



Dyadic coping in personal projects of romantic partners: assessment and associations with relationship satisfaction

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Abstract

In the present study we describe a context-sensitive, personal-projects-based approach to dyadic coping with stress which adapted the Dyadic Coping Inventory (DCI) for the assessment of dyadic coping strategies in stressful personal projects. In a cross-sectional study, 149 heterosexual Hungarian couples provided evaluations pertaining to their dyadic coping experiences in a stressful everyday project. Explorative factor analyses of personal project-related DCI items provided theoretically meaningful factor structures and the resulting subscales showed excellent reliability. The subscales' predictive validity was tested in two dyadic analyses using the Actor-Partner Interdependence Model (APIM) whereby positive and negative dyadic coping experiences served as predictors of satisfaction with the dyadic coping process in particular, and with the relationship in general as outcomes. Our results showed that satisfaction with dyadic coping in personal projects is predicted only by the dyadic coping experiences of the respondents (the actor effect), while actor and partner effects proved to be predictive of relationship satisfaction. Negative partner experiences related to dyadic coping predicted lower relationship satisfaction of the female partner, while for males the positive experiences of the partner were found to be more predictive. These results confirm that the contextualized assessment of dyadic coping experiences in specific stressful personal projects is a reliable and valid method. Further methodological and theoretical conclusions are discussed.

Keywords Dyadic coping · Dyadic coping inventory · Personal project assessment · Relationship satisfaction · Actor-partner interdependence model

Recent developments in understanding the relational aspects of stress and coping acknowledge that stress often evolves into dyadic stress which impacts both members of a couple; consequently, coping processes prove to have a relational component as well. Dyadic stress, dyadic coping and the connection between the two have become a field of extensive research in recent decades (Bodenmann 1997; Falconier et al. 2016; Staff et al. 2017; Sim et al. 2017). Below, we review the most important domains of application and findings related to one of the most intensively studied approaches to dyadic stress and dyadic coping: the Systemic Transactional Model. Moreover, as an extension of this approach, we introduce and empirically test a new domain of investigation in this burgeoning research

field; namely, an assessment of dyadic coping strategies in relation to the stressful personal projects of couples.

Dyadic Coping with Stress – The Systemic Transactional Model

The Systemic Transactional Model (STM, Bodenmann 1995) is among the most often used dyadic coping models (c.f., Falconier et al. 2015). On the one hand, the STM describes the circular process whereby a partner who experiences stress expresses their stress towards their significant other, who in turn reacts to this expression. Dyadic coping processes involve both partners' coordinated actions of stress communication, the partner's reactions, and the appraisal of these reactions by the stressed partner. According to the model, the dyadic coping efforts of one partner can be perceived by the other partner as positive or negative. Supportive and delegated acts of dyadic coping can be classified as positive-, while hostile, ambivalent and superficial ways of dyadic coping can be classified as negative dyadic coping. On the other hand,

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the STM also considers common coping with stress – when partners feel affected by the same stressful situation and are involved in joint action to handle it. Common coping refers both to the mutual problem-focused efforts of partners when dealing with the stressful situation and their affection towards each other.

In sum, the Systemic-Transactional Model of dyadic coping provides a detailed description of coping processes; that is, it describes the kind of coping mechanisms which couples may (and do) use when facing multiple stressful situations. Research on dyadic coping has focused mainly on addressing two issues: how couples cope with stress in specific life contexts (e.g., chronic illness), and how dyadic coping skills relate to relationship satisfaction in general. Context-specific studies of dyadic stress and coping processes have been tested mostly in the context of chronic illnesses, mainly in the case of cancer (c.f., Meier et al. 2011; Traa et al. 2015); however, other stressful life contexts like living with chronic obstructive pulmonary disease (COPD) and experiencing post-traumatic stress disorder (PTSD) after an accident have also been the subject of study. Findings show that more positive dyadic coping and less use of negative dyadic coping strategies were mutually beneficial for the quality of life of both patients and their partners (Badr et al. 2010; Lameiras et al. 2018; Vaske et al. 2015). Moreover, relationship satisfaction – the general and subjective evaluation of one's own relationship experiences (Fincham and Bradbury 1987; Hendrick 1988) – is a frequently assessed outcome of the dyadic coping process (c.f., Falconier et al. 2015). Relationship satisfaction is a significant component of life satisfaction in general, is associated with greater relationship stability, and predicts better health outcomes (Balsam et al. 2017; Proulx et al. 2007; Robles et al. 2014). In the last decade, several studies have assessed the interrelation between dyadic coping and relationship satisfaction, and recent findings (e.g., Breitenstein et al. 2018; Sim et al. 2017) have agreed with the earlier results of meta-analyses and multi-center studies (Falconier et al. 2015; Hilpert et al. 2016). Results robustly confirm the hypothesis that better dyadic coping is associated with higher relationship satisfaction. The pooled correlation coefficient between the former variables has been estimated to be as high as .50 (Falconier et al. 2015), and the average slope of prediction in regression analysis .35 (c.f., Hilpert et al. 2016). However, the latter analysis also indicated that cultural variations in the strength of relationship between these variables do exist; for example, the fact that “the slopes from Eastern Europe were significantly higher than the average slope” (Hilpert et al. 2016).

