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Dyadic Coping and Relationship Satisfaction: A Meta-Analysis

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Abstract

Meta-analytic methods were used to empirically determine the association between dyadic coping and relationship satisfaction. Dyadic coping is a systemic conceptualization of the processes partners use to cope with stressors, such as stress communication, individual strategies to assist the other partner cope with stress, and partners' strategies to cope together. A total of 72 independent samples from 57 reports with a combined sum of 17,856 participants were included. The aggregated standardized zero-order correlation (r) for total dyadic coping with relationship satisfaction was .45 ($p = .000$). Total dyadic coping strongly predicted relationship satisfaction regardless of gender, age, relationship length, education level, and nationality. Perceptions of overall dyadic coping by partner and by both partners together were stronger predictors of relationship satisfaction than perceptions of overall dyadic coping by self. Aggregated positive forms of dyadic coping were a stronger predictor of relationship satisfaction than aggregated negative forms of dyadic coping. Comparisons among dyadic coping dimensions indicated that collaborative common coping, supportive coping, and hostile/ambivalent coping were stronger predictors of relationship satisfaction than stress communication, delegated coping, protective buffering coping, and overprotection coping. Clinical implications and recommendations for future research are provided.

Dyadic Coping and Relationship Satisfaction: A Meta-Analysis

The concept of dyadic coping emerged in the early 1990s in an attempt to expand individually-oriented models of stress and coping to systemic couple interactions. Prior to the development of dyadic coping, conceptualizations of stress and coping, mostly guided by the transactional model (Lazarus & Folkman, 1984), focused primarily on individual cognitive and emotional processes associated with the experience of stress and coping responses. The transactional model posits that individuals (a) experience stress when they perceive that their available resources are insufficient to meet the demands of a particular situation and (b) cope with stress through emotion- or problem-focused responses (Lazarus & Folkman, 1984). Even though individually-oriented stress theories suggest that stress often originates in a social context and that individual coping responses might have an impact on their environment, theorists proposed an explicitly interactional view of stress and coping processes in the couple context that emphasizes partners' interdependent processes (Bodenmann, 1997). Within the interactional view of stress and coping, partners' stress is conceptualized as being reciprocal in nature: the stress experiences of both partners are interrelated because one partner's stress becomes the other partner's stress (Revenson & Lepore, 2012). Viewing stress and coping as interpersonal instead of intrapsychic phenomena shifts understanding coping as one partner's individual responsibility to viewing coping as an interdependent couple-level process in which cognitive appraisals, stress emotions, and coping behaviors are shared between partners (Revenson, Kayser, & Bodenmann, 2005).

Although the various developed models of dyadic coping share the notion of coping as an interdependent process between partners (Berg & Upchurch, 2007; Bodenmann, 1995, 1997, 2005; Coyne & Smith, 1991; DeLongis & O'Brien, 1990; Kayser, Watson, & Andrade, 2007), they differ in terms of focal areas. The *Congruence Model* (Revenson, 1994) attends primarily to the congruence or fit between partners' individual coping styles (e.g., problem-solving, cognitive restructuring, emotional expression), whereas the rest of the dyadic coping models focus on what partners do to help each other cope with stress. The *Relationship-Focused Coping Model*

(RFCM; Coyne & Smith, 1991; DeLongis & O'Brien, 1990) categorizes the types of partner

responses (active engagement, empathic responding, overprotection, protective buffering) to the

partner experiencing stress. The *Systemic-Transactional Model* (STM; Bodenmann, 1995, 1997)

focuses on partners' mutual communication of stress, the negative and positive support that

partners provide to each other, and conjoint strategies to cope with common stressors. The

Developmental-Contextual Coping Model (DCCM; Berg & Upchurch, 2007) focuses on partners'

efforts to deal with common stressors and the impact of both developmental (e.g., relationship

length, life cycle stage) and contextual issues (e.g., cultural, socio-economic).

　　　RFCM, STM, and DCCM are the only three dyadic coping models that share a true dyadic

approach as they do not focus on each partner's individual strategies to cope with his or her own

stress, but rather on what partners do to help each other cope. These three conceptual models

have guided a large number of quantitative studies examining the role of dyadic coping and

relationship outcomes such as relationship satisfaction. A meta-analysis is merited to

quantitatively summarize the findings from extant research and establish the predictive strength of

dyadic coping on relationship outcomes.

　　　There are several reasons to focus on relationship satisfaction as the relational outcome

variable. First, relationship satisfaction is the dependent variable that has been most often studied

in dyadic coping research. Second, relationship satisfaction is a key component of life

satisfaction and is regularly selected as an outcome variable in meta-analysis due to its frequent

inclusion in quantitative research (Heller, Watson, & Iles, 2004). Third, higher levels of

relationship satisfaction are associated with lower levels of relationship instability and dissolution

(Gottman & Levenson, 1992). Finally, relationship satisfaction is strongly associated with

individual psychological and physical well-being (e.g., Beach, Katz, Kim, & Brody, 2003;

Kiecolt-Glaser et al., 2005; Proulx, Helms & Buehler, 2007), thus identifying predictors of

relationship satisfaction has important clinical and programmatic implications not only for

relational health, but also for individual health. Given these implications, it is particularly

surprising that there are only a limited number of studies in which the effects of dyadic coping on individual outcomes have been investigated. For instance, in our search of studies applying the STM model, 60 independent samples were identified, of which only 9 samples (15%) had related dyadic coping to individual stress levels; of those 9 independent samples, only 3 (5% of the 60 identified samples) were collected longitudinally and allowed for investigating the effects of dyadic coping on individual outcomes over time.

The purpose of this meta-analysis was to determine the magnitude, precision, and significance of dyadic coping as a predictor of relationship satisfaction across different populations. Determining the degree to which dyadic coping is a protective factor against relationship dissatisfaction can assist clinicians in designing interventions to strengthen dyadic coping in couples in which at least one partner experiences significant stress (Rishel, 2007). In addition, in the same way that communication and problem-solving have become standard foci in couple therapy and relationship enhancement programs (Williams, 2003), assessment and enhancement of dyadic coping skills may also become a critical area of attention in therapy and relationship education programs if meta-analysis indicates strong associations between dyadic coping and relationship satisfaction across various populations.

The Multiple Dimensions of Dyadic Coping

Dyadic coping is a multidimensional complex process that includes partners' stress communication to each other as well as responses to deal with stress. Because of the differences and overlap between dyadic coping dimensions in the RFCM, STM, and DCCM, we have organized the dimensions of dyadic coping into a comprehensive conceptual model (Figure 1). In this section, we describe each of these dyadic coping models, identifying commonalities and differences across models. We present the models in order based on the number of included dyadic coping dimensions, beginning with the model with the most dyadic coping dimensions.

Systemic-Transactional Model (STM)

STM (Bodenmann, 1995, 1997, 2005) is a couple coping model of stress processes that has been applied in research from situations of minor chronic stressors such as daily hassles (e.g., Bodenmann, Ledermann, & Bradbury, 2007) to situations of major acute stress such us medical conditions (e.g., Badr. Carmack, Kashy, Cristofanilli, & Revenson, 2010). According to STM, partners communicate their experiences of stress in complex ways – immediately or after some delay, verbally and nonverbally, and with implicit or explicit requests for assistance. These expressions are perceived and decoded by partners with varying degrees of accuracy. In turn, partners may fail to respond, ignore, or dismiss what the other person has communicated, or offer dyadic coping that reflects their own goals and skills, feelings about the partner and the relationship, and interpretation of what the other person has conveyed. Partners might then feel better or worse, provide additional details, ask for advice, or propose a new plan for solving the problem.

In addition to situations in which one partner is stressed and the other is not, there are also situations in which both partners are stressed either because there is a cross-over effect or because partners face common stressors (e.g., relocation, economic difficulties, children's behavioral problems). In those situations partners' responses to communication of stress may involve not only assisting the other partner cope with his or her stress but also helping both partners in the relationship manage their stress. From an STM perspective, the process of dyadic coping involves positive and negative forms of coping. Positive dyadic coping includes *stress communication, and supportive, delegated,* and *common dyadic coping.* Stress communication refers to the stressed partner's ability to communicate one's stress to the other partner and to request his or her support for coping. Supportive dyadic coping involves providing problem-focused (e.g., suggesting solutions) or emotion-focused support (e.g., empathic understanding) to the stressed partner. Delegated dyadic coping refers to attempting to provide assistance to the stressed partner by taking over his or her tasks and responsibilities. Unlike supportive and delegated dyadic coping that reflect one partner's efforts to help the stressed partner cope,

common dyadic coping reflects conjoint efforts by both partners to cope with stress (e.g., joint problem-solving, joint information seeking, sharing of feelings, relaxing together).

Negative dyadic coping includes hostile responses (e.g., blaming the partner for not coping well) and providing ambivalent support (e.g., providing support but believing that the partner should solve the problem without that support). Positive dyadic coping is presumed to restore some degree of homeostasis for the partner and for the couple in the face of challenges, whereas negative dyadic coping is presumed to detract from partners' adjustment to the stressor and, over time, from partners' evaluation of the other partner and their relationship. In fact, studies with various populations have associated dyadic coping with relationship satisfaction and negative dyadic coping with relationship dissatisfaction (e.g., Ledermann et al., 2010; Papp & Witt, 2010).

The examination of dyadic coping from a systemic-transactional perspective has been facilitated through the use of the *Dyadic Coping Inventory* (DCI; Bodenmann 2008), which was developed to measure the specific dimensions of dyadic coping included in the STM: stress communication, supportive dyadic coping, delegated dyadic coping, negative dyadic coping, and common dyadic coping. In the DCI, respondents evaluate not only the dyadic coping efforts by themselves, but also by their partners in each of those dimensions. By aggregating subscales that measure perceptions of dyadic coping by self or by partner, the DCI can be used to assess and discriminate between the overall dyadic coping by self and the overall dyadic coping by partner. Additionally, by aggregating all the subscales that measure positive dimensions, the DCI can be used to assess the overall positive dyadic coping strategies. As of the end of 2013, 43 studies had been conducted using the DCI. The DCI has been translated into more than 14 languages and is widely used internationally (Simmons & Lehman, 2012). The factorial structure and psychometric properties (described in the methods section) have been confirmed across different language versions (e.g., Falconier, Nussbeck, & Bodenmann, 2012; Ledermann et al., 2010).

Developmental-Contextual Coping Model (DCCM)

Although the DCCM (Berg & Upchurch, 2007) was specifically developed for situations of chronic illness in couples, it potentially can be applied to other situations of stress. This model emphasizes the role of sociocultural factors such as culture, gender, and life-span developmental issues in the dyadic coping process of couples dealing with chronic illness. The DCCM conceptualizes dyadic coping on a continuum of partner involvement, from under-involvement to over-involvement, and views all dimensions identified in other dyadic coping models as part of this continuum. The DCCM identifies four dimensions of dyadic coping: *uninvolved*, *supportive*, *collaborative*, and *controlling* (Berg, Meegan, & Deviney, 1998). Uninvolved coping refers to the stressed partner's perception that she is coping individually without any support from her partner. Supportive coping refers to situations in which the non-stressed partner provides emotional support or instrumental support, or both. Collaborative coping refers to the collaborative efforts made by both partners to manage the stressful situation together (e.g., discussing solutions). Controlling coping refers to situations in which the non-stressed partner "dominates the actions of the other spouse by taking charge and telling the other person what to do" (Berg & Upchurch, 2007, pp. 932-933).

We have conceptualized the uninvolved and controlling strategies as dimensions of negative dyadic coping, and the supportive and collaborative dimensions as dimensions of positive dyadic coping. The DCCM supportive coping dyadic coping strategy is conceptually related to the STM supportive dyadic coping; therefore, we have included it in the supportive coping strategies dimension in our comprehensive conceptual model of dyadic coping dimensions (Figure 1). Collaborative coping is comparable to STM common dyadic coping, as both strategies represent partners' collaborative, common efforts to cope with stress together. In our comprehensive conceptual model of dyadic coping dimensions (Figure 1), we collectively refer to DCCM collaborative coping and STM common dyadic coping as the *collaborative common coping* dimension of dyadic coping. Uninvolved and controlling strategies are unique dimensions of dyadic coping, as the other dyadic coping models do not have conceptually similar dimensions.

As of the end of 2013, two studies had examined relationship satisfaction through the lens of the developmental-contextual model. One of these studies assessed dyadic coping through journal entries (Berg et al., 2008), and the other study (Hemphill, 2013) used a collaborative coping questionnaire (CCQ; Berg, Johnson, Meegan, & Strough, 2003), but did not asses for the controlling, supportive, or uninvolved dimensions.

Relationship-Focused Coping Model (RFCM)

Similar to STM conceptualizations of dyadic coping, the RFCM (Coyne & Smith, 1991) suggests that when partners experience stress, they not only engage in coping strategies to manage their own individual stress and take care of instrumental tasks, they also engage in coping strategies to protect and maintain the couple relationship (Coyne & Smith, 1991). Originally, the RFCM delineated three dimensions of dyadic coping, or relationship-focused coping strategies: *active engagement, protective buffering,* and *overprotection*.

