18.1 | Individualist | Middle             | PA | Specific |
| Gan, Liu, et al., 2006               |     |     |      |               |                    |    |          |

|                           |                              |     |     |      |               |                    |          |                      |
|---------------------------|------------------------------|-----|-----|------|---------------|--------------------|----------|----------------------|
|                           | STUDY 1                      | 461 | 53  | 34.4 | Collectivist  | Upper-middle/Upper | CV<br>SF | Specific<br>Specific |
|                           | STUDY 2                      | 271 | 43  | 19.7 | Collectivist  | Lower/Lower-middle | CV<br>SF | Specific<br>Specific |
| Gan & Shang, 2006         |                              |     |     |      |               |                    |          |                      |
|                           | SAMPLE 1                     | 273 | 50  | 21.1 | Collectivist  | Middle             | SF       | Specific             |
|                           | SAMPLE 2                     | 368 | 71  | 21.1 | Collectivist  | Middle             | SF       | Specific             |
|                           | Gan, Zhang, et al., 2006     | 191 | 58  | 34.8 | Collectivist  | Middle             | SF       | Specific             |
|                           | Gan et al., 2007             | 273 | 50  | 21.1 | Collectivist  | Middle             | SF       | Specific             |
|                           | Gerfen, 2008                 | 125 | 54  | 24.6 | Individualist | Middle             | CV       | Specific             |
|                           | German, 2012                 | 152 | 74  | 20.0 | Individualist | Middle             | CV       | General              |
|                           | Gupta & Bonanno, 2011        | 118 | 67  | 49.5 | Individualist | Middle             | CV       | Specific             |
|                           | Haney & Long, 1995           | 178 | 100 | 18.7 | Individualist | Middle             | BR       | General              |
|                           | Haythornthwaite et al., 1998 | 195 | 65  | 46.4 | Individualist | Middle             | BR       | General              |
| Herman-Stahl et al., 1995 |                              |     |     |      |               |                    |          |                      |
|                           | SAMPLE 1                     | 293 | 51  | <18  | Individualist | Middle             | BP       | General              |
|                           | SAMPLE 2                     | 310 | 51  | <18  | Individualist | Middle             | BP       | General              |
|                           | Heyl et al., 2007            | 751 | N/A | 71.0 | Individualist | Middle             | PA       | Specific             |
|                           | Iwanaga, 2009                | 205 | 67  | 19.8 | Collectivist  | Middle             | BP       | Specific             |
| Kaluza, 1999              |                              |     |     |      |               |                    |          |                      |
|                           | SAMPLE 1                     | 31  | 47  | 36.8 | Individualist | Middle             | BP       | General              |
|                           | SAMPLE 2                     | 25  | 47  | 36.8 | Individualist | Middle             | BP       | General              |
|                           | SAMPLE 3                     | 26  | 47  | 36.8 | Individualist | Middle             | BP       | General              |
|                           | Kato, 2001                   | 87  | 37  | 19.7 | Collectivist  | Middle             | PA       | General              |
| Kato, 2012                |                              |     |     |      |               |                    |          |                      |