Systemic Transactional Model and Self-Regulation

Beyond the study of dyadic coping in specific life contexts and the link to general relationship satisfaction, there is a third,

albeit less deeply studied domain of investigation: the connection of dyadic coping to processes of self-regulation, primarily goal striving. On a theoretical level, goals play an important role in STM as part of the dyadic coping process (c.f., Bodenmann 1995; Bodenmann et al. 2016). Partners' initial appraisals of a stress situation and available resources (i.e., primary and secondary appraisals) activate relationship goals in partners and, in turn, these goals as general action tendencies influence actual coping behavior (Koranyi et al. 2017; Kuster et al. 2017). In this way, in a stressful situation dyadic coping behaviors may serve as the specific relationship-oriented goals of partners (c.f., Bodenmann et al. 2016, p. 13).

Nevertheless, there is another way in which dyadic coping and self-regulation processes may be linked. People often pursue important personal goals that are related to the goals of important others too (c.f., Fitzsimons and Finkel 2015). Moreover, the accomplishment of these goals is often accompanied by the experience of stress (c.f., Carver, Scheier, & Fulford, 2008) and, in the relationship, the emergence of these stress experiences requires joint stress-management efforts. Therefore, dyadic coping processes may play a role in the successful accomplishment of personal goals by helping with (or hindering) the effective management of goal-related challenges. Below, we provide more details about the theoretical and methodological features of this notion.

Personal Goals and Couple Functioning

The pursuit and accomplishment of personal goals are important ingredients of successful self-regulation and sustainable well-being (c.f., Brunstein 1993; Klug and Maier 2015), while goal-directed behavior has been conceptualized as a complex set of efforts embedded in everyday social ecological contexts (e.g., Little 2006). Goal constructs have been applied to empirical studies on relationship functioning in general (Kaplan and Maddux 2002), to relational experiences of life transitions (Salmela-Aro et al. 2010) and to the outcomes of relationship conflicts (Gere & Schimmack, 2013). Mutual support for partners' goals was also found to be conducive towards relationship satisfaction, while experiences of high relationship quality fostered further support and goal coherence (Hofmann et al. 2015; Molden et al. 2009; Overall et al. 2010).

In these studies, personal goals have also often been conceptualized as the pursuit of personal strivings, personal projects, or actual concerns (see Emmons [1997] for a review of the similarities and differences in these constructs). For the present study, we apply personal projects as the core theoretical and methodological construct. Personal projects are defined as sets of personally important pursuits of individuals that are embedded in their everyday ecological contexts and that refer to desired future states as well (Little 1983, 2006). Accordingly, an investigation of personal projects is capable

of capturing both the actual social-ecological context of individual lives (e.g., close relationships) and their future-oriented component (Little 2015).

Moreover, it is important to note that the methodology of personal project assessment is a flexible and complex measurement tool that is suitable for assessing ecologically valid, context-dependent experiences. We conclude that personal goals as conceptual and methodological units represent a powerful way to study personal and interpersonal processes, such as dyadic coping with stress, in their everyday context. However, to the best of our knowledge there has been no research that has focused on personal goal-related dyadic coping processes, and nor has a personal, goal-based assessment procedure been utilized for the context-sensitive exploration of dyadic coping with stress in couples.

