Coping and emotion regulation: A conceptual and measurement scoping review

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Abstract

The fields of coping and emotion regulation have mostly evolved separately over decades, although considerable overlap exists. Despite increasing efforts to unite them from a conceptual standpoint, it remains unclear whether conceptual similarities translate into their measurement. The main objective of this review was to summarize and compare self-reported measures of coping and emotion regulation strategies. The secondary objective was to examine whether other psychological measures (e.g., resilience) indirectly reflect regulatory strategies' effectiveness, thus representing additionally informative approaches. Results indicated substantial overlap between coping and emotion regulation measures. In both frameworks, two to eight individual strategies were usually captured, but only a third included ≤20 items. Most commonly evaluated strategies were reappraisal/reinterpretation, active coping/problem-solving, acceptance, avoidance, and suppression. Evidence also suggested psychological distress and well-being measures, especially in certain contexts like natural stress experiments, and resilience measures are possible indirect assessments of these regulatory strategies' effectiveness. These results are interpreted in the light of a broader, integrative affect regulation framework and a conceptual model connecting coping, emotion regulation, resilience, psychological well-being and psychological distress is introduced. We further discussed the importance of alignment between individuals, contexts, and strategies used, and provide directions for future research. Altogether, coping and emotion regulation measures meaningfully overlap. Joint consideration of both frameworks in future research would widen the repertoire of available measures and orient their selection based on other aspects like length or strategies covered, rather than the framework only.

Keywords: coping, emotion regulation, measure, resilience, stress

Public significance statements

Both coping and emotion regulation fields study how individuals adapt to emotional and stressful experiences but have evolved separately for several decades. Following recent scientific efforts to highlight their conceptual similarities, this review summarizes and compares self-reported scales used to measure these two constructs. Results show that coping and emotion regulation measures meaningfully overlap, encouraging their joint consideration to broaden the repertoire of tools available to better understand how individuals adjust to minor and major life events.

Background

Facing positive and negative life events, both minor and major, is part of the human experience. Psychological research has devoted salient efforts in the study of these experiences, including daily stressors (e.g., relationship strain), adversity (e.g., poverty), and positive milestones (e.g., retirement), as well as their related emotional responses, such as sadness, anger, and joy (Epel et al., 2018; Kalisch et al., 2015). In parallel, much research has been dedicated to how individuals cope when facing these experiences and regulate emotions. Two of the most widely studied psychological regulatory processes are the stress and coping framework and the emotion regulation framework, respectively. As we discuss below, these two fields have mostly evolved in parallel over the past decades, in part because of key conceptual differences. Yet, they also share conceptual similarities that are worth highlighting and considering when measuring how individuals handle life experiences to better understand underlying shared mechanisms.

Several reasons support further research on coping and emotion regulation, as well as their measurement. Firstly, these two regulatory processes are critical to promote optimal psychological functioning and resilience in the face of stressors (Bonanno, 2004; Kalisch et al., 2015; Metais et al., 2022; Troy et al., 2022). Secondly, deficits in these processes are observed across various psychopathologies, highlighting their transdiagnostic nature (Aldao et al., 2010; Compas et al., 2017). Thirdly, they are increasingly studied as psychological predictors of physical health and longevity (Kraynak et al., 2018; Mathur et al., 2022; Trudel-Fitzgerald et al., 2022; Trudel-Fitzgerald et al., 2015; Trudel-Fitzgerald et al., 2021). These elements led to major scientific advances: the field of psychological resilience is growing exponentially (Choi et al., 2019; Denckla et al., 2020; Nishimi et al., 2021; Southwick et al., 2014), psychotherapies are increasingly favoring a transdiagnostic approach that directly tackles these regulatory processes

(Sauer-Zavala et al., 2021), and leaders have recently urged scientists to consider optimal psychological functioning as a modifiable predictor of physical health (Levine et al., 2021; Trudel-Fitzgerald et al., (in press); Trudel-Fitzgerald et al., 2017). Yet, because of such empirical progress, researchers are now challenged to draw from a wider set of self-reported measures of coping and emotion regulation. As detailed below, many measures of both constructs exist but, to our knowledge, no integrated overview of them is yet available. Thus, this scoping review summarizes both conceptual and measurement distinctions as well as similarities between coping and emotion regulation. We hope it will guide measure selection, especially with regards to the number of items desired and the strategies of interest, and foster research that considers the overlap between coping and emotion regulation.

Theoretical frameworks

Over the years, distinct theoretical frameworks of coping and emotion regulation have been developed, reflecting underlying differences in how these constructs are conceptualized. Here, we report on selected prominent frameworks and invite interested readers to dive into detailed reviews elsewhere (e.g., Compas et al., 2014; Nunez et al., 2022; Stanislawski, 2019). Initial theories and research on coping trace back as early as the 1960s (Coehlo et al., 1974; Lazarus, 1966; Pearlin & Schooler, 1978). Central to this framework is the *stress* construct. In their seminal work, Lazarus and Folkman (1984) posited that stress occurs when individuals evaluate their environment as taxing or exceeding their resources. To handle such stressful experiences, individuals engage in coping, which they described as "cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands" (Folkman, 1984, page 843). Their definition of stress comprises three processes: primary appraisal (discerning a threat), secondary appraisal (evoking a possible response to the threat), and coping (implementing that

response). Hence, coping may be viewed as a consequence (i.e., a cognitive/behavioral dynamic response) of a causal agent (i.e., a stressful trigger) (Compas et al., 2014; Folkman & Moskowitz, 2004).

Over 400 individual coping strategies have been noted previously (Skinner et al., 2003). Among the most widely studied strategies are active coping (taking steps to eliminate a stressor or improve its impact), seeking social support (looking for advice, assistance, or emotional understanding), positive reinterpretation and growth (finding something good in and learning from the stressor), acceptance (accepting the presence/consequences of a stressor or the lack of strategies to handle it), denial (negating the presence/consequences of a stressor), and wishful thinking (hoping the stressor would go away or improve on its own) (Carver et al., 1989; Kato, 2015; Penley et al., 2002). Strategies have also been grouped into overarching coping styles (e.g., problem- vs. emotion-focused strategies, approach vs. avoidance strategies) (Carver et al., 1989; Penley et al., 2002; Skinner et al., 2003; Troy et al., 2022). For instance, active coping would fall under the problem-focused style, while acceptance and denial would be part of the emotion-focused style. Yet, scholars have critiqued this approach on empirical and conceptual grounds: in fact, some strategies load on more than one coping style, suggesting these overarching categories are not mutually exclusive, and certain styles have been judged too broad because even within the same category, distinct strategies may still have distinct effects on health outcomes (Carver et al., 1989; Penley et al., 2002; Troy et al., 2022; Trudel-Fitzgerald et al., 2022).