Active engagement (Coyne & Smith, 1991) is the strategy of involving one's partner in conversations about (a) how he or she feels and (b) ways to resolve the problem. Unlike the STM dimension of stress communication that refers to the stressed partner's ability to communicate his stress to his partner and to request her support for coping, part of active engagement refers to the non-stressed partner's attempts to engage the stressed partner in conversations about (a) his emotions in relation to the stressful situation and (b) practical ways to resolve the situation. Consequently, active engagement is closely related to the STM supportive dyadic coping dimension and the DCCM supportive coping dimension, in which a partner either provides emotion-focused support or problem-focused support, or both to the other partner. Furthermore, similarly to supportive dyadic coping, active engagement tends to be associated with positive individual and relational outcomes (Kuijer, Ybema, Buunk, Majella de Jong, Thijs-Boer, & Sanderman, 2000; Schokker et al., 2010); therefore, active engagement is considered a form of positive dyadic coping. Protective buffering (Coyne & Smith, 1991) involves "hiding concerns, denying worries, and yielding to the partner in order to avoid disagreement" (p. 44).

Overprotection (Fiske, Coyne, & Smith, 1991) is a coping strategy in which partners underestimates each other's capabilities and provide unnecessary practical or emotional support. Although the motivations behind both protective buffering and overprotection are generally well-intended, protective buffering and overprotection have not been associated with positive individual and relational outcomes (e.g., Kuijer et al., 2000; Langer, Brown, & Syrjala, 2009); therefore, these dimensions of dyadic coping have been viewed as maladaptive forms of coping. However, the positive intent behind these two dimensions of negative dyadic coping differentiate them from the hostile/ambivalent dimension of negative dyadic coping identified in the STM approach because hostile/ambivalent responses are not intended to assist the partner.

The original three dimensions of relationship-focused coping have been assessed with the *Relationship Focused Coping Scale* (RFCS; Coyne & Smith, 1991; Fiske et al., 1991) and a similar version, the *Ways of Providing Support scale* (WPS; Buunk, Berkhuysen, Sanderman, Nieuwland, & Ranchor, 1996), that has been primarily used in dyadic coping research conducted in the Netherlands (e.g., Hagedoorn et al., 2011; Hinnen, Hagedoorn, Ranchor, & Sanderman, 2008). Both measures have predominantly been used in the study of dyadic coping processes among couples in which one partner has been diagnosed with a medical condition. In addition, a protective buffering observational coding system (PBOCS; Langer, Rudd, & Syrjala, 2007) has been developed and used to assess dyadic coping among couples in which one partner has cancer.

A fourth dimension of dyadic coping, or relationship-focused coping strategy, within the RFCM framework that was subsequently added is *empathic responding* (O'Brien & DeLongis, 1996). This type of coping is aimed at maintaining relatedness and it involves (a) perspective-taking; (b) being able to experience vicariously and understand the other person's emotions and thoughts; and (c) responding empathetically, sensitively, and nonjudgmentally by providing an emotionally validating response (O'Brien, DeLongis, Pomaki, Puterman, & Zwicker, 2009). The *Empathic Responding Scale* (ERS; O'Brien & DeLongis, 1996) was developed to assess empathic responding. The ERS evaluates cognitive-affective and behavioral aspects of empathic

responding by asking respondents to what extent they engage in empathic behaviors. The ERS has been used in both couple research and studies involving other types of relationships (e.g., Marin, Holtzman, DeLongis, & Robinson, L., 2007).

Empathic responding is closely related to active engagement and is comparable to the STM and DCCM dimension of supportive dyadic coping. Active engagement, empathic responding, and supportive dyadic coping represent positive forms of dyadic coping in which one partner assists the other partner cope with stress by using emotion-focused strategies, problem-focused strategies, or both. In our comprehensive conceptual model of dyadic coping dimensions, we collectively refer to STM supportive dyadic coping, DCCM supportive coping, RFCM active engagement, and RFCM empathic responding as *supportive coping* because these strategies involve supporting the other partner (see Figure 1). As of the end of 2013, 10 studies had been conducted using the Relationship-Focused Couple Scale (RFCS), 6 with the Ways of Partner Support (WPS), 1 with the Empathic Responding Scale (ERS) and 1 with the Protective Buffering Observational Coding System (PBOC).

In sum, STM, RFCM, and DCCM each emphasize different aspects and dimensions of the dyadic coping process. The STM and RFCM are the dyadic coping models that have guided most of the research on dyadic coping. Most researchers have used the DCI, the RFCS, or modified versions of the DCI or RFCS to examine the association between dyadic coping and relationship satisfaction. A comprehensive quantitative summary of the research on the association between dyadic coping and relationship satisfaction is noticeably absent from the extant literature.

Research Questions

Our objective for the present study was to analyze the results from all extant empirical studies on the association between dyadic coping and relationship satisfaction to answer the following research questions:

1. What are the aggregated correlations for relationship satisfaction and

    a. total dyadic coping (all dimensions of dyadic coping by self, by partner, and by

both partners together)?

b. positive dyadic coping (all positive dimensions of dyadic coping: stress communication, supportive, delegated, and collaborative common, delegated)?

c. negative dyadic coping (all negative dimensions of dyadic coping: controlling, hostile/ambivalent, overprotection, protective buffering, and uninvolved)?

d. each dimension of dyadic coping (stress communication, supportive, delegated, collaborative common, controlling, hostile/ambivalent, overprotection, protective buffering, and uninvolved)?

2. Are there significant differences in the correlation with relationship satisfaction between

a. negative and positive dyadic coping?

b. dimensions of dyadic coping?

c. dyadic coping by self (individual's perception of his efforts to help the other partner cope), dyadic coping by partner (individual's perception of his partner's effort to help her or him cope), and dyadic coping by both partners together (the couple's conjoint efforts to cope together)?

d. female and male reports?

e. within-self reports (dyadic coping and relationship satisfaction reported by the same partner) and across-partner reports (dyadic coping reported by one partner and relationship satisfaction reported by the other partner)?

3. What are the moderating effects on the correlation of relationship satisfaction and total dyadic coping for

a. report characteristics?

b. methodological characteristics?

c. participant characteristics?

Methods

Meta-Analysis

Meta-analysis is a quantitative methodology that facilitates aggregation and comparison of results from different studies that examine the association between similar constructs (Lipsey & Wilson, 2001). In the present study, the common effect size metric we used was the standardized zero-order correlation coefficient (*r*).

Selection and Inclusion Criteria for Studies

We included samples for which effect sizes for the association between dyadic coping and relationship satisfaction were available in the present meta-analysis. Sample effect sizes were required to meet the following inclusion criteria for inclusion in the present meta-analysis.

Predictor variables. Dyadic coping had to be measured by an instrument that assessed dyadic coping as conceptualized by the STM, RFCM, or DCCM (see Figure 1). We included both global measures of dyadic coping (i.e., total dyadic coping, positive dyadic coping, and negative dyadic coping) and measures of specific dyadic coping dimensions (i.e., stress communication, supportive dyadic coping, active engagement, empathic responding, delegated dyadic coping, collaborative coping, common dyadic coping, controlling coping, hostile/ ambivalent dyadic coping, overprotection, protective buffering, and uninvolved coping). An effect size for at least one measure of dyadic coping was necessary for sample inclusion. Samples with a relevant effect size for at least one partner were included; samples with relevant effect sizes for both partners were also included. Samples with relevant longitudinal effect sizes were included; however, only effect sizes for the first time of dyadic coping assessment were included.

Outcome variable. Relationship satisfaction had to be measured by one of the following closely related constructs: marital quality, marital satisfaction, relationship quality, or relationship satisfaction. Similar to the inclusion criteria for dyadic coping, samples with relevant longitudinal effect sizes were included; however, only effect sizes for the first time of relationship satisfaction assessment were included.

Effect size computations. In order to be included in the present meta-analytic research, a standardized zero-order correlational effect size (*r*) or a standardized regression effect size (*b**) for dyadic coping and relationship satisfaction was required for each sample. If zero-order correlations were not reported, we transformed standardized regression coefficients following established guidelines to limit the exclusion of relevant effect sizes (Peterson & Brown, 2005). We contacted the authors of reports for which relevant effect sizes were missing or presented in a format that we could not transform into a standardized zero-order correlational effect size.

Additional inclusion criteria. Included reports were required to have been completed before 2014. Missing effect sizes have been identified as one of the most frequent limitations of meta-analytic studies (Hedges, 1992). Sampling error, result bias, and external validity of the findings are some of the consequences introduced by missing effect sizes (Lipsey & Wilson, 2001). In order to minimize issues associated with sampling error, we maximized the inclusion of relevant samples by: (a) applying various different methods for finding relevant reports (e.g., using search engines, contacting researchers who have conducted research on dyadic coping), (b) including reports in any language, (c) including published (e.g., journal articles, book chapters) and unpublished reports (e.g., master theses, dissertations), (d) including reports from any time period, (e) including sample data regardless of research design features, (f) including both community and clinical samples, (g) including samples regardless of demographic characteristics, (h) requesting missing effect sizes from report authors, and (i) estimating effect sizes from regression coefficients when correlation coefficients were not available.

Procedures

Sample Identification. In an effort to identify all samples for which data on dyadic coping and relationship satisfaction have been collected, we used electronic search engines (e.g., *Proquest: Dissertations and Theses, Social Sciences Citation Index,* and *EBSCO HOST Research Database; PSYCH-INFO*) to conduct searches for the following terms: *dyadic coping*, *systemic-transactional model, relationship-focused coping model, developmental-contextual coping model,*

stress communication, active engagement, protective buffering, overprotection, collaborative coping, empathic responding, over-involvement, under-involvement, uninvolved coping, controlling coping, collaborative coping questionnaire, dyadic coping inventory, empathic responding scale, relationship-focused coping scale, and ways of providing support scale. We also searched for relevant samples using the reference lists of reports we examined. Next, we evaluated the identified samples and related reports based on the inclusion criteria and excluded samples that failed to meet inclusion criteria. Then we created a database containing all the identified samples, yielding the database that we used for the meta-analysis.

Coding. We followed specific established meta-analytic procedures for data preparation, management, and analysis (Hunter & Schmidt, 2004). We developed a 48-item codebook to facilitate the coding of samples. We divided the included reports between the first author and third author based on report language. The first and third authors coded independently and consulted with all of the authors regarding instances in which the most appropriate way to code for an item was not clear. We kept notes to document decisions and rationales that required consultation. Next, the second author systematically reviewed all of the coding; instances of anomalies, effect size outliers, and other potential errors were discussed with the other authors until agreement was reached. Coder consensus was employed to identify the most appropriate coding decision for each codebook item (Hawkins, Blanchard, Baldwin, & Fawcett, 2008).

Dyadic Coping Measurement

Dyadic coping (global and specific dimensions) was measured in the samples included in the present meta-analysis using the *Collaborative Coping Questionnaire* (CCQ), *Dyadic Coping Inventory* (DCI), *Empathic Responding Scale* (ERS), *Protective Buffering Observational Coding System* (PBOCS), *Relationship-Focused Coping Scale* (RFCS), or the *Ways of Providing Support* (WPS) scale. The CCQ, DCI, ERS, RFCS, and ERS are self-report instruments in which respondents rate how frequently each member of the couple (self and partner) engages in dyadic coping behaviors. The subscales provided by each of these instruments have been used to

measure the various dimensions of dyadic coping. We calculated a *total dyadic coping* score for each scale by aggregating all of the dimensions of dyadic coping and all coping providers (i.e., by self, by partner, and by both partners) after temporarily reversing the scores for negative dyadic coping dimension. Higher scores indicate higher levels of overall dyadic coping.

Collaborative Coping Questionnaire (CCQ). Based on the DCCM, the CCQ (Berg et al., 2003), consists of five questions assessing the degree of collaboration between the partners in collaborating to manage a stressful medical condition (e.g., *"The two of you shared feelings and concerns about managing your/his/her diabetes"*). The CCQ has a five-point Likert scale (0 = *Not At All*, 4 = *Every Day*). Internal consistencies range from .87 to .89 (Hemphill, 2013). Higher scores of collaborative coping indicate higher degrees of positive dyadic coping.

Dyadic Coping Inventory (DCI). Based on the STM, the DCI initially consisted of 55 items (Bodenmann, 2000); informed by the results of factor analyses, the measure was reduced to 41 items and then to 37 items without alteration to subscales and aggregated scales. The DCI was validated in German with a sample of 2,399 individuals (Bodenmann, 2008). The psychometric properties of the DCI indicate well-established construct, content, and criterion validity, as well as test-re-test-reliability, and convergent and divergent validity. Internal consistencies in the in the initial validation of the DCI ranged from .74 to .93 (Bodenmann, 2008).