The Present Study

Building on the above-presented reasoning, the aim of the present study was to explore stress and dyadic coping processes in the context of personal projects and to undertake a preliminary test of this approach by applying a personal-project-based assessment procedure on a sample of adult Hungarian romantic partners. Specifically, our study used the following concepts and assumptions (see also Table 1 for an overview). First, as argued above, romantic partners' dyadic coping processes may be significant factors in the pursuit of their personal projects. Moreover, the inclusion of dyadic coping experiences in the description of personal-project-related, intra- and interpersonal processes may help with further understanding the dyadic nature of goal striving and self-regulation (Fitzsimons and Finkel 2015). In this way our approach also corresponds to the notion that personal projects are core conceptual units (c.f., Little 2006, 2015) that are of central importance in understanding personal and interpersonal processes in their everyday contexts. For the dyadic coping and STM research tradition, personal projects represent a new and less researched context in which dyadic coping with stress can be meaningfully studied. Specific projects like health goals (e.g., having a baby through assisted reproduction), financial-material challenges (successfully managing debt)

or work-related pursuits, along with the associated dyadic coping processes, can be compared, just to name a few specific contexts.

Second, beyond its theoretical value, a personal-project-based approach may also represent a new methodological tool for the assessment and analysis of stress and dyadic coping. Several studies from various domains have shown that the methodology of personal project assessment is suitable for assessing ecologically valid, contextually embedded experiences of respondents (for an overview, see Little et al. 2007). The assessment procedure involves the individual-level elicitation of personal projects (e.g., "I want to complete my university degree"), followed by asking the respondent to evaluate their experiences related to the actual project (e.g., "How stressful is this project for you?"). Since the choice of studied experiences depends only on the research question, the applied targets of evaluation can be flexibly adjusted to the actual aims of the study (Little and Gee 2007). In our study, we have adapted this personal-project-based procedure to capture dyadic coping strategies and evaluations in relation to stressful personal projects of respondents.

Third, based on the results of previous research with general DCI assessment, we expected that the specific dyadic coping experiences in personal projects would predict a) satisfaction with the quality of dyadic coping itself, and b) general relationship satisfaction. More specifically, we hypothesized that when partners experience more frequent positive and less frequent negative dyadic coping behaviors in pursuit of their personal projects, this should predict higher satisfaction in their partner concerning both their projects (satisfaction with dyadic coping) and their relationship in general.

Finally, since we used dyadic data about partners in committed relationships, dyadic analysis enabled us to test for potential cross-predictions between partners too. For this we used the actor-partner interdependence model (APIM; Kenny 1996) that was developed to reveal the influence of interdependent partners' own causal variables on their own, and, simultaneously, on their partners' outcome variables. It is important to note, however, that APIM can be applied to cross-sectional datasets too, and in cases such as ours significant associations do not imply a real causal effect but predictions in statistical terms.

Table 1 Conceptual and methodological network of the study

General context	Studied context	Measured experience		Role in APIM
Couples' relationship functioning	Partners' personal projects	Positive	dyadic coping	predictor
		Negative		predictor
		Satisfaction with dyadic coping		outcome
	Relationship satisfaction in general		outcome	

Methods

Sample and Procedure

One hundred and forty-nine heterosexual Hungarian couples were assessed by trained interviewers from a survey firm in the second wave of a two-wave study on romantic relationships and personal project pursuit. The second-wave assessment involved a one-year follow up of the first-wave assessment. However, dyadic coping assessment was included exclusively in the second wave, thus we used the related database in a cross-sectional study. At the time of the first wave of the study the following inclusion criteria were applied: both respondents were expected to: 1) be partners in a couple that had lived together for at least one year, 2) be between 25 and 65 years old, 3) be employed / have active working status, 4) have not been subject to psychiatric diagnosis within the last five years.

Interviewers administered the questionnaire packs in the couples' homes, and partners filled out the paper-and-pencil questionnaires separately. All materials were provided in Hungarian. The data assessment procedure for dyadic coping experiences as described here was included only in this second phase. The approval of Semmelweis University's IRB was obtained for this study and participants provided written consent before the assessment. The mean age for male participants was 41.85 years ($SD = 10.42$ years), and 39.47 years for female participants ($SD = 10.18$ years). The dispersion of basic, intermediate and higher education was 54 (36%), 63 (42%) and 33 (22%) for men, and 26 (17.3%), 78 (52%) and 46 (30.7%) for women. Eighty-one couples (54%) were married and sixty-five couples (43.3%) were not (four couples did not report their relationship status). Couples had been living together for 14.86 years on average ($SD = 10.03$).