Initial theories and research on emotion regulation emerged later, in the 1990s (Gross, 1998, 1999; Thompson, 1994). Central to this framework is the *emotion* construct, which is "a response to any stimulus involving valuation (e.g., good for me or bad for me) that involves loosely coupled changes in subjective experience, cognition, behavior, and peripheral physiology

that unfold over a relatively short period of time" (Epel et al., 2018; Troy et al., 2022). In Gross' pioneering work, emotion regulation is defined as "attempts to influence which emotions people have, when they have them, and how they experience or express them" (Gross, 1998, 2015).

Relative to the coping literature, fewer emotion regulation strategies have been reported. Reappraisal (reinterpreting an event's meaning to alter emotional responses) and suppression (inhibiting emotional behavior) are among the most commonly studied ones (Hu et al., 2014; Troy et al., 2022; Webb et al., 2012). Acceptance, which is the willingness to experience specific emotions/situations (Carver et al., 1989), and its opposite, experiential avoidance (Boulanger et al., 2010; Gratz & Roemer, 2004), are somewhat less studied in the general population, but have been largely examined among clinical samples, in part via psychotherapy research based on mindfulness as well as acceptance and commitment therapies (Han & Kim, 2022). Other strategies, like distraction, have been investigated as well, notably in the context of emotion regulation choice and goals (Millgram et al., 2019; Webb et al., 2012). Overarching categories of individual strategies also exist in the emotion regulation field. We argue that some are similar to those of coping as they contrast global polarities (e.g., engagement vs. disengagement strategies, voluntary vs. involuntary strategies) (Connor-Smith et al., 2000), whereas in Gross' model, other overarching categories of emotion regulation strategies represent the *temporal sequence* of the dynamic emotion regulation process: situation modification, attentional deployment, cognitive change, and response modulation (Gross, 1998, 2015; Troy et al., 2022). Accordingly, strategies have been categorized as either antecedent- or response-focused, based on whether they are used *before* vs. *after* the emotion occurs, respectively (Gross & John, 2003). For instance, reappraisal is part of the cognitive change and antecedent-focused categories, while suppressive expression belongs to the response modulation and response-focused categories (Gross, 2015; Webb et al.,

2012). However, other strategies do not neatly fit into one of these categories or may relate to more than one depending on the context. For instance, acceptance may be seen primarily as a response-focused strategy, whereby one does not try to modify or terminate an emotional experience; yet, acceptance still has an antecedent-focused cognitive change component, as one may accept an emerging emotional experience (Wolgast et al., 2011).

Conceptual distinctions and similarities

Many distinctions between coping and emotion regulation stem from their respective framework, briefly reviewed above. Notably, coping primarily occurs in response to negative stressors and is conceptualized as a broad set of emotional, cognitive, and behavioral responses, whereas emotion regulation occurs not only in response to stressors but across multiple daily experiences and narrowly focuses on emotions, either positive or negative ones (Compas et al., 2014; Gross, 1999; Lazarus & Folkman, 1984; Troy et al., 2022). As emotion regulation focuses on short-lived emotional experiences, it would also typically occur over shorter periods than coping, the latter being triggered by shorter- to longer-term stressors (Gross, 1999; O'Leary et al., 2018; Troy et al., 2022). Lastly, the ability to regulate emotions in normative daily life would emerge early in childhood; as they age, individuals further learn to regulate other aspects of cognition and behavior into action when facing exposure to stressors, implying that emotion regulation skills set the stage for the formation of broader coping abilities (Compas et al., 2014).

Yet, coping and emotion regulation are similar in that they both change dynamically over time (Compas et al., 2014; Troy et al., 2022). They also help to manage emotional reactions to stressors in a deliberate, goal-directed way (Compas et al., 2014; Gross, 1999; Troy et al., 2022), albeit some strategies may be used less consciously (Bonanno & Burton, 2013; Kalisch et al., 2015; Stanislawski, 2019). Further, both include strategies that are seen as mostly adaptive vs.

maladaptive, given the direction of their relations with mental and physical health outcomes (Hu et al., 2014; Kato, 2015; Penley et al., 2002; Trudel-Fitzgerald et al., 2022; Trudel-Fitzgerald et al., (in press)). Yet, authors from both frameworks have criticized this adaptive-maladaptive dichotomization (e.g., the Fallacy of Uniform Efficacy argument by (Bonanno & Burton, 2013)) and many have argued that the implementation and efficacy of these strategies are rather sensitive to context and should, in turn, be used flexibly across situations to promote optimal adjustment (Aldao et al., 2015; Bonanno & Burton, 2013; Cheng et al., 2014). Various definitions and operationalizations of coping/emotion regulation flexibility have been proposed; its linear relation with health outcomes, where more flexibility necessarily leads to improved mental health, is debated (for a deeper discussion, see (Aldao et al., 2015; Bonanno & Burton, 2013; Cheng et al., 2014)). **Figure 1–panel A** depicts the conceptual and timing overlap and distinction between coping and emotion regulation.

Existing reviews of coping and emotion regulation measures

Despite an increasing effort to unite coping and emotion regulation from a conceptual standpoint (Compas et al., 2014; Stanislawski, 2019; Troy et al., 2022), virtually all reviews of their self-reported measures have been led in parallel which limits the appreciation of similarities and distinctions. Among those reviewed, most validated scales focused on strategies *typically* used, as a disposition (trait-like), by non-clinical adult samples (Greenaway et al., 2014; Kato, 2015; Nunez et al., 2022; Penley et al., 2002; Zaid et al., 2021). Besides, a growing field is emerging on *intensive longitudinal assessment* methodologies that permit a better consideration of the contexts in which such strategies are implemented (i.e., in-the-moment coping/emotion regulation; state-like), with most reviews targeting emotion regulation (Boemo et al., 2022; Schatten et al., 2020). Other approaches may be used to capture coping and emotion regulation

strategies beyond self-report, like observation of videotaped interactions and cortical activation (e.g., Davidson, 2000; Kraynak et al., 2018; Lewis et al., 2006); yet, self-reported measures are typically easier to implement and score in large and longstanding studies, which facilitates the evaluation of long-term predictors and consequences of, as well as changes in, coping and emotion regulation over time. Among them, measures documenting at least two individual strategies are of particular interest, because they are amenable to operationalizing coping and emotion regulation flexibility, which is not the case with measures focusing on a single strategy (Aldao et al., 2015; Bonanno & Burton, 2013; Cheng et al., 2014; English & Eldesouky, 2020).