|                              |     |     |      |               |                    |          |                      |
|------------------------------|-----|-----|------|---------------|--------------------|----------|----------------------|
| STUDY 4: SAMPLE 1            | 326 | 62  | 19.8 | Collectivist  | Middle             | PA       | Specific             |
| STUDY 4: SAMPLE 2            | 139 | 35  | 42.9 | Collectivist  | Middle             | PA       | Specific             |
| STUDY 5: SAMPLE 1            | 235 | 64  | 20.0 | Collectivist  | Middle             | BR<br>PA | General<br>Specific  |
| STUDY 5: SAMPLE 2            | 244 | 49  | 19.4 | Collectivist  | Middle             | CV<br>PA | General<br>Specific  |
| STUDY 5: SAMPLE 3            | 428 | 62  | 19.2 | Collectivist  | Middle             | SF<br>PA | Specific<br>Specific |
| Katz et al., 2005            | 40  | 100 | 43.6 | Collectivist  | Lower/Lower-middle | CV       | Specific             |
| Kemeny, 1985                 | 36  | 83  | 33.4 | Individualist | Middle             | BR       | Specific             |
| Kirsh et al., 2004           | 95  | 43  | 45.8 | Individualist | Lower/Lower-middle | PA       | Specific             |
| Kranz, 2005                  |     |     |      |               |                    |          |                      |
| STUDY 4                      | 190 | 73  | 22.3 | Individualist | Middle             | PA       | Specific             |
| STUDY 5                      | 146 | 69  | 22.4 | Individualist | Middle             | PA       | Specific             |
| STUDY 6                      | 232 | 56  | 70.9 | Individualist | Middle             | PA       | Specific             |
| Kranz et al., 2010           | 150 | 63  | 49.0 | Individualist | Middle             | PA       | Specific             |
| Lam & McBride-Chang,<br>2007 | 291 | 45  | 21.3 | Collectivist  | Middle             | BR       | General              |
| Lehr et al., 2008            | 145 | 72  | 51.7 | Individualist | Middle             | BP       | General              |
| Leipold, 2004 (STUDY 1)      | 126 | 75  | 61.3 | Individualist | Lower/Lower-middle | PA       | Specific             |
| Lengua & Sandler, 1996       | 202 | 43  | 10.1 | Individualist | Middle             | PA       | Specific             |
| Lester, 1992                 | 66  | 59  | 32.4 | Individualist | Middle             | CV<br>CV | Specific<br>Specific |
| Lester et al., 1994          | 60  | 53  | 41.0 | Individualist | Middle             | CV<br>CV | Specific<br>Specific |
| Lui, 2009                    | 140 | 56  | 15.2 | Collectivist  | Lower/Lower-middle | SF       | Specific             |

|                          |     |     |       |               |                    |    |          |
|--------------------------|-----|-----|-------|---------------|--------------------|----|----------|
| McEaney, 1990            | 60  | 52  | >17   | Individualist | Middle             | BR | General  |
| Mino & Kanemitsu, 2004   | 155 | 68  | 19.9  | Collectivist  | Middle             | PA | General  |
| Mino & Kanemitsu, 2006   | 275 | 32  | 18-60 | Collectivist  | Middle             | PA | General  |
| Murphy, 2001             |     |     |       |               |                    |    |          |
| SAMPLE 1                 | 74  | 0   | 19.8  | Individualist | Middle             | CV | Specific |
| SAMPLE 2                 | 80  | 100 | 19.8  | Individualist | Middle             | CV | Specific |
| Niessen et al., 2009     | 87  | 21  | 36.7  | Individualist | Lower/Lower-middle | PA | Specific |
| Park et al., 2001        |     |     |       |               |                    |    |          |
| SAMPLE 1                 | 82  | 0   | 38.4  | Individualist | Middle             | SF | General  |
| SAMPLE 2                 | 162 | 0   | 38.4  | Individualist | Middle             | SF | General  |
| SAMPLE 3                 | 61  | 0   | 38.4  | Individualist | Middle             | SF | General  |
| Pat-Horenczyk, 2014      |     |     |       |               |                    |    |          |
| STUDY 1                  | 174 | 100 | 50.7  | Collectivist  | Middle             | PA | Specific |
| STUDY 2                  | 208 | 0   | 26.2  | Collectivist  | Middle             | PA | Specific |
| Perry, 1999              | 51  | 45  | 8.8   | N/A           | Lower/Lower-middle | BR | General  |
| Preiser et al., 2005     | 40  | 55  | 41.0  | Individualist | Upper-middle/Upper | PA | Specific |
| Radovanovic, 1993        | 52  | 52  | 9.4   | Individualist | Lower/Lower-middle | BR | General  |
| Reyes, 2011              | 195 | 61  | 20.0  | N/A           | Middle             | BR | General  |
| Roberts, 1995            | 69  | 65  | 18.0  | Individualist | Middle             | BP | General  |
| Roussi, 1995             | 109 | 65  | 20.0  | Individualist | Middle             | SF | General  |
| Roussi et al., 2007      | 72  | 100 | 54.1  | Collectivist  | N/A                | BR | General  |
| Sang & Yang, 2006        | 59  | 80  | <18   | Collectivist  | Middle             | SF | Specific |
| Schmitz et al., 1996     | 120 | 75  | 45.8  | Individualist | Middle             | PA | Specific |
| Schwartz & Daltroy, 1999 |     |     |       |               |                    |    |          |
| STUDY 1                  | 127 | 61  | 57.6  | Individualist | Middle             | CV | Specific |