Measures

Dyadic Coping in Personal Projects

We assessed dyadic coping experiences related to the personal projects of the participants using an adapted version of the standard personal project assessment procedure (see Little and Gee 2007). First, participants were asked to write a list of their current personal projects defined as "the goals and strivings that you are currently working with in your everyday life." Second, they were asked to select one project that they perceived as the "most stressful" in recent times. Sample selected projects include "graduate from university" and "develop our company" (young couple); "buy a weekend house" and "pay back our debts" (middle-aged couple). Finally, participants were instructed to evaluate their dyadic coping experiences related to the selected stressful personal project.

For the purposes of this study, we adapted the items of the Hungarian version of the Dyadic Coping Inventory (DCI, Bodenmann 2008; Martos et al. 2012) – the standard general-level measure of dyadic coping activities – as prompts for the project evaluation. The DCI is a 37-item measurement system which assesses couples' coping strategies when dealing with stress. Subscales include stress communication (e.g., "When I feel stressed I tell my partner openly how I feel and that I would appreciate his/her support"), and supportive, delegated and negative coping (an example of the latter: "My partner blames me for not coping well enough with stress"). Respondents are also asked to indicate the stress communication of their partners and the way they react to their partner's stress (supportive, delegated or negative). Finally, items assess the frequency of common coping (e.g., "We try to cope with problems together and search for ascertained solutions"). Two additional items refer to satisfaction with the dyadic coping process (e.g., "I am satisfied with the support I receive from my partner and the way we deal with stress together").

In line with the main focus of this study, we reworded the 37 items of the DCI by modifying the phrases to reflect past events (from simple present tense to past tense; for example, "When I felt stressed I told my partner..." instead of "When I feel stressed I tell my partner..."), and referred these items explicitly to the chosen personal project. Similarly, partner's stress communication and the respondent's own dyadic coping behavior were also referred to the actual project (see examples below). We provide the instructions and sample items from the procedure in the Appendix. To measure personal-project-related dyadic coping, for each item we asked how often respondents had experienced these coping behaviors in relation to the specified stressful personal project in the past two weeks (1 = very rarely, 5 = very often).

Relationship Assessment Scale

The Relationship Assessment Scale (RAS; Hendrick 1988; Martos et al. 2014) is a 7-item measure that can be used to assess general relationship satisfaction, where respondents can indicate their degree of agreement on a 5-point Likert scale (1 = low agreement, 5 = high agreement). A sample item is: "How well does your partner meet your needs?". The alpha coefficient indicated good internal consistency ($\alpha = 0.873$ and 0.868 for male and female partners, respectively).

Analytical Process

In a series of studies, scholars have recently tested the latent structure of the responses that have been measured with the general DCI and found considerable similarity across different languages and cultures (Falconier et al. 2013; Fallahchai et al.

2017; Ledermann et al. 2010; Randall et al. 2016; Vedes et al. 2013; Xu et al. 2016). We therefore explored the factor structure of the personal-project-related dyadic coping experiences in the present sample. We also tested whether personal-project-related dyadic coping strategies can be broadly described as positive and negative dyadic coping. Conceptualizations of the Systemic Transactional Model and empirical studies regularly differentiate between positive and negative dyadic coping (Bodenmann et al. 2006, 2009; Papp and Witt 2010), while recent models have primarily referred to summed scores of the full scale (e.g., Gouin et al. 2016; Meier et al. 2011; Vaske et al. 2015; for a review of prior findings using summed dyadic coping, see Falconier et al. 2015). In the present study, based on factor analysis explorations we calculated the overall scores for positive and negative dyadic coping experiences of the partners' merging of self- and partner evaluations.

In a second step we tested the predictive power of personal-project-related dyadic coping strategies for the positive functioning of partners. To test respondents' satisfaction with the quality of their dyadic coping process in the stressful personal project, we used the last two items of the DCI. Moreover, we also tested whether project-related dyadic coping strategies are associated with relationship satisfaction. We used the actor-partner interdependence model procedure (APIM; Kenny 1996), a widely applied approach to analyzing dyadic data (c.f., Kenny 2018). The positive and negative dyadic coping experiences of the partners were used as predictors in the model, while satisfaction with dyadic coping as well as the relationship satisfaction of the partners were treated as outcomes in two separate models. The actor effect assesses how well the respondents' dyadic coping style predicts their satisfaction with their own dyadic coping and their level of satisfaction with their relationship (Fig. 1, arrows (a)). The partner effect shows how the predictor variable (the partner's measured value) predicts the respondent's own satisfaction with dyadic coping and relationship satisfaction (Fig. 1, arrows (p)). We did not specify control variables in the models.