Review objectives and research questions

The main objective of this review was to provide an overview of and compare available self-reported measures of coping and emotion regulation. Specifically, our research questions were: 1) to what extent coping and emotion regulation measures are similar, especially in terms of length and nature of strategies assessed?; and 2) are there other psychological measures that indirectly capture coping and emotion regulation? We chose a scoping review framework, which is advised for broad and diverse topics that have not been comprehensively synthesized and acts as the foundation for future systematic reviews in the field (Arksey & O'Malley, 2005; Peters et al., 2015; Sucharew & Macaluso, 2019). The scoping review differs from the integrative review, as the latter combines empirical, methodological, and theoretical information to advance the understanding of a specific phenomenon or clinical problem, with the goal of guiding practice and policy initiatives (Whittemore & Knafl, 2005), which is broader than our current objective to identify and compare existing measures of coping and emotion regulation.

In keeping with our goal to emphasize similarities and distinctions between coping and emotion regulation, we identified, characterized, and contrasted prominent validated scales and

intensive longitudinal measures of these constructs. In parallel, we recognized that, in instances where coping and emotion regulation measures are unavailable, other psychological constructs may be worth considering as "indirect measures". Hence, the article's secondary, complementary objective was to discuss how other mental health measures, namely those of psychological distress (e.g., depression), well-being (e.g., positive affect), and resilience, may be considered to indirectly reflect the effectiveness of regulatory strategies. Of note, we use the term "indirect" here because most psychological well-being, distress and resilience *measures* were not explicitly created to seize and document coping and emotion regulation strategies or processes (and not because these psychological *constructs* are not closely related to the ones of coping and emotion regulation). The review concludes with research gaps and futures avenues for this field.

Scoping Review Protocol

Our approach was informed by scoping review guidelines and followed recommended stages (Arksey & O'Malley, 2005; Peters et al., 2015). We first identified our research questions introduced above (Stage 1). Throughout 2022, we then conducted a literature search (Stage 2). As advised elsewhere (Lefebvre et al., 2022), we primarily used PsycInfo and Medline. Additional articles were identified with bibliographies of eligible articles; others were extracted via ResearchGate if unavailable in the main databases. For articles to be selected (Stage 3), they had to be *i*) published in peer-reviewed journals; *ii*) written in English or French (the latter being a language understood by many co-authors, which broadened our literature search); *iii*) empirical studies validating self-reported scales or using self-reported intensive longitudinal assessment of coping and emotion regulation; *iv*) inclusive of ≥2 strategies to select scales that may be used to operationalize regulatory flexibility; *v*) created for the general population; and *vi*) focused on

adults. Articles were not retained if they were *i*) a book chapter, a conference abstract, or part of an unpublished dissertation, as they do not change substantially reviews' results and conclusions (Hackenbroich et al., 2022); *ii*) about other measures than self-reported ones (e.g., informant reports); *iii*) restricted to a single strategy; *iv*) created for clinical or medical populations (e.g., cancer), or specific contexts (e.g., COVID-specific coping); or *v*) focused on children or adolescents. We imposed no restriction on publication year. Keywords used to identify relevant articles are provided in **Suppl. Table 1.**

Relevant data of each retained article was then extracted (Stage 4). As done in prior reviews (Nunez et al., 2022; Zaid et al., 2021) and suggested elsewhere (Arksey & O'Malley, 2005; Peters et al., 2015), we coded the following elements for each coping and emotion regulation measure: name, year of publication, country of study completion, structure of the measure (e.g., construct evaluated, number of items, strategies covered, timeframe, context, and response options), sample characteristics, and psychometric properties. As psychometric properties, we retained internal consistency for multi-item validated scales and intra-class correlations for the intensive longitudinal assessments, as they were the ones available for most measures. In keeping with the focus of this review, which is to contrast key characteristics of coping and emotion regulation measures, we do not report on their relations with outcomes. Interested readers may consult prior reviews that documented associations of outcomes with multi-item scales (Kato, 2015; Penley et al., 2002) and intensive longitudinal assessments (Boemo et al., 2022; Schatten et al., 2020). Lastly, we collated and summarized the results of our literature review, which are reported below (Stage 5).

Results

Main objective: Direct measures of coping and emotion regulation

Most self-reported measures of coping and emotion regulation can be divided into traditional validated multi-items scales and contemporary intensive longitudinal assessments.

Validated Multi-items Scales

Many measures of both constructs have been developed and validated over the years; they also cover a wide range of strategies, consistent with the multidimensional nature of coping and emotion regulation (Gross, 1998, 2015). Below and in **Suppl. Table 2**, we compare 24 commonly used self-reported coping and emotion regulation measures in adult populations.

Coping measures. ***Length and Strategies.*** We identified 13 coping scales, including one shortened version of an existing scale (i.e., the Brief-COPE inventory), which have from 10 to 66 items. Half of these scales include from 21 to 50 items, but only two favor a shorter format, with 20 items or less. About a third of the selected measures capture from six to eight strategies; while few have only two strategies, some measures like the COPE Inventory cover up to 13 of them. Seeking social support (e.g., "*I get comfort and understanding from someone*."), problem solving/active coping/task-oriented coping (e.g., "*I do what has to be done, one step at a time.*"), reappraisal (also labeled reinterpretation, restructuration, reframing; e.g., "*I control my emotions by changing the way I think about the situation I'm in.*"), and avoidance (e.g., "*I try to talk only about pleasant things.*") are among the most commonly evaluated, whereas engaging in humor (e.g., "*I make jokes about it.*"), praying/turning to religion (e.g., "*I pray more than usual.*"), and using of alcohol/drugs (e.g., "*I use alcohol or other drugs to help me get through it*.") are rarely considered.

Timeframe, Context, Response Options, and Psychometric Properties. Most measures are dispositional, asking about one's general way of coping with stressful situations, without specifications about timeframe or context (e.g., "*In general, how often did you use*…"), but several others refer to a specific context (e.g., the most stressful situation experienced). Response options typically range on a 4- or 5-point Likert scale. While the majority denotes the frequency of use of each strategy (e.g., from "never" to "always"), others document the degree to which each item reflects one's ways to cope with stressors (e.g., "not applicable" to "very applicable"). Although most internal consistency values are good-to-excellent in the original validation studies (α values above .80), many have remarkably low values (α values between .45 and .69).