The DCI consists of the following six different subscales: stress communication, supportive dyadic coping, negative dyadic coping, delegated dyadic coping, common dyadic coping, and evaluation of dyadic coping. The stress communication, supportive dyadic coping, negative dyadic coping, and delegated dyadic coping subscales can be divided into perceptions of dyadic coping by self (indexed as "*By Self*") and perception of dyadic coping by partner (indexed as "*By Partner*"), yielding 10 subscales: *Stress Communication* by *Self* (e.g., "*I tell my partner openly how I feel and that I would appreciate his/her support*") and by *Partner* (e.g., "*My partner shows me through his/her behavior that he/she is not doing well or when he/she has problems*"), *Supportive Dyadic Coping* by *Self* (e.g., "*I try to analyze the situation together with my partner in*

an objective manner and help him/her to understand and change the problem") and by *Partner* (e.g., *"My partner shows empathy and understanding to me"*), *Delegated Dyadic Coping* by *Self* (e.g., *"I take on things that my partner would normally do in order to help him/her out"*) and by *Partner* (e.g., *"When I am too busy, my partner helps me out"*), *Negative Dyadic Coping* by *Self* (e.g., *"I blame my partner for not coping well enough with stress"*) and by *Partner* (e.g., *"My partner provides support, but does so unwillingly and unmotivated"*), *Common Dyadic Coping* (e.g., *"We try to cope with the problem together and search for ascertained solutions"*), and *Overall Evaluation of Dyadic Coping* (e.g., *"I am satisfied with the support I receive from my partner and the way we deal with stress together"*). The DCI has a five-point Likert scale (0 = *Very Rarely*, 4 = *Very Frequently*). Higher scores of stress communication, supportive coping dyadic coping, delegated dyadic coping, and common dyadic coping indicate higher degrees of positive dyadic coping; higher scores of hostile/ambivalent coping indicate higher degrees of negative dyadic coping.

Empathic Responding Scale (ERS). Based on the RFCM, the ERS (O'Brien & DeLongis, 1996) consists of 10 items and include two subscales: *Cognitive-Affective Empathic Responding* (e.g., *"I imagined myself in the other person's shoes"*) and *Behavioral Empathic Responding* (e.g., *"I tried to help the other person(s) involved by listening to them"*). The ERS has a three-point Likert scale (0 = *Not At All*, 2 = *A Lot*). A total empathic responding score can be calculated from the cognitive-affective empathic responding and behavioral empathic responding scales. Shorter versions of this scale have been used (e.g., O'Brien et al., 2009). Internal consistencies range from .89 to .92. Higher scores of empathic responding indicate higher degrees of positive dyadic coping.

Protective Buffering Observation Coding System (PBOCS). Based on the RFCM, the PBOCS uses observations to assess protective buffering dyadic coping (Langer et al., 2007). Partners are instructed to describe their deepest thoughts and feelings regarding the past year of their relationship alone for 10 minutes and then in front of their partner for 10 minutes. These

observations are then recorded, transcribed, and analyzed to identify negative and positive emotion words. The larger the ratio of negative emotion words used when their partner was absent to negative emotion words used when their partner was present, the higher the degree of protective buffering dyadic coping.

Relationship-Focused Coping Scale (RFCS) and Ways of Providing Support (WPS) scale. Based on the RFCM, the original 28-item Relationship Focused Coping Scale (RFCS; Coyne & Smith, 1991) only included the *Active Engagement* (12 items) and *Protective Buffering* (16 items) subscales with one version for self-perception and another one for partner-perception. The *Overprotection* subscale was added (Fiske et al., 1991) following the same format but with only four items. Later studies included shorter versions of the RFCS (e.g., Suls, Green, Rose, Lounsbury, & Gordon, 1997).

An adaptation of the RFCS in Dutch, the Ways of Providing Support (WPS) scale (Buunk et al., 1996), was subsequently developed and has been used extensively in studies in the Netherlands (e.g., Hagedoorn et al., 2011; Hinnen et al., 2008; Kuijer et al., 2000). The WPS includes only 19 items, 5 items to assess active engagement (e.g., *"My partner tries to talk about it when something bothers me" "I try to talk about it with my partner when something bothers him or her"*), 8 items to assess protective buffering (e.g., *"My partner tries to keep his or her worries about me to him or herself" "I try to keep my worries about my partner to myself")*, and 6 items to assess overprotection (e.g., *"My partner thinks that I don't know what's right for me" "I think my partner doesn't know what's right for him or her"*).

Both the RFCS and the WPS have different versions: patient vs. spouse perception of dyadic coping and self vs. partner perception of dyadic coping. Both the RFCS and the WPS have a five-point Likert scale (1 = *Never*, 5 = *Very Often*). Internal consistencies for subscales in the RFCS and the WPS range from .60 to .94 (e.g., Hagedoorn et al., 2011; Hinnen et al., 2008). Higher scores of active engagement indicate higher levels of positive dyadic coping; higher scores of protective buffering and overprotection indicate higher degrees of negative dyadic coping.

Relationship Satisfaction Measurement

Relationship satisfaction was measured through established multiple-item participant-report relationship satisfaction questionnaires. Data collected from the following relationship satisfaction measures were included: the *Couple Satisfaction Index* (CSI; Funk & Rogge, 2007), the *Daily Dairy of Relationship Quality* (DDRQ; Hemphill, 2013), the *Dyadic Adjustment Scale* (DAS; Spanier, 1976), the *Marital Happiness Rating Scale* (MHRS; Terman, 1938), the *Maudsley Marital Questionnaire* (MMQ; Arrindell, Boelens, &Lambert, 1983), the *Partnership Questionnaire* (PQ; [*Partnerschaftsfragebogen, PFB*]; Hahlweg,1996), the *Quality of Marriage Index* (QMI; Norton, 1983), the *Relationship Assessment Scale* (RAS; Hendrick, 1988), and the *Relationship Improvement* questionnaire (RIQ; Kuijer et al., 2000). There was only one sample (Hemphill, 2013) for which relationship satisfaction was assessed through an interviewer inquiring about the level of enjoyment in the couple relationship and another sample for which only five items from the Michigan Family Heart Project (Suls, 1997) were used to assess relationship satisfaction. The relationship satisfaction measures were scored for each of the included samples in such a way that higher scores indicated higher relationship satisfaction.

Moderator Variables

We coded for three primary types of moderators: (a) sample report characteristics, (b) methodological characteristics, and (c) participant characteristics. We coded items as *not reported* if information necessary for determining the correct code was not provided.

Sample report characteristics. We coded samples for report publication status (published or unpublished), report type (book/book chapter, dissertation, journal article, master thesis, other), and report language (e.g., English, German, Italian). We also coded each effect size by coder (first author or third author).

Methodological characteristics. We coded samples for study design (cross-sectional and longitudinal), whether or not sample participants received an intervention (e.g., medical transplant, treatment), sample recruitment (e.g., community, health care center, therapy clinic,

university), and whether the sample participant data were dyadic (i.e., data from female-male

pairs) or non-dyadic (i.e., data from only one partner). We also coded for the dyadic coping

measure and for the relationship satisfaction measure.

Participant characteristics. We coded samples for special characteristics (e.g.,

psychological disorder, medical condition) and for participant gender (female and male). We also

coded samples for female average age, male average age, and relationship duration average; we

assigned both interval codes (e.g., 37.3 years) and nominal codes (e.g., 30 – 39 years) for each of

these moderators. In addition, we coded for average education (some high school, high school

graduate, some college, and college graduate) for both females and males, nationality (e.g.,

American, Austrian, German, Indonesian), and social class (primarily lower class, primarily

middle class, primarily upper class, mixed middle and lower class, mixed upper and middle class).

Statistical Methods

We used *Comprehensive Meta-Analysis* statistical software *(Version 2*; Borenstein,

Hedges, Higgins, & Rothstein, 2005) for data management and analysis. We utilized random-

effects models to weight each standardized zero-ordered correlation coefficient by its *inverse*

variance weight (the inverse of the squared standard error), calculate aggregated effect sizes by

averaging the weighted correlations, and test the aggregated effect sizes for statistical significance

(Lipsey & Wilson, 2001). We used random-effects models instead of fixed-effect models because

fixed-effect models are appropriate for analyzing data from samples with across-sample

variability attributable only to participant-level sampling error (e.g., samples from which data

were collected using identical methodology simultaneously at different sites), and random-effects

models are appropriate for analyzing data from samples that vary in terms of methodological and

participant characteristics (Borenstein, Hedges, Higgins, & Rothstein, 2009; Hunter & Schmidt,

2004). Given the notable differences among methodological and participant characteristics across

the included samples, we used random-effects models instead of instead of fixed effect models.

Furthermore, random-effects models yield findings that are generalizable to wider populations

than those from fixed-effect models (Hedges & Vevea, 1998).

In order to insure effect size statistical independence, we (a) identified samples included in more than one report and coded them by sample instead of report and (b) computed a mean effect size for each sample when there was more than one relevant effect size from the same sample (Lipsey & Wilson, 2001). We employed mixed-effects models to conduct heterogeneity Q-tests to identify between-moderator-subgroup differences in the association between dyadic coping and relationship satisfaction (Borenstein et al., 2009).

Results

Included Samples Summary

Samples. A total of 72 independent samples (K) from 57 reports met inclusion criteria. Effect size data for more than one sample were presented in 13 of the 57 reports (indicated using alphabetized letters [e.g., A, B, C] as suffixes for study name in Figure 2), yielding an additional 19 samples for a total of 76 samples. We identified 4 independent samples which were included in more than one report; to facilitate sample independence, we recoded each of the relevant report names as the related independent sample, resulting in a total of 72 independent samples. Report authors were consulted to verify identification of non-independent samples. In total, we contacted 5 researchers with an 80% response rate: 2 provided the requested information, 2 reported they were unable to provide the requested information, and 1 did not respond. We were unable to identify any samples with available effect sizes for the controlling, supportive, and uninvolved dimensions from the DCCM. We were only able to identify one sample of same-sex couples; we eventually excluded this sample because moderator analysis for sexual orientation would have been underpowered given all other samples consisted exclusively of opposite-sex couples.

Because most samples had multiple effect sizes for various types of dyadic coping correlated with relationship satisfaction, there were 628 raw effect sizes among the 72 included samples. We treated multiple raw effect sizes as within-sample subgroups by computing a mean effect size for each sample, yielding only one effect size per sample prior to aggregation.

Table 1 provides descriptive summary data for the included samples. The included sample reports were completed between 1997 and 2013. The majority of included sample reports were published (64%), journal articles (58%), and in English (69%). Most of the sample data were obtained from cross-sectional study designs (83%), with substantially less sample data obtained from longitudinal study designs (17%). Dyadic data from female-male pairs were analyzed for 67% of the samples and non-dyadic data from only one partner were analyzed for 33% of the samples. In terms of dyadic coping measurement, the majority of sample data were collected using the DCI (73%), followed distantly by the RFCS/WPS (24%), with very limited representation from the CCQ, ERS, and PBOCS (1% each). In terms of relationship satisfaction measurement, sample data were most commonly collected using the RAS (28%), PQ (25%), and DAS (21%). The average sample size was 172 and the combined total participants for all included samples was 17,856 (9,819 females; 7,975 males).

Participants. The participants in the included samples were predominately middle-class Europeans with some level of college education. Although we did not establish any inclusionary criteria or exclusionary criteria regarding sexual orientation, all included samples consisted exclusively of participants in opposite-sex relationships. The average age of female participants was 42.04 years ($SD = 11.85$; range = 19.00 – 67.95) and the average age of male participants was 45.13 years ($SD = 11.46$; range = 19.70 – 67.95). The average relationship duration was 17.58 years ($SD = 11.05$; range = 0.92 – 42.00).

Dyadic Coping Correlated with Relationship Satisfaction

Results indicated heterogeneous effect size distributions across the included samples ($Q = 1,110.02$, $p = .000$, $K = 72$; see Table 2), signifying the variability across the sample effect sizes was more than what would be expected from participant-level sampling error alone, thus supporting our initial decision to use random-effects models.

The following ranges provide a guideline for interpreting the magnitude of correlational effect sizes: small ($r \leq .10$, indicating a weak association), medium ($.11 \leq r \geq .39$, indicating a

moderate association), and large ($r \geq .40$, indicating a strong association; Lipsey & Wilson, 2001). Although no methodological or statistical standard has been established for the minimum number of subgroup samples (k) required for Q-tests for heterogeneity and moderator analyses (Jackson, Miller, Oka, & Henry, 2014), generally speaking, the larger the k values are in the various aggregated analyses, the greater the confidence in the reliability of the associated aggregated effect sizes. Consequently, the results of heterogeneity and moderator Q-tests with smaller k values should be interpreted more cautiously.

Except for the section in which we specifically report results on within-partner reports vs. across-partner reports, all results are correlations of within-partner reports of dyadic coping and relationship satisfaction; in other words, unless otherwise indicated, result effect sizes are based on (a) female reports of her relationship satisfaction correlated with her perceptions about her own dyadic coping (*by self*), her perceptions about her partner's dyadic coping (*by partner*), and her perceptions about couple-level dyadic coping (*by both partners together*); and (b) male reports of his relationship satisfaction correlated with his perceptions about his own dyadic coping (*by self*), her perceptions about his partner's dyadic coping (*by partner*), and his perceptions about couple-level dyadic coping (*by both partners together*).

Total dyadic coping. We calculated the effect sizes for total dyadic coping (i.e., all included dimensions of dyadic coping with all coping providers [i.e., self, partner, and both partners together]) and relationship satisfaction were calculated by temporarily reverse-coding negative dyadic coping dimension effect sizes to facilitate aggregation with other dimensions. Figure 2 presents the standardized zero-order correlation point estimate, 95% confidence interval, significance level, and sample size for each sample. Table 2 presents the aggregated standardized zero-order correlational results for total or overall dyadic coping with relationship satisfaction, including tests of between group differences for coping provider and gender. The aggregated standardized zero-order correlational results for total dyadic coping with relationship satisfaction was $r = .45$ (*CI*: .41, − .48, $p = .000$, $K = 72$).