|                                   |     |     |       |               |                    |    |          |
|-----------------------------------|-----|-----|-------|---------------|--------------------|----|----------|
| STUDY 2                           | 132 | 74  | 43.1  | Individualist | Middle             | CV | Specific |
| Seiffge-Krenke & Klessinger, 2000 |     |     |       |               |                    |    |          |
| SAMPLE 1                          | 91  | 0   | 13.9  | Individualist | Middle             | BP | General  |
| SAMPLE 2                          | 104 | 100 | 13.9  | Individualist | Middle             | BP | General  |
| Selvidge et al., 2008             | 373 | 100 | 32.7  | Individualist | Middle             | PA | Specific |
| Shea, 1986                        | 55  | 84  | 52.0  | N/A           | Lower/Lower-middle | BR | Specific |
| Shi & Lu, 2004                    | 43  | 81  | 20-51 | Collectivist  | Middle             | BP | General  |
| Slangen-de Kort et al., 2001      | 199 | 70  | 71.7  | Individualist | Lower/Lower-middle | PA | Specific |
| Sorgen & Manne, 2002              | 76  | 47  | 14.8  | Individualist | N/A                | SF | General  |
| Staudinger & Fleeson, 1996        | 516 | 50  | 85.0  | Individualist | Lower/Lower-middle | BP | Specific |
| Stevens, 2010                     | 100 | 100 | 30.0  | Individualist | Lower/Lower-middle | BP | General  |
| Thompson, 2000                    |     |     |       |               |                    |    |          |
| SAMPLE 1                          | 97  | 0   | 21.2  | Individualist | Middle             | CV | General  |
| SAMPLE 2                          | 140 | 100 | 21.2  | Individualist | Middle             | CV | General  |
| Tobin & Raymundo, 2010            | 163 | 90  | >18   | N/A           | Middle             | PA | Specific |
| Tolentino et al., 2013            |     |     |       |               |                    |    |          |
| SAMPLE 1                          | 289 | 57  | 18.6  | Collectivist  | Middle             | PA | Specific |
| SAMPLE 2                          | 495 | 56  | 31.7  | Collectivist  | Middle             | PA | Specific |
| Vitaliano et al., 1990            |     |     |       |               |                    |    |          |
| SAMPLE 1                          | 371 | 10  | 31.9  | Individualist | N/A                | SF | General  |
| SAMPLE 2                          | 106 | 0   | 31.5  | Individualist | N/A                | SF | General  |
| SAMPLE 3                          | 60  | 48  | 33.7  | Individualist | N/A                | SF | General  |
| SAMPLE 4                          | 65  | 100 | 43.2  | Individualist | N/A                | SF | General  |
| SAMPLE 5                          | 43  | 0   | 16.8  | Individualist | N/A                | SF | General  |
| SAMPLE 6                          | 101 | 64  | 66.2  | Individualist | N/A                | SF | General  |

|                         |     |    |      |               |                    |    |          |
|-------------------------|-----|----|------|---------------|--------------------|----|----------|
| Vriezekolk et al., 2012 | 147 | 73 | 59.0 | Individualist | Upper-middle/Upper | PA | Specific |
| Vriezekolk et al., 2013 | 25  | 76 | 51.0 | Individualist | N/A                | PA | Specific |
| Westphal et al., 2010   | 50  | 64 | 21.1 | Individualist | Middle             | CV | Specific |
| Williams, 2002          |     |    |      |               |                    |    |          |
| STUDY 2                 | 291 | 71 | 22.5 | Individualist | Middle             | CV | Specific |
| STUDY 3                 | 203 | 83 | 22.4 | Individualist | Middle             | CV | Specific |
| Zong et al., 2010       | 112 | 46 | 18.5 | Collectivist  | Middle             | SF | Specific |

*Note.* BP = balanced profile; BR = broad repertoire; CF = coping flexibility; CV = cross-situational variability; PA = perceived ability; N/A = sample cannot be categorized; SF = strategy-situation fit.

Table 3

*Effect Size Estimates (r) by Type of Coping Flexibility Conceptualization and Measure*

| Type                                    | <i>k</i> | <i>N</i> | <i>r</i> | 95% CI |       |
|---|----------|----------|----------|--------|-------|
|   |          |          |          | Lower  | Upper |
| Conceptualization of Coping Flexibility |          |          |          |        |       |
| Broad repertoire                        | 35       | 3,749    | .12      | .02    | .21   |
| Balanced profile                        | 48       | 6,679    | .19      | .06    | .33   |
| Cross-situational variability           | 70       | 9,713    | .12      | .01    | .24   |
| Strategy-situation fit                  | 68       | 10,660   | .27      | .18    | .36   |
| Perceived ability                       | 108      | 28,145   | .32      | .26    | .37   |
| Measure of Coping Flexibility           |          |          |          |        |       |
| General                                 | 121      | 15,050   | .15      | .08    | .22   |
| Specific                                | 208      | 43,896   | .27      | .21    | .33   |