Emotion regulation measures. ***Length and Strategies.*** Across the 11 selected measures, no shortened version of an existing scale was reported. The number of items varies from 10 to 48, with about half of the scales consisting of 20 items or less. Conversely, the remaining scales are either two-fold or even clearly longer (i.e., up to 48 items with the Regulation of Emotion Systems Survey). Around half of the selected measures capture from six to eight strategies; yet, the greatest number evaluated within a scale is only nine. Interestingly, although most scales focus on regulating negative emotions, a handful further inquire about the regulation of positive emotions (e.g., Emotion Regulation Questionnaire, Perth Emotion Regulation Competency Inventory). Across measures, the most frequently captured strategies are related to acceptance (e.g., "*To manage my feeling, I accepted the feelings I was having*."), reappraisal (e.g., "*When I wanted to feel less negative emotion today, I changed the way I was thinking about the situation.*"), and suppression/control (e.g., "*When I was feeling positive emotions today, I was careful not to express them*."), and the least frequently targeted ones were on substance use (e.g., "*I smoked a cigarette/drank alcohol/got high.*"), blaming oneself or others (e.g., "*I thought about*

how the situation was someone else's fault."), and enhancement (e.g., "*If I drink tonight, it will be because it is fun.*"). To further illustrate similarities across coping and emotion regulation measures, **Table 1** reports items from both fields that capture comparable strategies.

Timeframe, Context, Response Options, and Psychometric Properties. For most scales, participants are invited to report how they regulate emotions in general (disposition), without reference to a specific timeframe or context. One exception is the Emotion Regulation Profile-Revised that presents 15 hypothetical positive or negative situations (e.g., losing a parking spot, winning a free trip), and to which participants indicate if they would engage in distinct strategies to regulate positive or negative emotions. Virtually all measures use a 5- to 7-point Likert scale, with response options ranging from "Almost never" to "Almost always" (frequency of each strategy used) or "Strongly disagree" to "Strongly agree" (degree to which each strategy reflects what one would do). The Emotion Regulation Profile-Revised is the only one using a binary response format (i.e., circling strategies that would be used [vs. not] in each situation). Overall, emotion regulation subscales have high internal consistency, with most values being over α=.80.

Intensive Longitudinal Assessments

By nature, coping and emotion regulation are dynamic. Hence, repeated moment-to-moment measures are valuable to portray how these processes unfold over time, as well as their predictors and consequences, in real-world environments (Boemo et al., 2022; Medland et al., 2020; Schatten et al., 2020; Schneider et al., 2020). These measures are also highly amenable to the operationalization of coping and emotion regulation flexibility, as they permit the evaluation of many strategies within the same individuals across distinct contexts (English & Eldesouky, 2020). Moreover, they provide complementary information to scales like those reviewed in the prior section: data show low-to-moderate congruity between retrospective (trait-like; "*To handle*

negative emotions, in general, I…") and momentary measures (state-like; "*To handle negative emotions felt since the last survey today, I…*") (Koval et al., 2022; McMahon & Naragon-Gainey, 2020; Medland et al., 2020; Stone et al., 1998). Two of the most widely used methods are ecological momentary assessments (EMA) and daily diaries, which are now often done on electronic devices. The former consists of survey notifications pushed to participants every few minutes to hours, with items answered in the moment, while the latter entails surveys completed once per day, with items answered retrospectively. Yet, evidence shows these methods converge greatly when measuring emotion-related constructs (Boemo et al., 2022; Schneider et al., 2020).

Multiple studies relied on ad hoc items to evaluate coping and emotion regulation with these daily methods (Boemo et al., 2022; Koval et al., 2022; Medland et al., 2020). Others used an adaptation of existing validated scales, often by changing the timeframe only. While internal consistency of measures is rarely noted in studies using these methods, as most rely on single items, other psychometric properties such as intra-class correlations (ICC) are often available to characterize the source of variability, which can be either between-person (interindividual differences) vs. within-person (deviations from participants' own average). Below, we report exemplar studies in both approaches, which are also detailed in **Suppl. Table 3**.

Coping measures. ***Length and Strategies.*** One of the first coping intensive measurement involved 32 items that were queried via EMA numerous times a day but over two days only (Stone et al., 1998). In recent years, to assess coping strategies over a longer period while being mindful of participants' burden, researchers have collected fewer coping items (from 14 to 20) via EMA and daily diaries, but once per day over 12 to 15 days (Stevenson et al., 2019; Yap et al., 2021). Daily coping strategies are often measured with single items, albeit at times several distinct items are used to capture a single strategy. In the pioneering study cited above (Stone et

al., 1998), 16 strategies were evaluated, but recent work relied on fewer items, ranging from three to six strategies (Stevenson et al., 2019; Yap et al., 2021). Across studies, the most commonly assessed strategies referred to either planning actively or avoiding the problem (e.g., "*To cope with any stress or hassles experienced today, I … tried to come up with a strategy about what to do; … daydreamed about other things than this*", respectively). It is also worth noting that health behaviors have been queried explicitly as coping strategies in prior work, such as "*Regardless of whether or not I plan to drink tonight, if I do drink tonight, it will be… to reduce my anxiety*" (Stevenson et al., 2019).

Timeframe, Context, Response Options, and Psychometric Properties. Due to the nature of these measures, timeframes are typically brief: existing EMA studies inquired about coping strategies used since the last report, while daily diary studies gathered information that occurred over the past 24 hours (Stone et al., 1998; Yap et al., 2021). Consistent with the stress and coping framework, measures also consider the presence of stress-related factors in participants' lives by asking how they handle any hassles or conflicts, with or without giving specific contexts (e.g., work, family) (Stone et al., 1998; Yap et al., 2021). Other work has favored an anticipated timeframe, by asking why one would drink alcohol in the next few hours (e.g., to handle anxiety) (Stevenson et al., 2019). The frequency of strategies used has been assessed either with a binary format (yes vs. no) (Stone et al., 1998) or a 4- to 7-point Likert scale (Stevenson et al., 2019; Yap et al., 2021). Selected studies used several items to characterize each strategy and related internal consistency coefficients were acceptable-to-high (α=.53 to .89; $\Omega \geq .84$) (Stevenson et al., 2019; Stone et al., 1998; Yap et al., 2021). When provided, ICC coefficients were moderate (from .54 to .61) (Stevenson et al., 2019; Yap et al., 2021), indicating that approximately half of the variance in coping strategies scores is due to changes occurring within subjects.