The coping provider heterogeneity Q-test indicated significant between-group differences so we conducted pairwise heterogeneity Q-tests to determine which groups were significantly different. Pairwise heterogeneity Q-tests results indicated that dyadic coping by partner (perceptions of partner engagement in dyadic coping; $r = .48$, $CI = .43 - .52$, $p = 000$, $k = 42$) and dyadic coping by both partners together (perceptions of combined engagement in dyadic coping by both partners together [collaborative common coping]; $r = .51$, $CI = .49 - .58$, $p = 000$, $k = 30$) were equally strong predictors of relationship satisfaction ($Q = 2.62$, $p = .105$, $K = 72$); dyadic coping by partner and dyadic coping by both partners together were each stronger predictors of relationship satisfaction ($Q = 13.91$, $p = .000$, $K = 93$; $Q = 33.37$, $p = .000$, $K = 81$ respectively) than dyadic coping by self (perceptions of personal engagement in dyadic coping; $r = .36$, $CI = .32 - .39$, $p = 000$, $k = 51$). There were no gender differences in the association between total dyadic coping and relationship satisfaction, even when analyzed at the coping provider level.

Negative and positive dyadic coping. Table 2 presents the aggregated standardized zero-order correlational results for negative dyadic coping (hostile/ambivalent, overprotection, protective buffering) and positive dyadic coping (collaborative common, delegated, supportive, stress communication; see Figure 1). Negative dyadic coping ($r = -.39$, $CI = -.42 - -.36$, $p = 000$, $k = 55$) and positive dyadic coping ($r = .47$, $CI = .43 - .50$, $p = 000$, $k = 67$) were statistically different from one another ($Q = 877.27$, $p = .000$, $K = 122$). We calculated the relative magnitude of negative dyadic coping and positive dyadic coping by temporarily reverse coding the direction of the negative dyadic coping effect sizes; the analyses ($Q = 12.07$, $p = .001$, $K = 122$) indicated that positive dyadic coping ($r = .47$, $CI = .43 - .50$, $p = 000$, $k = 67$) was a stronger predictor of relationship satisfaction than negative dyadic coping ($r = .39$, $CI = .36 - .42$, $p = 000$, $k = 55$).

In terms of coping provider heterogeneity Q-tests, negative dyadic coping by partner ($r = -.45$, $CI = -.49 - -.40$, $p = 000$, $k = 31$) was a stronger predictor of relationship satisfaction ($Q = 8.16$, $p = .004$, $K = 73$) than negative dyadic coping by self ($r = -.36$, $CI = -.40 - -.33$, $p = 000$, $k = 42$). Similarly, positive dyadic coping by partner ($r = .50$, $CI = .46 - .55$, $p = 000$, $k = 40$) was a

stronger predictor of relationship satisfaction ($Q = 15.89$, $p = .000$, $K = 85$) than positive dyadic coping by self ($r = .37$, $CI = .33 - .41$, $p = 000$, $k = 45$). There were no gender differences in the association between negative dyadic coping and relationship satisfaction nor between positive dyadic coping and relationship satisfaction, even when analyzed by coping provider (i.e., report on dyadic coping by self and report on dyadic coping by partner).

Dyadic Coping Dimensions

Table 3 presents the aggregated standardized zero-order correlational results for each dimension of dyadic coping with relationship satisfaction. We calculated the relative strength of each dimension of dyadic coping by temporarily reverse coding the effect size direction of dimensions with negative aggregated effects.

The heterogeneity Q-test for dyadic coping dimensions indicated significant between-group differences ($Q = 65.79$, $p = .000$, $K = 181$); therefore, we conducted heterogeneity Q-tests with various subgroupings of dyadic coping dimensions to determine which dimensions were stronger predictors of relationships satisfaction (see Table 3). Our analyses indicated that collaborative common dyadic coping ($r = .53$, $CI = .48 - .57$, $p = 000$, $k = 30$) was a stronger predictor of relationship satisfaction than any other dimension except supportive coping ($r = .47$, $CI = .42 - .52$, $p = 000$, $k = 46$). Supportive coping was a stronger predictor of relationship satisfaction than stress communication ($r = .34$, $CI = .29 - .38$, $p = 000$, $k = 22$), protective buffering coping ($r = .32$, $CI = .26 - .37$, $p = 000$, $k = 18$), delegated coping ($r = .31$, $CI = .26 - .35$, $p = 000$, $k = 24$), and overprotection ($r = .11$, $CI = .02 - .20$, $p = 018$, $k = 4$). Hostile/ambivalent coping ($r = .42$, $CI = .38 - .45$, $p = 000$, $k = 37$) was a stronger predictor of relationship satisfaction than stress communication, protective buffering coping, delegated coping, and overprotection. Stress communication, protective buffering coping, and delegated coping were not statistically different from one another yet were all stronger predictors of relationship satisfaction than overprotection. Although overprotection was a moderate predictor of relationship satisfaction, it was the weakest predictor of relationship satisfaction; this may in

part be due to the small number of samples ($k = 4$) and disparate correlations with relationship satisfaction (both positive and negative correlations).

Table 4 presents the results of coping provider heterogeneity Q-tests. Dyadic coping by partner was a stronger predictor of relationship satisfaction than dyadic coping by self for the following dimensions: hostile/ambivalent coping, delegated coping, and supportive coping; consistent with the initial results on coping provider for total coping, dyadic coping by self was not a stronger predictor of relationship satisfaction than dyadic coping by partner for any of the dimensions. Collaborative common dyadic coping was not analyzed because it is solely based on coping by both partners together. Although we did not identify any coping provider differences protective buffering coping or overprotection coping, this may be the result of underpowered subgroup sample numbers. The results of heterogeneity Q-tests for gender indicated there were no gender differences in the association between any of the dyadic coping dimensions and relationship satisfaction, even when analyzed by coping provider.

Within-partner and across-partner reports of dyadic coping. Table 5 presents the aggregated standardized zero-order correlational results for within-partner reports of dyadic coping correlated with relationship satisfaction (e.g., female report on dyadic coping by self correlated with female report of relationship satisfaction, female report on dyadic coping by partner correlated with female report of relationship satisfaction) compared to across-partner reports of dyadic coping correlated with relationship satisfaction (e.g., female report on dyadic coping by self correlated with male report of relationship satisfaction, female report on dyadic coping by partner correlated with male report of relationship satisfaction). We temporarily reverse-coded the direction of effect sizes associated with negative dyadic coping when necessary. Across-partner report correlations were consistently smaller than within-partner report correlations. For total dyadic coping, within-partner reports ($r = .45$, $CI = .41 - .48$, $p = 000$, $k = 72$) were stronger predictors of relationship satisfaction ($Q = 50.80$, $p = .000$, $K = 88$) than across-partner reports ($r = .20$, $CI = .14 - .26$, $p = 000$, $k = 16$). Similarly, both negative and positive

dyadic coping were stronger predictors of relationship satisfaction for within-partner reports than for across-partner reports for both genders. Furthermore, within-partner reports of dyadic coping were stronger predictors of relationship satisfaction than across-partner reports for coping provider (i.e., self, partner, both partners together) for both genders. There were no significant gender differences in the magnitude of across-partner effects for total dyadic coping, positive dyadic coping, or negative dyadic coping.

Data Censoring

Publication bias is a type of data censoring in which reports with smaller or non-significant effect sizes are less likely to be published than reports with larger effect sizes, resulting in the *file-drawer effect*: unpublished reports that are more difficult to identify are often missing in meta-analytic reviews, creating a risk of inflated effect sizes due to publication bias (Dickersin, 2005; Lipsey & Wilson, 2001; Sutton, 2009). If missing reports are systematically different from included reports, key meta-analytic assumptions are violated (Hunter & Schmidt, 2004).

We conducted several tests for data censoring and concluded that the overall impact of publication bias on our results was trivial. We conducted a funnel plot (Figure 3), a subjective visual test for meta-analysis publication bias in which the absence of symmetry along the effect size mean and on both sides of the effect size mean indicates the presence of publication bias (Light & Pillemer, 1984). We also conducted a *trim and fill* test for data censoring (Duval & Tweedie, 2000a) utilizing a random-effects model. Duval and Tweedie's *trim* and *fill* test for publication bias employs an iterative method to systematically remove (trim) and then restore (fill) the most extreme sample effect size from the more-populated side of the funnel plot while copying mirror sample effect sizes to the less populated side of the funnel plot (Duval & Tweedie, 2000b). This iterative process was facilitated by taking one sample effect size at a time (beginning with the most extreme) and recalculating a new adjusted aggregated effect size for each iteration until the funnel plot became symmetrical along the new adjusted aggregated effect size (Borenstein et al., 2009). The *trim* and *fill* test with a random-effects model to impute

missing samples yielded 10 potentially missing samples to the right of the mean (Figure 3) with an adjusted aggregated effect size corrected for publication bias. The non-substantive difference between the observed aggregated correlation for dyadic coping and relationship satisfaction (r = .45, K = 72) and the adjusted aggregated correlation for dyadic coping and relationship satisfaction (r = .47, K = 82) suggested the absence of significant publication bias.

We also conducted several Orwin's *fail-safe N* tests for data censoring to identify the number of missing samples necessary to change the aggregated effect size to another specified value (Begg & Mazumdar, 1994; Orwin & Boruch, 1983). Orwin's *Fail-safe N* estimation of necessary missing samples allows us to designate the criterion variable for a *trivial* effect size (i.e., "a value that would represent the smallest effect deemed to be of substantive importance…. [below which] the cumulative effect would become trivial" Borenstein et al., 2009, pp. 285). Orwin's *Fail-safe N* estimation of necessary missing samples also allowed us to designate the mean effect size value for the missing samples to explore the estimated number of missing samples for a sequence of differing distributions (Becker, 2005). There would need to be 3,471 missing samples with r = .00 added to the included samples to reduce the observed aggregated correlation between dyadic coping and relationship satisfaction (r = .45, K = 72) to below .01. Furthermore, there would need to be 282 missing samples with r = .00 added to the included samples to move the observed aggregated correlation between dyadic coping and relationship satisfaction to a small effect size ($r \leq .10$), and 14 missing samples with r = .00 added to the included samples to move the observed aggregated correlation between dyadic coping and relationship satisfaction to a medium effect size ($r \leq .39$). The number of potential missing samples indicating no association between dyadic coping and relationship satisfaction needed to substantially change the observed aggregated correlation between dyadic coping and relationship satisfaction provided additional support that the impact of publication bias on our results was trivial.

Moderator Analyses

Table 6 presents the results of the moderator analyses that were conducted. All moderator analyses were calculated based on total dyadic coping associations with relationship satisfaction; correlations for negative dyadic coping dimensions were temporarily reverse-coded to aggregate them with other dimensions for the moderator analysis. When possible we identified subgroup parameters that would result in similar distribution of sample numbers (k) across subgroups.

We did not find significant differences between subgroups for any of the report characteristics (i.e., report publication status, report type, report language, and coders). The absence of significant between-subgroup differences for report publication status, report type, and report language further support that the impact of publication bias on our results was trivial.

With regard to methodology, we identified significant differences ($Q = 5.26$, $p = .022$, $K = 72$) between samples with cross-sectional study designs ($r = .47$, CI: .42 − .51, $p = .000$, $k = 60$) and samples with longitudinal study designs ($r = .33$, CI: .22 − .44, $p = .000$, $k = 12$) indicating stronger correlations between dyadic coping and relationship satisfaction for cross-sectional sample data compared to longitudinal sample data. We also found significant differences ($Q = 17.75$, $p = .000$, $K = 72$) between dyadic coping as measured by the DCI ($r = .50$, CI: .45 − .54, $p = .000$, $k = 52$) and dyadic coping as measured by all other instruments ($r = .29$, CI: .20 − .38, $p = .000$, $k = 20$), suggesting that dyadic coping as measured by the DCI is more predictive of relationship satisfaction than the other dyadic coping instruments. We did not find significant differences between subgroups for the remaining methodological characteristics (i.e., study designs with or without participant intervention, participant recruitment, dyadic or non-dyadic data, and relationship satisfaction measure).

We identified significant differences ($Q = 8.46$, $p = .004$, $K = 72$) between samples in which one or both partners having a medical condition or psychological disorder was an inclusionary criterion ($r = .35$, CI: .27 − .43, $p = .000$, $k = 25$) and was not an inclusionary criterion ($r = .49$, CI: .44 − .53, $p = .000$, $k = 47$), suggesting that dyadic coping is less highly

correlated with relationship satisfaction among couples dealing with mental or medical conditions compared to couples not dealing with mental or medical conditions. Upon further investigation, all of the samples for which data were collected using instruments other than the DCI minus one were samples in which one partner had a medical condition, indicating possible confounded moderator effects. Insufficient samples of partners (a) without a medical condition or psychological disorder for which data were collected using instruments other than the DCI and (b) with a medical condition or psychological disorder for which data were collected using the DCI made moderator analyses for potential confounding effects between the measures and the presence of medical/psychological conditions impossible. Moderator analyses of which partner provided coping (the partner with the condition or partner without condition) indicated no differences for dyadic coping by self nor by partner.