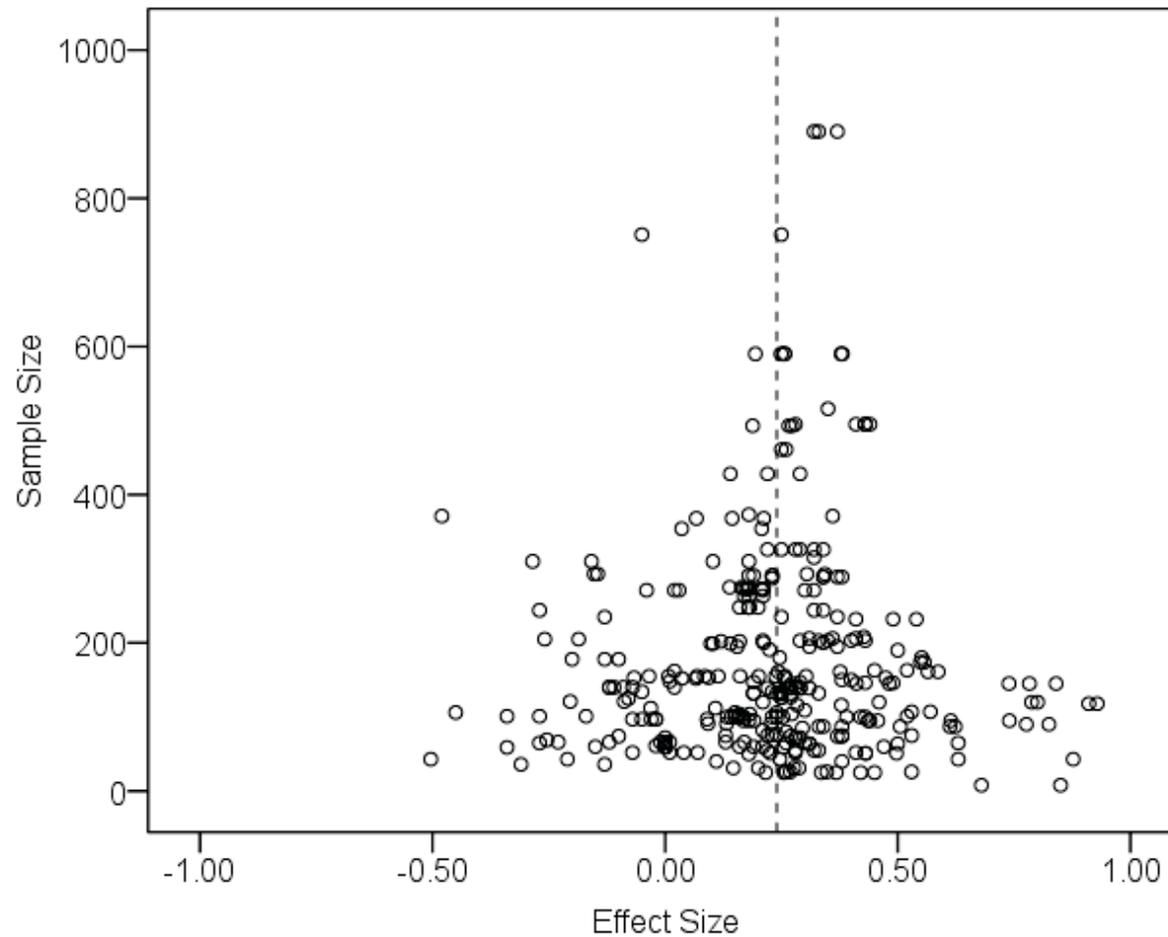
*Note.* All the effect size estimates were derived from three-level meta-analyses to address the issue of dependence. CI = confidence interval.