Emotion regulation measures. ***Length and Strategies.*** More intensive longitudinal studies have focused on emotion regulation, presumably due to the short-lived nature of emotion. Among those, about two-third used from four to 12 items, which were usually completed one to six times per day, but could go up to eight times. Their study duration was usually from seven to 14 days, albeit some cases went up to 21 to 40 days. In parallel, a few other studies collected from 20 to 40 items, usually one to three times per day over up to 10 days. Across studies, two to eight strategies were typically evaluated, with the most common being reappraisal, acceptance, suppression, and rumination (e.g., "*Did you do any of these things to lessen or decrease the intensity of that emotion? … I thought about the situation in a different way; … I accepted the situation and/or my emotions; … I controlled my emotions by not showing them; … I thought over and over again about the situation and my feelings*", respectively). Nonetheless, other studies using single items queried dozens of strategies, including more behavioral ones (e.g., exercising, smoking). Also worth noting is that certain authors explicitly chose strategies that cover the temporal sequence of emotion regulation (e.g., situation selection and cognitive change stages), which could be either antecedent- or response-focused.

Timeframe, Contexts, Response Options, and Psychometric Properties. Similar to coping, EMA studies inquired about emotion regulation strategies used since the last survey and daily diaries targeted the past 24 hours. About half of studies collected data on strategies used without specifying a given context or emotion. The remainder leveraged the report of a strong emotional experience or an emotion-eliciting situation (e.g., interpersonally-triggered) to assess strategies used. Unlike for coping, several emotion regulation studies prompted the participants with reference to the experience of positive emotions specifically. About two third of the studies relied on a 5- to 7-point Likert scale to quantify the frequency of strategies used. When available,

values for internal consistency were acceptable to excellent (α or ω =.71 to .99). ICC coefficients ranged from .18 to .55 but most were below .40, suggesting that changes in the use of emotion regulation strategies across assessments was mainly seen within rather than between participants.

Secondary objective: Related indirect measures of coping and emotion regulation

Direct self-report measures of coping and emotion regulation are not always available. For instance, only a few large, well-characterized, and longstanding studies have data on these key regulatory processes (e.g., Roohafza et al., 2021; Svensson et al., 2016; Trudel-Fitzgerald et al., 2022; Trudel-Fitzgerald et al., 2021). This scarcity considerably limits the examination and understanding of their long-term predictors and consequences. Thus, identifying relevant indirect or "proxy" measures often queried in long-term studies, even if not perfect measures, remains a valuable avenue to continue building clinically-relevant evidence about antecedents and repercussions of effectively coping with stressors and regulating emotions across the life course.

As depicted in **Figure 1–panel B**, psychological distress, well-being, and resilience are established correlates of coping and emotion regulation (e.g., Bonanno & Burton, 2013; DeSteno et al., 2013; Nes & Segerstrom, 2006) and may act as indirect measures of regulatory strategies' effectiveness. Accordingly, various experimental studies showed that the manipulation of emotion regulation strategies is causally related to psychological changes; for instance, a greater use of cognitive reappraisal usually leads to reduced symptoms of psychological distress whereas a greater use of suppression typically induces a decrease in well-being markers (Cutuli, 2014).

It is critical to note that the idea that distress, well-being, and resilience levels may reflect regulatory strategies' effectiveness relies on the appropriateness between strategies used and contexts for a given individual. Hence, it can be assumed that someone reporting lower distress and higher well-being/resilience levels has effectively selected and applied strategies that are

relevant to a specific context, rather than uniformly used strategies typically deemed adaptive regardless of their context fit. As an illustration, problem-solving can, in fact, reduce well-being and impede resilience when used to handle an uncontrollable stressor, while acceptance may increase distress and preclude resilience in a situation that can be changed. Besides, this idea recognizes that other individual factors that go beyond the aim of this review may also lead to distress, well-being, and resilience, such as sex, genetics, primary appraisals of stressors, and physical comorbidities. As noted on **Figure 1–panel B**, one's social (e.g., access to health care, social isolation), cultural (e.g., shared spiritual beliefs), and physical (e.g., access to green spaces) environment is likely involved as well.

We discuss in **Suppl. Text 1** whether and how psychological distress, well-being, and resilience may be indirect measures of coping and emotion regulation strategies' effectiveness. Empirical evidence suggests that certain study contexts (e.g., natural stress experiments like the COVID-19 pandemic, psychiatric hospitalization) and existing resilience measures (particularly those developed for specific populations like African-Americans and individuals from low socioeconomic status) appear like valuable avenues to consider when direct coping and emotion regulation measures are unavailable. **Suppl. Table 4** presents commonly used self-reported psychological resilience scales, along with relevant characteristics (e.g., number and example of items, psychometric properties). It is worth noting that several items mirror those of coping and emotion regulation measures, such as "*During and after life's most stressful events, I tend to take action to fix things*", "*I feel like giving up quickly when things go wrong*", and "*I can usually look at a situation in a number of ways*".

Discussion

This scoping review summarized and contrasted frequently used self-reported measures of two major psychological regulatory processes, coping and emotion regulation, which have evolved in parallel for decades. Our extensive, albeit not systematic, review yielded slightly over 20 validated multi-item scales, with a fairly equal representation of the coping and the emotion regulation framework. Conversely, studies using intensive longitudinal assessments (e.g., EMA, daily diaries) tended to focus more on emotion regulation relative to coping. As detailed below, we yet observed substantial overlap in measure length, strategies assessed, timeframe specified, context provided, and response options available across coping and emotion regulation measures. A secondary objective of this review was to consider measures of psychological distress and well-being in certain contexts (e.g., natural stress experiments) and of resilience as "indirect" assessments of coping and emotion regulation strategies' effectiveness, to offer additional tools for investigators interested in adopting a transdiagnostic approach in measurement.

Measures of coping and emotion regulation

To minimize participants' burden, intensive longitudinal assessments and multi-use cohort studies often have constraints on the number of items that can be administered. Thus, it remains relevant to identify short, yet internally valid, measures that can accommodate various research settings. Our results indicate, overall, that many multi-item coping and emotion regulation scales have 20 items or less and that EMA/daily diaries studies often administered 12 items or less, generally one to six times per day for up to 14 days. Despite this difference in measure length between multi-items scales and repeated daily measures, from two to eight strategies were usually captured in both cases. Measures capturing many strategies seem preferable as they more likely reflect the repertoire of strategies used to cope with stressors and

regulate emotions and, in turn, portray how flexibly strategies are applied. Accordingly, authors have validated different ways to operationalize coping and emotion regulation flexibility, based on multi-items scales and intensive longitudinal assessments of at least two strategies (e.g., Benson et al., 2019; Blanke et al., 2020; Bonanno et al., 2011; Cheng et al., 2014; Trudel-Fitzgerald et al., 2022).