We did not find significant differences between subgroups for the remaining participant characteristics (i.e., average age, average relationship duration, average education, and nationality). Because all included samples for which social class was reported were middle class except three, we were not able to analyze whether or not there were significant between-subgroup differences for participant social class.

Discussion

Dyadic coping is a multidimensional construct that describes both partners' efforts to deal with stress in the context of the couple relationship. These efforts involve what each partner does in terms of communicating stress and providing support to each other, as well as partners' conjoint efforts to cope with stress. Each of the dyadic coping models developed in the last 20 years (STM, RFCM, and DCCM) has emphasized different dimensions of both positive and negative dyadic coping. Within positive dyadic coping strategies, those models have identified stress communication, supportive coping, delegated coping, and collaborative common dyadic coping whereas controlling coping, hostile/ambivalent coping, overprotection, protective buffering, and uninvolved coping have been described as negative dyadic coping responses. The

objective of the present study was to analyze the association of total dyadic coping and its different positive and negative dimensions with relationship satisfaction by conducting a meta-analysis of all relevant studies in which such associations had been examined. Results from this meta-analysis indicated that total dyadic coping and its different dimensions are all significant predictors of relationship satisfaction across all the various moderators included in this study.

 Total Dyadic Coping

 The results of this meta-analysis indicate a strong positive correlation between total dyadic coping and relationship satisfaction for both men and women. A partner's satisfaction with the couple relationship was largely associated with his own perception of the couple's total dyadic coping, regardless of the partner's gender, age, nationality, educational level, and couple relationship duration. In other words, dyadic coping was equally important in terms of relationship satisfaction for both men and women, young and older couples, newer and older relationships, individuals with different nationalities. The absence of significant gender differences is consistent with findings from a meta-analysis in marital satisfaction that indicated no gender differences existed across 201 non-clinical community samples (Jackson et al., 2014).

The presence of a significant association between total dyadic coping and relationship satisfaction regardless of most methodological differences in data collection is another indicator of the robustness of the association between dyadic coping and relationship satisfaction. Recruitment methods (e.g., community, clinic), presence or not of an intervention, relationship satisfaction instruments, and whether the sample participant data were dyadic or non-dyadic did not affect the predictive value of total dyadic coping on relationship satisfaction.

Nonetheless, two methodological characteristics did moderate the association between total dyadic coping and relationship satisfaction: cross-sectional vs. longitudinal studies and dyadic coping instruments. Data from longitudinal studies yielded smaller effect sizes than data from cross-sectional studies, which could be attributed to the small number of longitudinal studies compared to the larger number of cross-sectional studies included in the analyses. In terms of

moderation effects of instruments on the association between dyadic coping and relationship satisfaction, this association was significantly stronger when total dyadic coping was measured using the DCI, than when using any other dyadic coping instruments such as the RFCS, the ERS, or the PBOC. The fact that the DCI assesses more dimensions of dyadic coping than any other instrument (please see section on dyadic coping instruments), and therefore, is a more comprehensive assessment instrument, may explain its stronger association with relationship satisfaction. It is possible that when all dimensions of dyadic coping are considered, the couple's total dyadic coping becomes a better predictor of relationship satisfaction. This difference might also explain the moderating effect of participants who have or do not have a medical condition or psychological disorder. Total dyadic coping was a weaker predictor of relationship satisfaction for individuals with a medical or mental condition than for individuals without any such condition. Even though this finding may suggest that dyadic coping has fewer benefits in terms of satisfaction with the couple's relationship for those individuals without any medical condition, it may also be an artifact of the instrument used. All studies but one on relationship satisfaction using the RFCS, the WPS, the ERS, or the PBOC had participants with medical conditions. Given that instrument and participant's medical condition are confounded, it is not possible to establish to what extent the difference in the association between dyadic coping and relationship satisfaction can be attributed to differences in instrument, participant's condition, or both.

Significant differences were also found for both male and female partners regarding whether individuals reported about dyadic coping by themselves, by their partners, or by both partners together. Compared to dyadic coping by self, dyadic coping by partner and by both partners together were significantly stronger predictors of relationship satisfaction. It stands to reason that individuals' relationship satisfaction depends more on their perception of what their partner does to help them cope with stress and what they do together to cope with stress than their own perceived efforts to assist their partner cope with stress.

Positive and Negative Dyadic Coping

Both, overall positive dyadic coping and overall negative dyadic coping contributed significantly to relationship satisfaction but in opposite directions. Consistent with the findings for total dyadic coping, perceptions of coping by partner and by both partners together were stronger predictors of relationship satisfaction than perceptions of coping by oneself for both overall positive and negative dyadic coping regardless of reporter's gender. Nonetheless, for both men and women, their perception of overall positive dyadic coping was a significantly better predictor of relationship satisfaction than their perception of overall negative dyadic coping. This set of findings suggests that satisfaction with the couple relationship for both partners may depend more on their partner's and both partners' efforts of engaging in successful, positive dyadic coping strategies rather than reducing negative dyadic coping responses.

Although positive dyadic coping consisted of aggregated dimensions that were significantly different from each other in associated strength with relationship satisfaction (i.e., collaborative common dyadic coping was stronger than stress communication and delegated dyadic coping; supportive dyadic coping was stronger than stress communication and delegated dyadic coping) and negative dyadic coping also consisted of aggregated dimensions that were significantly different from each other in associated strength with relationship satisfaction (i.e., hostile/ambivalent dyadic coping was stronger than protective buffering dyadic coping and overprotection dyadic coping; protective buffering dyadic coping was stronger than and overprotection dyadic coping), the aggregation of dimensions into positive dyadic coping and negative dyadic coping was grounded in theory conceptualization and verified by magnitude direction. Because some dimensions of negative dyadic coping were stronger predictors of relationships satisfaction does not necessarily indicate that they should not be conceptually aggregated together as negative dyadic coping; all of the dimensions of negative dyadic coping were negatively associated with relationship satisfaction, providing quantitative support for the aggregation. Similarly, because some dimensions of positive dyadic coping were stronger

predictors of relationships satisfaction does not necessarily indicate that they should not be conceptually aggregated together as positive dyadic coping; all of the dimensions of positive dyadic coping were positively associated with relationship satisfaction, providing quantitative support for the aggregation.

Dimensions of Dyadic Coping

Each dimension of dyadic coping was significantly associated with relationship satisfaction, with correlation magnitude ranging from moderate to strong. Individuals' perceptions of communication of stress, supportive coping, delegated coping, collaborative common dyadic coping were all significant positive predictors of relationship satisfaction, whereas hostile/ambivalent coping, overprotection, and protective buffering were significant negative predictors of relationship satisfaction. Consistent with the findings for the aggregated dimensions of dyadic coping, individuals' perceptions of supportive, delegated, hostile/ambivalent coping by the partner contributed more significantly to their relationship satisfaction than their perceptions of their own engagement in those coping strategies for both men and women.

In terms of the relative contribution of each dyadic coping dimension to relationship satisfaction, collaborative coping was the strongest predictor for both men and women when compared to any other individual dimension, with the exception of supportive coping. This finding continues to emphasize the central role, for both men and women, of partners' conjoint, collaborative efforts to manage stress, a dimension included in both STM and DCCM. Both supportive coping and hostile/ambivalent coping were significantly better predictor of relationship satisfaction for both men and women compared to stress communication, delegated coping, overprotection, and protective buffering. This means that partners' relationship satisfaction is more strongly associated with the extent to which they provide emotion- and problem-focused support to each other and avoid hostile/ambivalent coping than the extent to which they communicate their stress to each other, take over each other's responsibilities and tasks to

alleviate stress, or hide worries and concerns from the each other.

Even though overprotection was a moderately strong predictor of relationship satisfaction, it was the weakest predictor of all dyadic coping dimensions for both men and women. The association between overprotection and relationship satisfaction could be a result of the limited number of studies in which the association between overprotection and relationship satisfaction has been examined, and the presence of both positive and negative correlations between overprotection and relationship satisfaction across those studies. Therefore, it appears that providing unnecessary support to a partner as a result of underestimating that partner's capabilities sometimes contributes to improvements in relationship satisfaction and sometimes contributes to declines in relationship satisfaction.

Within-partner reports were significantly stronger predictors of relationship satisfaction than across-partner reports regardless of gender, suggesting that a person's perceptions about dyadic coping are more highly correlated with her relationship satisfaction than with her partner's relationship satisfaction. This finding may be due to shared measurement variance.

Clinical Implications

Findings from the present meta-analysis suggest that dyadic coping and relationship satisfaction are closely associated regardless of gender, age, relationship length, education level, and nationality, which has some implications for both couple therapy and relationship enrichment programs. Given that partners' functioning has been found to be affected by both major stressors (e.g., loss, mental health disorders, terminal illness) and minor stress (e.g., family responsibilities, job responsibilities) (e.g., Ledermann et al., 2010), couple therapists should routinely assess dyadic coping processes and explore the implications of dyadic coping on relationship satisfaction. Given the differences in association between negative and positive forms of dyadic coping with relationship satisfaction, evaluating to what extent a couple relies on positive or negative forms of dyadic coping might help clinicians determine to what extent partners need to rely more on positive dyadic coping strategies and/or abandon negative dyadic coping methods.

Since perceptions of coping together and of coping by partner tend to be the stronger predictors of relationship satisfaction than dyadic coping by oneself, attention should also be given to what extent both partners engage in coping together and to what extent each partner perceives that the other partner helps him with stress.

Considering that dyadic coping is so closely associated with relationship satisfaction, couples may benefit from increased awareness about this association and from discussions about ways in which they can improve dyadic coping. Accordingly, couple treatment could incorporate a focus on dyadic coping that includes both psychoeducation and training (Bodenmann & Randall, 2012). Psychoeducation may help partners to learn the value of communicating with one another when they are stressed, providing emotion- and problem-focused support, taking over their partner's responsibilities and tasks when their partner is stressed, and engaging in conjoint efforts to cope when they are both stressed or when one partner is suffering from a severe health condition (Kayser et al., 2007). Some partners may also benefit from understanding the negative effects of providing hostile or ambivalent support or using protective buffering when their partner experiences stress. In terms of skills training, a three-phase method has been proposed in which partners learn to (a) improve their ability to communicate their stress explicitly to their partner, including discriminating facts from emotions, (b) respond to their partner's stress with dyadic coping efforts (supportive, delegated, or common dyadic coping) that meet their partner's needs, and (c), refine and enhance their ability to provide dyadic coping based on the partner's feedback and needs (Bodenmann, 2007).

Similarly, couples might benefit from the incorporation of psycho-education and skills training in dyadic coping in relationship enhancement programs. *Couples' Coping Enhancement Training* (CCET, Bodenmann & Shantinath, 2004) is an example of a program that includes communication, problem solving and dyadic coping skills and has shown to be effective in improving relationship satisfaction (e.g., Bodenmann, Bradbury, Pihert, 2009). Furthermore, one study even indicated that in the long run improvement of dyadic coping was more favorable for

relationship satisfaction than improvement of communication skills (Bodenmann et al., 2009). In short, findings from the present meta-analysis indicate that dyadic coping is strongly associated with relationship satisfaction and therefore, incorporating dyadic coping in couple therapy or in relationship enhancement programs could be beneficial for the couple's relationship.

Limitations and Implications for Future Research

The quality of meta-analysis depends largely on the quality of included studies. Therefore, the methodological quality of the studies included in the present meta-analysis has an impact on the quality of the aggregated effect sizes. For example, with the exception of one study, all studies included in the present meta-analysis measured dyadic coping through self-report instruments, which are limited by social desirability, personal biases, and potentially inflated effect sizes due to shared measurement variance. Similarly, the majority of the studies used cross-sectional data, limiting any potential conclusions regarding the direction of the association between dyadic coping and relationship satisfaction. Another limitation is that even though the samples included in the present meta-analysis were from different countries, participants were predominantly college-educated middle-class people of European descent, which limits the external validity and generalizability of the findings. More studies in this area need to be conducted with low-income, less-educated participants from non-European cultures.

There is substantial evidence that intimate relationship quality influences the emergence, process, treatment success, and risk of recidivism by several mental disorders (e.g., affective disorders, anxiety disorders; Baucom, Whisman, & Paprocki, 2012). Given that the present meta-analysis provides evidence for the strong association between dyadic coping and relationship satisfaction, further research should examine whether and to what extent dyadic coping may also protect against partner psychiatric disorders and actually decreases stress levels. In addition, we were not able to examine whether relationship satisfaction level moderated the correlation between dyadic coping and relationship satisfaction over time due to the limited amount of longitudinal research and difficulties associated with converting the means from multiple

relationship satisfaction measures to a common metric. Future longitudinal research is necessary to investigate if dyadic coping is more strongly associated with increased relationship satisfaction among couples with lower levels of relationship satisfaction who potentially have more room to improve over time by engaging in dyadic coping, than couples with higher levels of relationship satisfaction who potentially have less room to improve over time by engaging in dyadic coping.

As noted earlier, it is not yet possible to conduct meta-analysis on the association between dyadic coping and individual health outcomes due to the limited number of relevant studies. More studies examining dyadic coping as a predictor of decreased stress levels need to be conducted. In addition to including individual health outcomes, it is equally desirable that future research on dyadic coping also incorporate observational measures as well as longitudinal data collection.