Table 4

*Effect Size Estimates (r) by Type of Coping Flexibility Conceptualization and Measure for Various Selection Methods*

| Type                                    | Selection Method |            |            |            |            |
|---|------------------|------------|------------|------------|------------|
|   | Unadjusted       | Moderate   | Severe     | Moderate   | Severe     |
|   | estimate         | one-tailed | one-tailed | two-tailed | two-tailed |
| All selected reports                    | .23              | .23        | .23        | .23        | .23        |
| Conceptualization of Coping Flexibility |                  |            |            |            |            |
| Broad repertoire                        | .13              | .11        | .10        | .12        | .10        |
| Balanced profile                        | .19              | .18        | .17        | .18        | .17        |
| Cross-situational variability           | .16              | .15        | .14        | .16        | .14        |
| Strategy-situation fit                  | .24              | .23        | .23        | .24        | .23        |
| Perceived ability                       | .31              | .31        | .31        | .31        | .31        |
| Measure of Coping Flexibility           |                  |            |            |            |            |
| General                                 | .13              | .11        | .10        | .12        | .10        |
| Specific                                | .29              | .29        | .29        | .29        | .29        |

*Note.* All the effect size estimates were derived from two-level meta-analyses. The weights of all four selection methods are obtainable from Table 1 of Vevea and Woods' (2005) article.



*Figure 1.* Funnel plot of effect size ( $r$ ) for the relationship between coping flexibility and psychological adjustment plotted against sample size. Dashed line represents the overall mean effect size ( $r = .23$ ). The funnel plot is roughly symmetrical ( $z = .24, p = .81$ ), indicating the absence of publication bias.

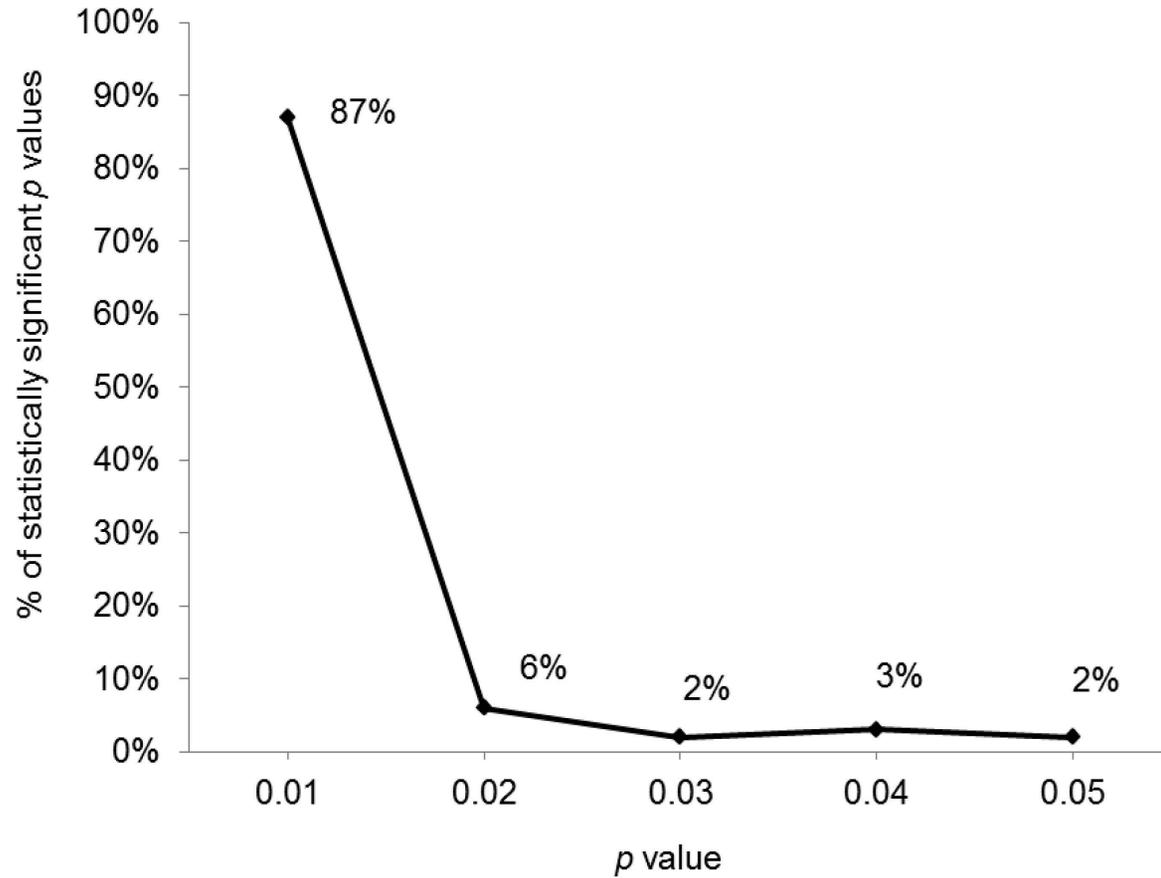


Figure 2. P-curve depicting the distribution of *p* values for the reports that yielded statistically significant findings ( $p < .05$ ). The right-skewed distribution suggests that the present set of findings contains evidential value.