Strategies pertaining to the reappraisal (also labeled reinterpretation, restructuration, reframing) of a situation were among the most commonly assessed, irrespective of the framework. Interestingly, some authors have claimed that reappraisal is a central mechanism that promote resilience (Kalisch et al., 2015), but other scholars have warned about its possible setbacks (see commentaries on Kalisch et al., 2015 article), altogether reinforcing the relevance of assessing reappraisal to untangle its varied consequences. Besides, coping measures often inquired about strategies of seeking social support, active coping and problem-solving, while emotion regulation measures often captured acceptance and suppression. Worth noting, however, is that these other frequently assessed strategies that were mainly tied to one framework were not mutually exclusive: some emotion regulation measures capture seeking social support and several coping measures include acceptance items. Further supporting the conceptual and measurement overlap between these frameworks is that some studies evaluating emotion regulation strategies borrowed items from coping measures (e.g., Doorley & Kashdan, 2021).

One distinction between coping and emotion regulation measures, however, is that several of the former but not the latter framework has remarkably low internal consistency values, as noted previously (Greenaway et al., 2014; Kato, 2015). One possible explanation is the grouping of items that capture more than one strategy into a single subscale. An example is the Coping Inventory for Stressful Situations (Endler & Parker, 1994): while its original version

indicated three factors that were task-, emotion-, and avoidance-oriented coping, separately, factor analyses conducted in subsequent studies indicated four subscales, whereby the avoidance-oriented subscale was divided into social diversion and distraction coping subscales (for an overview, see (Pisanti et al., 2015)). Additional examples can be derived from the face validity of the COPE inventory: the positive reinterpretation and growth subscale actually combines items about two distinct strategies (i.e., reappraising a stressor and learning something new out of it), as does the focus on and venting of emotions (i.e., acknowledging the presence of an emotion and expressing it). Meta-analytic results indeed showed lower alpha values for these subscales compared to others of the COPE inventory (e.g., positive reinterpretation and growth, α=0.75 and focus on and venting of emotion, α=0.78 vs. planning, α=0.82, seeking emotional social support, α=0.85, and turning to religion, α=0.91) (Kato, 2015), hinting to their multidimensionality. Another explanation for these lower internal consistency values observed with coping relative to emotion regulation scales may due to the nature of these constructs. In fact, coping encompasses a broader set of conceptually distinct responses for a given strategy than emotion regulation, which could lead to more heterogeneity across items included a single subscale. For instance, the escape-avoidance subscale of the Ways of Coping-Revised questionnaire (Folkman & Lazarus, 1985) includes both cognitive and behavioral avoidance items (e.g., "*Hoped a miracle would happen*" vs. "*Slept more than usual*").

Nonetheless, prior meta-analyses based on either multi-item scales or intensive longitudinal assessments showed that individual strategies that are common to both frameworks, including reappraisal, acceptance, seeking social support, denial, and avoidance/distraction, are significantly associated with mental health outcomes (e.g., depression, positive and negative affect, well-being) in the expected directions, with small-to-moderate magnitude of effects

(Boemo et al., 2022; Kato, 2015; Penley et al., 2002), reinforcing both their predictive value and discriminant validity.

Coping and emotion regulation measures were also similar in the timeframe used, with most validated scales inquiring about *how individuals typically respond* to stressors/emotions, hence capturing trait-like strategies, and most intensive longitudinal assessments documenting *how individuals respond* to stressors/emotions *since the last survey*, describing state-like strategies. Yet, several intensive assessments in both frameworks instead referred to a strong emotional experience or an emotion-eliciting situation to assess strategies used. Interestingly, a recent meta-analysis on daily emotion regulation strategies concluded that providing or not providing a specific stress-event framing did not lead to meaningful differences on how strategies relate to positive and negative affect (Boemo et al., 2022). Similarly, an older meta-analytic review inferred that coping paradigms relying on participants' or researchers' selection of stressful events lead to similar relations with health outcomes (Penley et al., 2002).

Indirect measures of coping and emotion regulation

Lastly, we provided suggestive evidence for the consideration of psychological distress and well-being measures, especially in certain study contexts, and resilience measures as indirect assessments of the effectiveness of coping and emotion regulation strategies, when such psychological regulatory scales are unavailable. This idea was based on the premise that distress, well-being, and resilience are established correlates of coping and emotion regulation (e.g., Bonanno & Burton, 2013; DeSteno et al., 2013; Nes & Segerstrom, 2006; Troy et al., 2022) and also offered with two caveats: i) lower distress and greater well-being/resilience likely reflect the adoption of strategies judged as context- and individual-appropriate, rather than systematically adaptive; ii) other individual, social, and environmental factors may also contribute, in synergy,

to distress, well-being, and resilience levels. As a result, nuances are warranted when implying regulatory strategies' effectiveness from these psychological indicators.

Gaps

The literature on coping and emotion regulation measurement is rich. However, some gaps are worth mentioning. Firstly, as many measures have been created among university student samples, it is unclear if they are optimally adapted to midlife and older adults and more socio-economically diverse samples that may encounter different stressors. As noted as part of our secondary objective, recent population-centered resilience measures (e.g., Shift-and-Persist Scale (Chen et al., 2015)) indicate that stressors, emotions, and related regulatory strategies differ across distinct socioeconomic subgroups and deserve specific measurement attention. Theoretical frameworks also suggest that the selection and implementation of strategies may differ across subpopulations. For instance, the Environmental Affordances Model posits that certain racial/ethnic disparities in mental health are shaped by the exposure to specific stressors (e.g., discrimination) and the adoption of certain regulatory strategies (e.g., alcohol intake), which both have as an upstream predictor the broader socio-environment (e.g., segregation) (Mezuk et al., 2013). Relatedly, scales capturing coping in the face of stress-related racial/gender disparities have been created, such as the *John Henryism Active Coping Scale* (James, 1994; James et al., 1983) and the *Giscombe Superwoman Schema Questionnaire Schema* (Woods-Giscombe et al., 2019). Lastly, it is possible that the understanding and the reporting of, as well as the engagement in varied regulatory strategies depend of one's level of education. Altogether, future research must critically assess if existing measures need to be adapted to assure a valid broader use across diverse populations.