Caution should be exercised in generalizing our findings to people in same-sex couples as our findings were based exclusively on people in opposite-sex relationships. The absence of same-sex relationship representation in our research is a direct reflection of the limited research activity on dyadic coping in same-sex couples. Even though findings from the only published study (Mewuly, Feinstein, Davila, Nuñes, & Bodenmann, 2013) suggest that dyadic coping also predicts relationship satisfaction in lesbian couples, more research is clearly needed.

Given that the DCI has been designed to assess dyadic coping with any type of stress and the other dyadic coping measures have been developed to assess dyadic coping among couples affected by medical conditions, further studies should be conducted on samples (a) with a medical condition using the DCI and (b) without a medical condition using the RFCS, CCQ, WPS, and ERS. This type of research would allow for determining if the measurement instrument or the presence of a mental or medical condition moderates the relationship between dyadic coping and relationship satisfaction. Similarly, considering that fewer studies have included RFCM dimensions, more studies examining protective buffering and overprotection are needed to better assess their strength as predictors of relationship satisfaction. Research is also needed on the

DCCM dimensions of controlling and uninvolved dyadic coping so that their relative contribution to relationship satisfaction can be examined. Last, given the relative large size of the associations between dyadic coping and relationship satisfaction, it is important that the convergent and divergent validity of the DCI, the RFCS, and the ERS are further explored to ensure that dyadic coping instruments are not measuring relationship satisfaction dimensions.

Conclusion

Findings from the present meta-analysis involving 72 different samples indicate that total dyadic coping, each dyadic coping dimension and both positive and negative dyadic coping as aggregated dimensions all strongly predict relationship satisfaction regardless of gender, age, relationship length, education level, and nationality. Results also suggest that coping by both partners and dyadic coping by partner are stronger predictors of relationship satisfaction than dyadic coping by self, whereas collaborative common dyadic coping, supportive coping, and hostile/ambivalent dyadic coping are stronger predictors of relationship satisfaction than delegated dyadic coping, stress communication, overprotection, and protective buffering. Positive forms of dyadic coping taken together predict relationship satisfaction more strongly than the aggregation of all negative dimensions of dyadic coping. Some methodological characteristics moderated the association between dyadic coping and relationship satisfaction. These results have important clinical implications as they suggest potential benefits of assessing and working on dyadic coping strategies, particularly collaborative common dyadic coping, supportive dyadic coping, and hostile/ambivalent dyadic coping in couple therapy.

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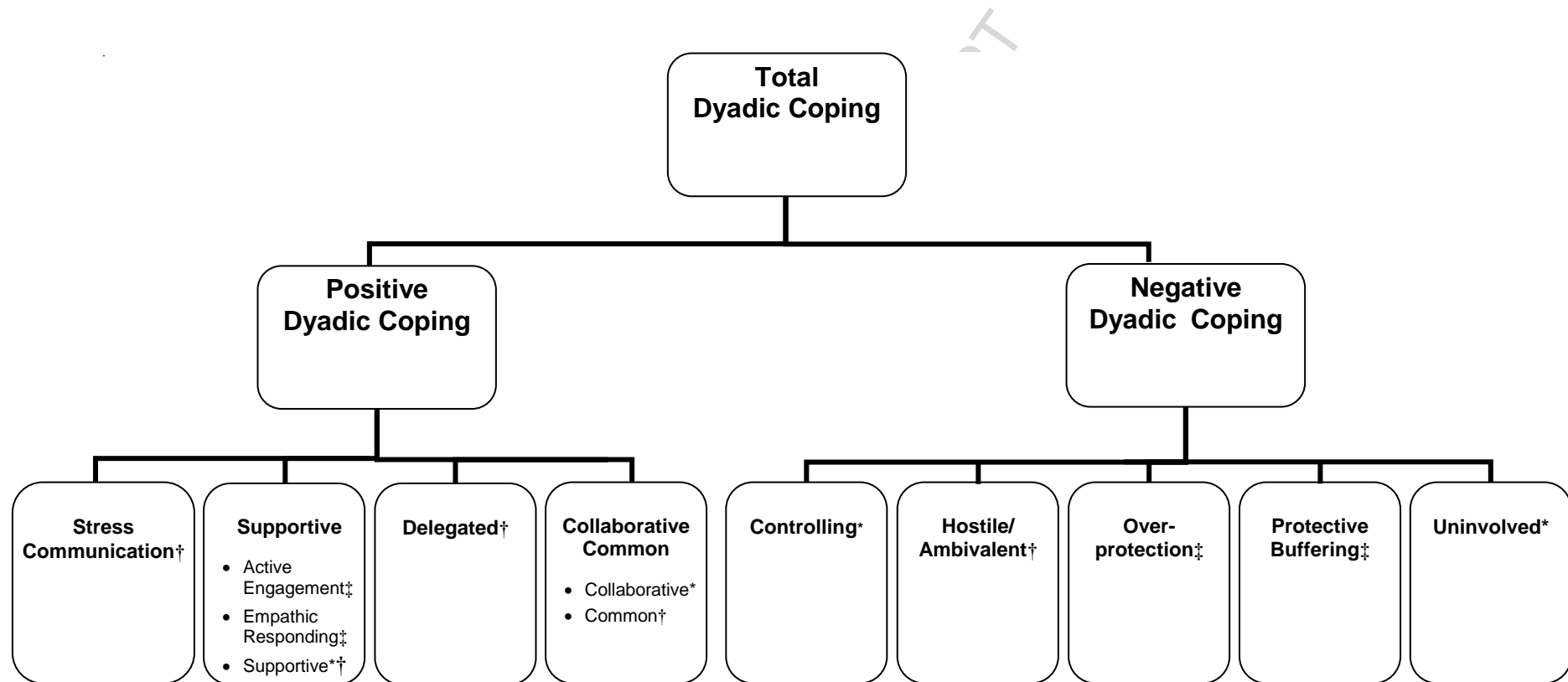
Figure 1. Comprehensive Conceptual Model of Dyadic Coping Dimensions. * = Developmental-contextual coping model (DCCM; Berg & Upchurch, 2007) dimension. † = Systemic-transactional model (STM; Bodenmann, 1995, 1997) dimension. ‡ = Relationship-focused coping model (RFCM; Coyne & Smith, 1991; DeLongis & O'Brien, 1990) dimension. All dimensions except collaborative common dyadic coping are comprised of self-reported coping behaviors (*by self*), coping behaviors as perceived by the partner (*by partner*); collaborative common dyadic coping is only comprised of combined coping behaviors by both partners (*by both partners together*).

Study name	Correlation	Lower limit	Upper limit	Z-Value	p-Value	Total	Correlation and 95%CI
Aditya, 2010 A	0.55	0.45	0.64	8.75	0.000	203	
Aditya, 2010 B	0.54	0.43	0.63	8.54	0.000	203	
Alves Pires, 2011	0.40	0.25	0.53	5.02	0.000	144	
Anderegg, 2011 A	0.63	0.56	0.69	14.32	0.000	376	
Anderegg, 2011 B	0.41	0.21	0.58	3.80	0.000	79	
Badr, 2010	0.29	0.20	0.38	5.85	0.000	382	
Bodenmann & Gabriel, 2008	0.54	0.42	0.65	7.37	0.000	150	
Bodenmann & Gmelch, 2008	0.75	0.69	0.80	16.22	0.000	281	
Bodenmann & Ledermann, 2006	0.24	0.13	0.34	4.11	0.000	292	
Bodenmann & Pihet, 2006	0.22	0.08	0.36	3.02	0.002	180	
Bodenmann, 2008 A	0.45	0.35	0.55	7.68	0.000	250	
Bodenmann, 2008 B	0.56	0.50	0.62	13.87	0.000	482	
Bodenmann, 2008 C	0.52	0.47	0.57	17.19	0.000	886	
Bodenmann, 2008 D	0.54	0.48	0.60	14.34	0.000	562	
Bodenmann, 2009	0.56	0.47	0.64	9.83	0.000	244	
Bodenmann, 2010	0.18	-0.01	0.36	1.82	0.069	103	
Bodenmann, 2011	0.75	0.69	0.80	14.98	0.000	240	
Donato, 2012 A + Iafrate, 2012 A	0.39	0.31	0.46	8.70	0.000	458	
Donato, 2012 B + Iafrate, 2012 B	0.43	0.34	0.51	8.93	0.000	384	
Falconier, 2012	0.54	0.44	0.62	8.92	0.000	226	
Foreberg, 2010	0.61	0.52	0.68	10.60	0.000	230	
Gabriel, 2010 A	0.67	0.52	0.78	6.86	0.000	74	
Gabriel, 2010 B	0.52	0.33	0.67	4.82	0.000	74	
Gmelch, 2008 + Nussbeck, 2012 A	0.29	0.24	0.34	11.02	0.000	1327	
Gmelch, 2008 + Nussbeck, 2012 B	0.21	0.16	0.27	7.08	0.000	1072	
Hagedoorn, 2000	0.28	0.17	0.39	4.80	0.000	272	
Hagedoorn, 2011	0.40	0.26	0.51	5.51	0.000	176	
Hartley, 2001 A	0.25	-0.01	0.47	1.90	0.058	60	
Hartley, 2001 B	0.23	-0.06	0.49	1.54	0.125	46	
Heimgartner, 2012	0.51	0.40	0.61	7.49	0.000	178	
Hemphill, 2013	0.19	0.06	0.30	2.99	0.003	258	
Herzberg, 2012	0.44	0.37	0.51	10.32	0.000	480	
Hinnen, 2008	0.52	0.33	0.67	4.81	0.000	72	
Iafrate, 2009, 2012 + Bertoni, 2007	0.44	0.37	0.49	12.30	0.000	698	
Johnson, 2013 A	0.25	0.01	0.46	2.05	0.040	68	
Johnson, 2013 B	0.34	0.07	0.57	2.44	0.015	49	
Kardatzke, 2009	0.77	0.71	0.82	13.99	0.000	191	
Kuijer, 2000	0.25	0.12	0.37	3.63	0.000	212	
Landis, 2013	0.34	0.23	0.44	5.68	0.000	264	
Langer, 2007	0.45	0.26	0.61	4.37	0.000	84	
Langer, 2009	0.30	0.15	0.43	3.83	0.000	160	
Ledermann, 2010 A	0.60	0.46	0.71	7.16	0.000	110	
Ledermann, 2010 B	0.52	0.40	0.61	7.79	0.000	190	
Ledermann, 2010 C	0.65	0.52	0.75	7.46	0.000	96	
Ledermann, 2010 D	0.54	0.39	0.66	6.16	0.000	106	
Ledermann, 2010 E	0.51	0.39	0.61	7.63	0.000	188	
Ledermann, 2010 F	0.53	0.38	0.66	5.90	0.000	102	
Mahoney, 2006	0.25	0.08	0.40	2.89	0.004	134	
Merz, 2010 + Meuwly, 2012	0.42	0.31	0.52	7.01	0.000	246	
Morfesis, 2009	0.64	0.40	0.80	4.47	0.000	38	
Nadler, 2012 A	0.37	0.16	0.54	3.41	0.001	82	
Nadler, 2012 B	0.27	0.06	0.46	2.51	0.012	82	
Nadler, 2012 C	0.18	-0.04	0.38	1.64	0.100	82	
Nadler, 2012 D	0.23	0.02	0.43	2.10	0.035	82	
O'Brien, 2009	0.12	-0.03	0.27	1.54	0.123	164	
Oh, 2009	0.44	0.31	0.55	6.37	0.000	188	
Papp, 2010	0.54	0.43	0.63	8.49	0.000	200	
Partschefeld, 2010	0.47	0.33	0.59	5.82	0.000	134	
Piening, 2001	0.29	0.12	0.44	3.24	0.001	124	
Rosenstrauch, 2005	0.13	-0.01	0.27	1.87	0.061	194	
Rusu, 2012	0.47	0.39	0.54	10.55	0.000	430	
Schneider, 2012	0.41	0.27	0.54	5.16	0.000	140	
Schokker, 2010	0.51	0.40	0.60	8.31	0.000	224	
Stoss, 2012	0.70	0.62	0.76	12.17	0.000	200	
Suls, 1997	0.27	0.06	0.46	2.53	0.011	86	
Trost, 2004	0.32	0.15	0.47	3.59	0.000	120	
Vedes, 2013 A	0.60	0.54	0.65	14.83	0.000	465	
Vedes, 2013 B	0.52	0.39	0.63	6.78	0.000	143	
Weiss, 2012	0.22	-0.04	0.46	1.68	0.093	58	
Wunderer, 2008	0.57	0.54	0.61	23.74	0.000	1326	
Zeidner, 2012	0.63	0.54	0.71	10.37	0.000	200	
Zimmermann, 2010	0.26	0.12	0.39	3.70	0.000	196	
	0.45	0.41	0.49	19.55	0.000		