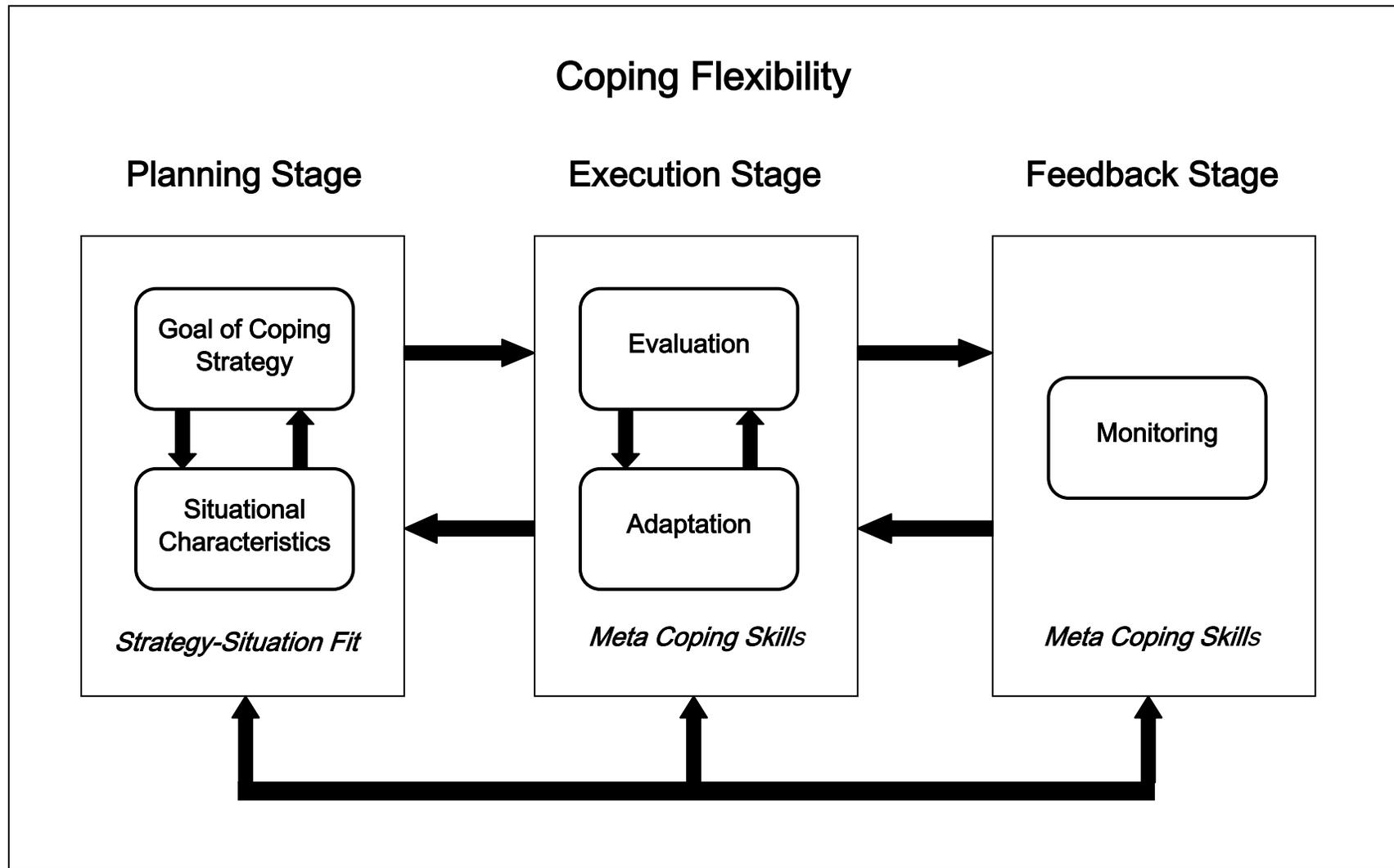


Figure 3. A model for the synthetic conceptualization of coping flexibility.