Secondly, health behaviors used as ways to cope with stressors/regulate emotions are embedded in several intensive longitudinal assessments but rarely in validated scales. Theoretical and empirical evidence on substance use and eating behaviors acknowledge that individuals may first engage in these habits to feel better and maintain them over time to alleviate distress (Mezuk et al., 2013; O'Leary et al., 2018; Schatten et al., 2020). While documenting if one copes or regulates emotions with substance use, food intake, or exercise in a moment-to-moment approach is highly valuable, knowing if they do so in a dispositional manner would also be informative. As an illustration, collecting dispositional data on behavioral strategies would be conceptually relevant and easier to implement in research testing the role of regulatory strategies in long-term physical health outcomes within ongoing epidemiological cohorts (Roohafza et al., 2021; Svensson et al., 2016; Trudel-Fitzgerald et al., 2022; Trudel-Fitzgerald et al., 2021).

Thirdly, although some emotion regulation items focus on positive emotions and other coping items capture strategies that can be deemed more positive, like positive reinterpretation and humor (Stanislawski, 2019), few existing measures consider "positive responses" to stressors. This could be achieved, for instance, by inquiring about whether the stressor is seen as a challenge (positive) or a threat (negative), at the appraisal stage (Lazarus & Folkman, 1984), or by evaluating regulatory strategies used when facing salient life events that have a positive valence, such as getting married, entering graduate school, and retiring. Since these events likely trigger stress despite their positive nature, taking them into consideration may extend how we understand regulatory processes and the role of context-strategy fit in characterizing flexibility.

Future avenues

The current review further reinforces conceptual similarities between coping and emotion regulation, acknowledged in pioneering research (Carver, 1997; Carver et al., 1989; Gross &

John, 2003) and more recent theoretical articles (Bonanno & Burton, 2013; Compas et al., 2014; Stanislawski, 2019; Troy et al., 2022), by showing high congruence between most of their respective measures. In fact, the few distinctions between the two constructs were a greater internal consistency and consideration of positive emotions in emotion regulation measures, and a somewhat broader set of strategies evaluated in coping measures.

Given this substantial apparent overlap, we believe future studies should now compare measures quantitatively. Various analytic approaches may be used, including the multitrait-multimethod in which various "traits" (the constructs under study - here, the individual regulatory strategies) would be measured with distinct methods (here, coping and emotion regulation scales) in order to document convergent validity (Campbell & Fiske, 1959). Factor analyses could also evaluate if similar items of coping and emotion regulation scales (e.g., those of the positive reappraisal subscale from the Ways of Coping-Revised questionnaire, the positive reinterpretation and growth subscale from the COPE Inventory, the cognitive reappraisal subscale from the Emotion Regulation Questionnaire and the putting into perspective subscale from the Cognitive Emotion Regulation Questionnaire) load onto the same factor and with coefficients of comparable magnitude. In turn, such evidence may provide the necessary empirical support to adopt a more integrated approach that purposefully unites measures from both frameworks, instead of using them in silos. By considering a wider range of strategies, which would be consistent with the broader conceptualization of "affect regulation strategies" proposed recently (Troy et al., 2022), we will be better positioned to assess flexibility in their use. An integrative approach will also help identify shared antecedents (e.g., age, sex, personality traits), to promote optimal strategies among all, and shared consequences (e.g., psychological

distress, resilience, longevity), which may lead to promising prevention initiatives that focus on these modifiable regulatory processes.

Future work should also consider contextual information. Beyond individual strategies, details about the appraisal (e.g., challenge vs. threat, controllability) and the goal of the strategy (e.g., using suppression to hide sadness in social contexts) (English & Eldesouky, 2020; Lazarus & Folkman, 1984; Stanislawski, 2019) will be insightful. In intensive longitudinal assessments, electronic devices could also passively track objective environmental information (English & Eldesouky, 2020), like using GPS location data to monitor proximity to greenspace, which promote reappraisal, as well as reduce rumination and suppression (Bratman et al., 2021).

Lastly, measurement efforts might further acknowledge the dynamic nature of these processes by documenting the "feedback loop" with intensive assessment about the perceived efficacy of strategies implemented and the need for a readjustment if initial strategies are found inefficient (Bonanno & Burton, 2013; Cheng et al., 2014). To further capture nuances relative to regulatory flexibility with less intensive methods, some coping flexibility scales exist (e.g., *Self-Perceived Flexible Coping Scale*), with items that would be face valid in an emotion regulation framework as well. In instances where participants' burden is especially an issue, short items like "*Did you switch strategies?*" may be tested for validation (English & Eldesouky, 2020). Such efforts will shed light on elements that might enhance or detract from a favorable context-strategy fit and optimal flexibility over time (Bonanno & Burton, 2013; Stanislawski, 2019).

Limitations of the Current Review

As with any scoping reviews, it is possible that some prominent scales were not identified by our search terms or not discussed in this article. We did not consider scales that were restricted to a single regulation strategy, like the *Ruminative Response Scale* (Butler & Nolen-

Hoeksema, 1994). Likewise, we did not include unpublished dissertations/theses or book chapters, which may contain validation of scales in development. Moreover, the quality of evidence and risk of bias in published studies were not evaluated (Sucharew & Macaluso, 2019), which has been deemed as beyond the aim of a scoping review (Peters et al., 2015).

Conclusion

The current scoping review highlights substantial similarities in the structure and content of coping and emotion regulation self-reported measures. While these constructs originate from distinct frameworks, such measurement similarities mirror their conceptual overlap that is increasingly acknowledged in the scientific literature. As a result, it appears relevant to consider them jointly and orient self-reported measures selection based on aspects such number of items or strategies covered, rather than the framework only. Such integrative perspective will enrich the study of antecedents and consequences of various regulatory strategies and the flexibility with which they are used across contexts. In parallel, other approaches used to portray coping and emotion regulation separately (e.g., behavioral and neural assessments) may also endorse this broader perspective by examining various regulation strategies and seek results triangulation with those obtained from self-reported measures. Such multimodal assessments would recognize the multidimensional nature of coping and emotion regulation. Ultimately, adopting an integrative measurement approach to regulatory processes will help us understand more comprehensively how one adjusts to minor and major life events, a universal human experience.