-1.00   -0.50   0.00   0.50   1.00

Figure 2. Aggregated dyadic coping correlated with relationship satisfaction by study report. Study reports are listed alphabetically by first author last name and publication year for published reports and completion year for unpublished reports; second authors are added in situations for which more than one report had the same first author and year. Study reports with letters at the end indicate different subsamples included in the same report. Samples included in multiple reports are indicated by combining (+) the first author last name and year for the reports. Sample size is presented in the *Total* column. Point estimate correlations are indicated by vertical lines; the 95% confidence interval (*CI*) is indicated by horizontal lines. The bottom row presents effect size information for the aggregated dyadic coping correlated with relationship satisfaction calculated using a random-effects model, with point estimate correlation indicated by the vertical center of the filled diamond and the 95% confidence interval indicated by the horizontal width of

the filled diamond.
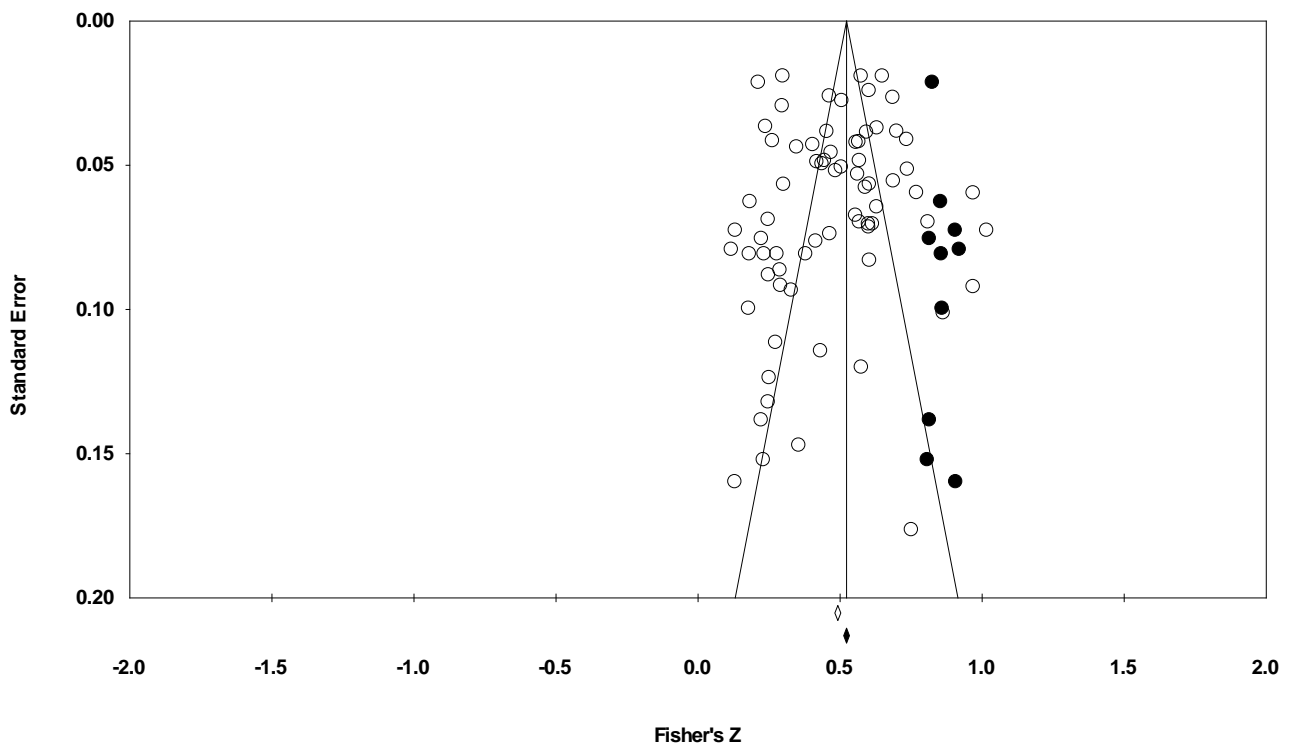
Figure 3. Funnel plot of standard error (*SE*) by Fisher's *Z* for dyadic coping correlated with relationship satisfaction. Studies with larger sample sizes (and therefore less sampling error) tend to cluster around the mean toward the top of the inverted funnel; studies with smaller sample sizes (and therefore greater sampling error and effect size variation) tend to be more widely distributed around the mean toward the middle and bottom of the inverted funnel (Light, Singer, & Willett, 1994). Because studies with larger samples are more likely to be published, meta-analysis plots tend to have most studies clustered at the top around the mean with relatively few studies toward the middle and bottom, suggesting the absence of smaller unpublished studies (Borenstein et al., 2009). Each unfilled circle indicates an included sample (*K* = 72), with the Fisher's *Z* on the *X* axis and the standard error (*SE*) on the *Y* axis (with the direction reversed such that smaller error values are at the top and larger error values are at the bottom); the unfilled diamond below the *X* axis indicates the observed aggregated dyadic coping correlated with relationship satisfaction (*r* = .45). Each filled circle indicates an imputed missing sample (*k* = 10) using a random-effects model for Duval and Tweedie's *Trim and Fill* test for publication; the filled diamond indicates the adjusted aggregated dyadic coping correlated with relationship satisfaction calculated including the imputed missing samples (*r* = .47).

Table 1

Descriptive Summary of Sample Characteristics

Characteristic	k	%	K
Sample Report Characteristics			
Report publication status			74
Published	47	64	
Unpublished	27	36	
Report type			75
Book or book chapter	5	6	
Dissertation	14	19	
Journal article	43	58	
Master thesis	12	16	
Other (college course)	1	1	
Report language			73
English	50	69	
German	21	29	
Italian	1	1	
Portuguese	1	1	
Coders			
Author 1	48	65	74
Author 3	26	35	
Methodological Characteristics			
Study design			72
Cross-sectional	60	83	
Longitudinal	12	17	
Intervention			72
No	62	86	
Yes	10	14	
Sample recruitment			72
Community	38	53	
Community & therapy clinic	4	6	
Community & university	1	1	
Health care center	20	28	
National database	6	8	
University	3	4	
Dyadic/Non-dyadic data			72
Dyadic (i.e., data from female-male pairs)	48	67	
Non-dyadic (i.e., data from only one partner)	24	33	
Dyadic coping measure			72
Collaborative Coping Questionnaire (CCQ)	1	1	
Dyadic Coping Inventory (DCI)	52	73	
Empathic Responding Scale (ERS)	1	1	
Protective Buffering Observational Coding System (PBOCS)	1	1	
Relationship-Focused Coping Scale (RFCS)	10	14	
Ways of Providing Support (WPS) scale	7	10	
Relationship satisfaction measure			72
Couple Satisfaction Index (CSI)	7	10	
Daily Dairy of Relationship Quality (DDRQ)	1	1	
Dyadic Adjustment Scale (DAS)	15	21	
Marital Happiness Rating Scale (MHRS)	1	1	
Maudsley Marital Questionnaire (MMQ)	4	6	
Michigan Family Heart Project (MFHP)	1	1	
Partnership Questionnaire (PQ)	18	25	
Quality of Marriage Index (QMI)	4	6	
Relationship Assessment Scale (RAS)	20	28	
Relationship Improvement Scale (RIQ)	1	1	
Participant Characteristics			
Special characteristics			72
Medical condition (cancer, chronic pain, congestive heart failure, inflammatory bowel disease, myocardial infarction, spinal cord injury)	20	28	
Psychological disorder (attention deficit/hyperactivity disorder, depression, sexual dysfunction)	5	3	
No special characteristic	47	69	

Table 1

Descriptive Summary of Sample Characteristics

Characteristic	k	%	K
Female average age			67
20 – 29 years	11	16	
30 – 39 years	24	36	
40 – 49 years	13	20	
50+ years	19	28	
Female average age standard deviation			62
0 – 7 years	22	35	
8 – 9 years	17	28	
10+ years	23	37	
Male average age			64
20 – 29 years	9	14	
30 – 39 years	16	25	
40 – 49 years	19	30	
50+ years	20	31	
Male average age standard deviation			59
0 – 7 years	15	25	
8 – 9 years	16	27	
10+ years	28	48	
Relationship duration average			71
0 – 10 years	20	28	
11 – 20 years	26	37	
21+ years	25	35	
Relationship duration average standard deviation			66
0 – 9 years	35	53	
10+ years	31	47	
Female average education			57
Some high school	2	3	
High school graduate	9	16	
Some college	31	55	
College graduate	15	26	
Male average education			54
Some high school	1	2	
High school graduate	7	13	
Some college	27	50	
College graduate	19	35	
Nationality			73
Austria	1	1	
Canada	1	1	
Germany	5	7	
Germany and Switzerland	1	1	
Indonesia	2	3	
Israel	1	1	
Italy	3	4	
Italy and Switzerland	1	1	
Netherlands	5	7	
Portugal	3	4	
Romania	1	1	
Switzerland	30	42	
United States	19	27	
Social class			54
Middle class	51	94	
Mixed middle & lower class	1	2	
Upper middle class	2	4	

Note. K = the number of relevant samples for each characteristic. Because samples from reports utilizing the same data source were treated as one sample with multiple within-sample subgroups, the *K* values for the specified characteristics vary, reflecting within-sample subgroups that represent more than one category for the same characteristic.

Table 2

Total Dyadic Coping as a Predictor of Relationship Satisfaction

Total Dyadic Coping Dimension	Summary Information				Heterogeneity		
	r	95% *CI*	*p*	*k*	*Q*	*p*	*K*
Total Dyadic Coping	**.45**	**[.41, .48]**	**.000**	**72**	**1,110.02**	**.000**	**72**
Coping provider heterogeneity test					**29.22**	**.000**	**123**
Coping by partner	.48	[.43, .52]	.000	42			
Coping by self	.36	[.32, .39]	.000	51			
Coping by both partners together	.53	[.49, .58]	.000	30			
Report by gender heterogeneity test					2.63	.105	84
Female	.43	[.43, .52]	.000	44			
Male	.45	[.39, .47]	.000	40			
Coping by partner by gender heterogeneity test					2.67	.103	55
Female report of male coping	.52	[.46, .58]]	.000	28			
Male report of female coping	.45	[.40, .51]	.000	27			
Coping by self by gender heterogeneity test					0.31	.576	65
Female report of female coping	.36	[.32, .41]	.000	33			
Male report of male coping	.35	[.32, .39]	.000	32			
Coping by self and partner together by gender heterogeneity test					0.73	.394	45
Female report of coping by both partners together	.54	[.49, .59]	.000	23			
Male report of coping by both partners together	.51	[.45, .56]	.000	22			
Negative dyadic coping vs positive dyadic coping					**877.27**	**.000**	**122**
Negative dyadic coping	-.39	[-.42, -.36]	.000	55			
Coping provider heterogeneity test					**8.16**	**.004**	**73**
Coping by partner	-.45	[-.49, -.40]	.000	31			
Coping by self	-.36	[-.40, -.33]	.000	42			
Positive dyadic coping	.47	[.43, .50]	.000	67			
Coping provider heterogeneity test					**15.89**	**.000**	**85**
Coping by partner	.50	[.46, .55]	.000	40			
Coping by self	.37	[.33, .41]	.000	45			

Note. *r* = the aggregated zero-order correlation effect size. *CI* = confidence interval. *p* = level of statistical significance for the aggregated effect size or heterogeneity *Q*-test. *k* = number of samples in the moderator subgroup. *Q* = the *Q*-value for the heterogeneity *Q*-test for between-subgroup differences with *K* – 1 degrees of freedom. All effect estimates were calculated using random effects models and all *Q*-tests were calculated using mixed effects models. Significant *Q*-values indicate significant differences between at least two subgroups. *Q*-test significance is determined by the degree to which the confidence intervals for two or more subgroups overlap; a significant heterogeneity *Q*-test of *p* = .000 indicates that the confidence intervals for two subgroups do not overlap; statistically significant ($p \leq .05$) *Q*-tests are bolded. *K* = the total number of samples included in heterogeneity *Q*-test analyses. The effect size direction for negative dyadic coping effect sizes was temporarily reversed for total dyadic coping analyses.

Table 3

Dyadic Coping Dimensions as Predictors of Relationship Satisfaction

Dyadic Coping Dimension	Summary Information				Heterogeneity		
	r	95% *CI*	*p*	*k*	*Q*	*p*	*K*
Dyadic coping dimension heterogeneity test					**65.79**	**.000**	**181**
Collaborative common	.53	[.48, .57]	.000	30			
Supportive	.47	[.42, .52]	.000	46			
Hostile/ambivalent (-)	.42	[.38, .45]	.000	37			
Stress communication	.34	[.29, .38]	.000	22			
Protective buffering (-)	.32	[.26, .37]	.000	18			
Delegated	.31	[.26, .35]	.000	24			
Overprotection (-)	.11	[.02, .20]	.018	4			
Pairwise dyadic coping dimension heterogeneity tests							
Collaborative common							
Supportive					3.39	.066	76
Hostile/ambivalent (-)					**14.54**	**.000**	**67**
Stress communication					**33.16**	**.000**	**52**
Protective buffering (-)					**31.21**	**.000**	**48**
Delegated					**41.85**	**.000**	**54**
Overprotection (-)					**32.19**	**.000**	**34**
Supportive							
Hostile/ambivalent (-)					1.26	.262	83
Stress communication					**6.97**	**.008**	**68**
Protective buffering (-)					**7.40**	**.007**	**64**
Delegated					**11.20**	**.001**	**70**
Overprotection (-)					**10.70**	**.001**	**50**
Hostile/ambivalent (-)							
Stress communication					**5.75**	**.016**	**59**
Protective buffering (-)					**7.86**	**.005**	**55**
Delegated					**9.24**	**.002**	**61**
Overprotection (-)					**18.20**	**.000**	**41**
Stress communication							
Protective buffering (-)					0.67	.414	40
Delegated					0.29	.593	46
Overprotection (-)					**11.69**	**.001**	**26**
Protective buffering (-)							
Delegated					0.12	.732	42
Overprotection (-)					**9.72**	**.002**	**22**
Delegated							
Overprotection (-)					**9.34**	**.002**	**28**

Note. r = the aggregated zero-order correlation effect size. *CI* = confidence interval. *p* = level of statistical significance for the aggregated effect size or heterogeneity *Q*-test. *k* = number of samples in the moderator subgroup. *Q* = the *Q*-value for the heterogeneity *Q*-test for between-subgroup differences with *K* – 1 degrees of freedom. *K* = the total number of samples included in heterogeneity *Q*-test analyses. All effect estimates were calculated using random effects models and the between-dimension magnitude difference *Q*-tests were calculated using mixed effects models. The significant *Q*-value indicates significant differences between at least two dimensions. *Q*-test significance is determined by the degree to which the confidence intervals for two or more dimensions overlap; a significant heterogeneity *Q*-test of *p* = .000 indicates that the confidence intervals for two subgroups do not overlap; statistically significant ($p \leq .05$) *Q*-tests are bolded. (-) = dyadic coping dimensions for which effect size direction was temporarily reversed to analyze between-dimension magnitude differences. Dyadic coping dimensions are listed in descending order from largest to smallest effect size.

Table 4

Dyadic Coping Dimensions as Predictors of Relationship Satisfaction by Coping Provider

Dyadic Coping Dimension	Summary Information				Heterogeneity		
	r	95% *CI*	*p*	*k*	*Q*	*p*	*K*
Hostile/ambivalent					**9.59**	**.002**	**54**
by partner	-.48	[-.53, -.43]	.000	24			
by self	-.37	[-.42, -.33]	.000	30			
Collaborative Common (by both partners together)							
Delegated					**16.07**	**.000**	**41**
by partner	.40	[.33, .46]	.000	20			
by self	.24	[.21, .27]	.000	21			
Overprotection					1.32	.250	4
by partner	-.13	[-.23, -.02]	.016	2			
by self	.00	[-.19, .18]	.963	2			
Protective buffering					0.00	.998	19
by partner	-.32	[-.42, -.21]	.000	7			
by self	-.32	[-.38, -.25]	.000	12			
Stress communication					0.05	.816	42
by partner	.35	[.30, .39]	.000	20			
by self	.34	[.29, .39]	.000	22			
Supportive					**14.49**	**.000**	**66**
by partner	.57	[.50, .63]	.000	32			
by self	.39	[.34, .45]	.000	34			

Note. *r* = the aggregated zero-order correlation effect size. *CI* = confidence interval. *p* = level of statistical significance for the aggregated effect size or heterogeneity *Q*-test. *k* = number of samples in the moderator subgroup. *Q* = the *Q*-value for the heterogeneity *Q*-test for between-subgroup differences with *K* – 1 degrees of freedom. All effect estimates were calculated using random effects models and all *Q*-tests were calculated using mixed effects models. Significant *Q*-values indicate significant differences between at least two subgroups. *Q*-test significance is determined by the degree to which the confidence intervals for two or more subgroups overlap; a significant heterogeneity *Q*-test of *p* = .000 indicates that the confidence intervals for two subgroups do not overlap; statistically significant (*p* ≤ .05) *Q*-tests are bolded. *K* = the total number of samples included in heterogeneity *Q*-test analyses.

Table 5

Dyadic Coping as a Predictor of Relationship Satisfaction by Within-partner Report and Across-partner Report

Total Dyadic Coping Dimension	Summary Information				Heterogeneity		
	r	95% *CI*	*p*	*k*	*Q*	*p*	*K*
Total dyadic coping					**50.80**	**.000**	**88**
Within-partner report	.45	[.41, .48]	.000	72			
Across-partner report	.20	[.14, .26]	.000	16			
Negative dyadic coping					**21.82**	**.000**	**63**
Within-partner report	-.38	[-.42, -.35]	.000	50			
Across-partner report	-.17	[-.26, -.09]	.000	13			
Positive dyadic coping					**16.80**	**.000**	**75**
Within-partner report	.43	[.40, .47]	.000	61			
Across-partner report	.22	[.11, .32]	.000	14			
Female report on own relationship satisfaction					**12.89**	**.000**	**39**
Female report on dyadic coping by self	.37	[.32, .41]	.000	33			
Male report on dyadic coping by partner	.11	[-.03, .25]	.137	6			
Male report on own relationship satisfaction					**9.92**	**.002**	**38**
Female report on dyadic coping by partner	.16	[.05, .26]	.005	6			
Male report on dyadic coping by self	.35	[.29, .40]]	.000	32			
Female report on own relationship satisfaction					**13.96**	**.001**	**29**
Female report on dyadic coping by both partners together	.54	[.48, .59]	.000	23			
Male report on dyadic coping by both partners together	.27	[.09, .44]	.003	6			
Male report on own relationship satisfaction					**20.34**	**.000**	**28**
Male report on dyadic coping by both partners together	.51	[.46, .55]	.000	22			
Female report on dyadic coping by both partners together	.19	[.05, .33]	.009	6			
Female report on own relationship satisfaction					**31.50**	**.000**	**34**
Female report on dyadic coping by partner	.52	[.46, .58]	.000	28			
Male report on dyadic coping by partner	.11	[-.03, .25]	.137	6			
Male report on own relationship satisfaction					**24.28**	**.000**	**33**
Female report on dyadic coping by partner	.16	[.05, .26]	.005	6			
Male report on dyadic coping by partner	.45	[.40, .51]	.000	27			

Note. *r* = the aggregated zero-order correlation effect size. *CI* = confidence interval. *p* = level of statistical significance for the aggregated effect size or heterogeneity *Q*-test. *k* = number of samples in the moderator subgroup. *Q* = the *Q*-value for the heterogeneity *Q*-test for between-subgroup differences with *K* – 1 degrees of freedom. All effect estimates were calculated using random effects models and all *Q*-tests were calculated using mixed effects models. Significant *Q*-values indicate significant differences between at least two subgroups. *Q*-test significance is determined by the degree to which the confidence intervals for two or more subgroups overlap; a significant heterogeneity *Q*-test of *p* = .000 indicates that the confidence intervals for two subgroups do not overlap; statistically significant ($p \leq .05$) *Q*-tests are bolded. *K* = the total number of samples included in heterogeneity *Q*-test analyses.

Table 6

Moderator Variable Analysis for Dyadic Coping Predicting Relationship Satisfaction

Moderator	Subgroup Summary Information				Heterogeneity		
	r	95% CI	p	k	Q	p	K
Report characteristics							
Report publication status					0.34	.560	74
Published	.46	[.41, .51]	.000	47			
Unpublished	.43	[.36, .50]	.000	27			
Report type					0.71	.870	74
Book/book chapter	.50	[.35, .63]	.000	5			
Dissertation/master thesis	.43	[.36, .50]	.000	26			
Journal article	.45	[.40, .50]	.000	43			
Report language					2.01	.156	73
English	.43	[.37, .48]	.000	50			
Non-English (German, Italian, Portuguese)	.49	[.42, .56]	.000	23			
Coders					3.54	.060	74
Author 1	.42	[.37, .47]	.000	48			
Author 3	.50	[.43, .56]	.000	26			
Methodological characteristics							
Study design					**5.26**	**.022**	**72**
Cross-sectional	.47	[.42, .51]	.000	60			
Longitudinal	.33	[.22, .44]	.000	12			
Intervention					0.05	.823	72
No	.45	[.40, .49]	.000	62			
Yes	.46	[.33, .57]	.000	10			
Participant recruitment					4.35	.114	72
Community	.49	[.43, .54]	.000	36			
Community + health care center, therapy clinic, university	.40	[.33, .46]	.000	30			
National database	.44	[.30, .55]	.000	6			
Dyadic/non-dyadic data					3.12	.077	72
Dyadic	.42	[.36, .47]	.000	48			
Non-Dyadic	.50	[.43, .56]	.000	24			
Dyadic coping measure					**17.75**	**.000**	**72**
DCI	.50	[.45, .54]	.000	52			
CCQ + ERS + PBOCS + RFCS + WPS	.29	[.20, .38]	.000	20			
Relationship satisfaction measure					7.43	.059	72
CSI + DDRQ + MFHP + MHRS + MMQ + QMI + RIQ	.41	[.33, .49]	.000	19			
DAS	.37	[.27, .46]	.000	15			
PQ	.49	[.41, .56]	.000	18			
RAS	.50	[.43, .57]	.000	20			
Participant characteristics							
Medical/psychological condition					**8.46**	**.004**	**72**
No	.49	[.44, .53]	.000	47			
Yes	.35	[.27, .43]	.000	25			
Medical/psychological condition by measure					8.30	.004	25
DCI	.52	[.40, .62]	.000	6			
CCQ + ERS + PBOCS + RFCS + WPS	.30	[.22, .38]	.000	19			
DCI with and without medical/psychological condition					0.28	.596	52
With medical/psychological condition	.52	[.40, .62]	.000	6			
Without medical/psychological condition	.49	[.45, .53]	.000	46			
Dyadic coping by self					0.05	.831	24
Partner with medical/psychological condition	.24	[.17, .31]	.000	11			
Partner without medical/psychological condition	.25	[.19, .31]	.000	13			
Dyadic coping by partner					0.16	.693	16
Partner with medical/psychological condition	.41	[.31, .49]	.000	7			
Partner without medical/psychological condition	.43	[.33, .53]	.000	9			
Female average age					6.01	.111	67
20 – 29 years	.50	[.39, .60]	.000	11			
30 – 39 years	.49	[.42, .56]	.000	24			
40 – 49 years	.40	[.29, .51]	.000	13			
50 + years	.37	[.28, .46]	.000	19			
Male average age					5.64	.130	64
20 – 29 years	.53	[.41, .62]	.000	9			

Table 6

Moderator Variable Analysis for Dyadic Coping Predicting Relationship Satisfaction

Moderator	Subgroup Summary Information				Heterogeneity		
	r	95% CI	p	k	Q	p	K
30 – 39 years	.46	[.37, .53]	.000	16			
40 – 49 years	.44	[.35, .51]	.000	19			
50+ years	.37	[.28, .45]	.000	20			
Average relationship duration					4.30	.117	71
0 – 10 years	.49	[.41, .57]	.000	20			
11 – 20 years	.47	[.40, .54]	.000	26			
21+ years	.39	[.31, .46]	.000	25			
Female average education					0.63	.731	57
Some high school + high school graduate	.43	[.34, .53]	.000	11			
Some college	.47	[.41, .53]	.000	31			
College graduate	.44	[.40, .53]	.000	15			
Male average education					3.75	.154	54
Some high school + high school graduate	.40	[.27, .52]	.000	8			
Some college	.42	[.34, .48]	.000	27			
College graduate	.51	[.43, .58]	.000	19			
Nationality					3.64	.056	72
European	.47	[.42, .52]	.000	49			
Non-European	.38	[.30, .46]	.000	23			

Note. r = the aggregated standardized zero-order correlation effect size. CI = confidence interval; LL = lower limit; UL = upper limit. p = level of statistical significance. k = number of samples in the moderator subgroup. K = the total number of samples included in analyses for the associated moderator variable. Q = the Q-value for the heterogeneity Q-test for between-subgroup differences with $K - 1$ degrees of freedom. All effect estimates were derived from a mixed-effects model. Significant Q-values indicated significant differences between at least two moderator subgroups. Heterogeneity Q-test significance was determined by the degree to which the confidence intervals for two or more moderator subgroups overlapped. Bolded moderator subgroups were statistically significant ($p \leq .05$). The effect size direction for negative dyadic coping effect sizes was temporarily reversed for all moderator analyses. Dyadic coping measures: CCQ = Collaborative Coping Questionnaire, DCI = Dyadic Coping Inventory, ERS = Empathic Responding Scale, PBOCS = Protective Buffering Observational Coding System, RFCS = Relationship-Focused Coping Scale, and WPS = Ways of Providing Support scale. Relationship satisfaction measures: CSI = Couple Satisfaction Index, DDRQ = Daily Dairy of Relationship Quality, DAS = Dyadic Adjustment Scale, MFHP = Michigan Family Heart Project, MHRS = Marital Happiness Rating Scale, MMQ = Maudsley Marital Questionnaire, PQ = Partnership Questionnaire, QMI = Quality of Marriage Index, RAS = Relationship Assessment Scale, and RIQ = Relationship Improvement Questionnaire.

Authors' Disclosures

Highlights

- Meta-analysis of studies examining association between relationship satisfaction and dyadic coping

- Dyadic coping and its different dimensions predicted relationship satisfaction

- No effect of gender, age, relationship length, education level, and nationality

- Positive forms of dyadic coping were a stronger predictor of relationship satisfaction than negative forms

- Dyadic coping by partner and by both partners were stronger predictors of relationship satisfaction