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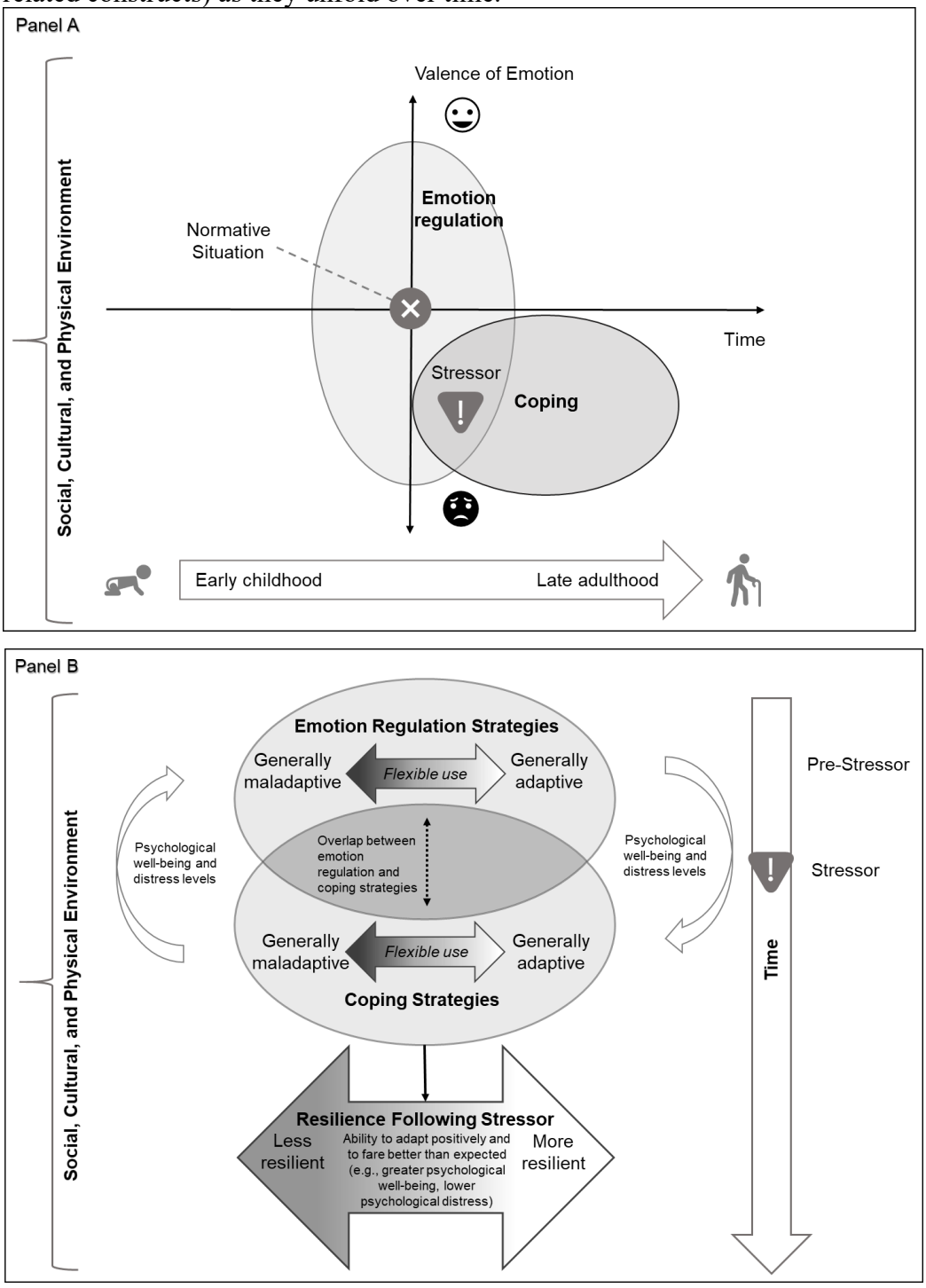
Figure 1. Conceptual overlap and distinctions between coping and emotion regulation (and related constructs) as they unfold over time.



Notes. Shaded gradients depict a continuum, from less to more flexible use of coping/emotion regulation strategies, as well as from less to more resilience, respectively. Panel A: Conceptual model of overlap and distinctions between coping and emotion regulation, which recognizes that these regulatory processes develop, occur, and unfold over the lifecourse. Panel B: Conceptual model of coping, emotion regulation and resilience following stressors, which posits that these regulatory processes and related psychological constructs are interpreted within a broader social, cultural, and physical context. Model inspired from (Troy et al., 2022; Trudel-Fitzgerald et al., (in press)). In both panels, in keeping with the focus of this review, other factors likely involved (e.g., sex, primary appraisals) are not shown.

Table 1. Examples of similarity between items taken from either coping or emotion regulation scales.

Coping scales			**Emotion regulation scales**		
Items	**Scales**	**Subscales**	**Items**	**Scales**	**Subscales**
I've been accepting the reality of the fact that it has happened.	Brief-COPE	Acceptance	*I think that I have to accept that this has happened.*	CERQ	Acceptance
I've been trying to come up with a strategy about what to do.	Brief-COPE	Planning	*I think about a plan of what I can do best.*	CERQ	Refocus on planning
I try to see it in a different light, to make it seem more positive.	COPE Inventory	Positive reinterpretation and growth	*When I want to feel more positive emotion, I change the way I'm thinking about the situation.*	ERQ	Positive reappraisal
I turn obstacles into positive experiences.	PCI	Proactive coping	*I think that the situation also has its positive sides.*	CERQ	Positive reappraisal
I talked to someone about how I was feeling.	CSInv.	Social support	*I tell others how I felt.*	RESS	Engagement
I get upset, and am really aware of it.	COPE Inventory	Focus on and venting of emotions	*When I'm upset, I acknowledge my emotions.*	DERS	Awareness
I've been blaming myself for things that happened.	Brief-COPE	Self-blame	*I feel that I am the one to blame for it.*	CERQ	Self-blame
I daydreamed about better times.	CSInd.	Avoidance	*I think of something nice instead of what has happened.*	CERQ	Positive refocusing
I tried to keep my feelings to myself.	Ways of Coping	Self-controlling	*I kept quiet about my feelings.*	EPS	Suppression
I went along as if nothing were happening.	CSInv.	Problem avoidance	*I behave as if nothing is going on.*	BERQ	Ignoring

Notes. BERQ=Behavioral Emotion Regulation Questionnaire; CERQ=Cognitive Emotion Regulation Questionnaire; COPE=Coping Orientation to Problems Experienced; CSInd=Coping Strategy Indicator; CSInv.=Coping Strategies Inventory; DERS=Difficulties in Emotion Regulation Scale; EPS=Emotional Processing Scale; ERQ=Emotion Regulation Questionnaire; PCI=Proactive Coping Inventory; RESS=Regulation of Emotion Systems Survey.