Results

Factor Analyses

We ran a series of explorative factor analyses with maximum likelihood extraction and retained all factors with initial eigenvalues greater than 1.0. Subsequently, we performed Varimax rotation on the retained factors to help interpret the factor structure. Corresponding to the analytical strategy of recent confirmative analyses (c.f., Nussbeck and Jackson 2016), we separately analyzed a) male and female partners' responses, and b) self-attributed and partner-attributed dyadic coping behaviors (i.e., frequency of stress communication, support, delegation and personal negative dyadic coping and the same items attributed to the partner; 15–15 items, respectively), as well as the behaviors involved in common dyadic coping (five items). In sum, six factor analyses were run (see Tables 2 and 3 for a review of the results). The structure of individual dyadic coping behaviors was consistent across genders as well as across self- and other related responses. Four factors accounted for 51.9 to 56.72% of the variance, and the factors could be uniformly identified with stress communication, supportive dyadic coping, delegated dyadic coping, and negative dyadic coping. While there were minor variations in the order of the factors and the actual factor loadings of the items, the general pattern was the same in all four analyses. Similarly, the structure of common dyadic coping responses of male and female partners was consistent, with two factors accounting for 68.34 and 65.21% of the variance, representing problem solving and emotionally supporting ways of common coping with stress, respectively.

We also tested the overarching structure of the sub-scales that could be derived from the earlier item-level factor analyses. Eight sub-scales were computed for each respondent: self- and partner-attributed supportive dyadic coping, delegated dyadic coping, and negative dyadic coping, as well as problem-solving common-, and emotionally-supporting common dyadic coping. Sub-scale scores were entered separately for male

Fig. 1 General structure of the APIM used in the study. Note: Outcomes in this study: satisfaction with dyadic coping, relationship satisfaction. a1 – a4 = actor effects; p1 – p4 = partner effects; c1 – c7 covariances

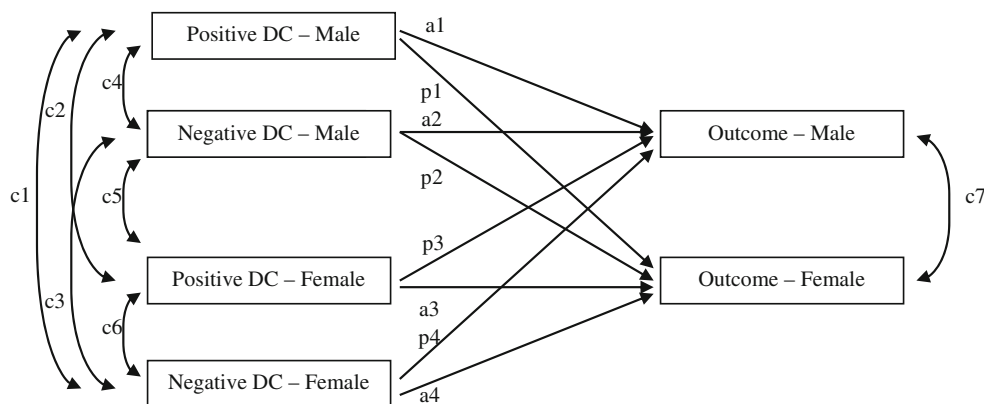


Table 2 Explorative factor analysis of self and partner dyadic coping items

Item No.			Self - factors				Partner - factors			
Male										
Self	Partner	Scale	1	2	3	4	1	2	3	4
01	16	Stress communication	.196	.097	.076	.464	.174	-.003	.543	-.023
02	17	Stress communication	-.001	.126	.382	.529	-.082	.076	.621	.201
03	18	Stress communication	.038	.144	-.127	.771	.022	.067	.824	-.049
04	19	Stress communication	.339	.016	-.022	.619	.344	.063	.574	-.088
20	05	Supportive dyadic	.758	-.214	.096	.163	.791	-.087	.110	.030
21	06	Supportive dyadic	.798	-.264	.053	.047	.815	-.151	.067	.085
23	08	Supportive dyadic	.545	-.001	.166	.164	.537	-.046	.048	.184
24	09	Supportive dyadic	.640	-.225	.043	.164	.729	-.114	.092	.186
29	13	Supportive dyadic	.699	-.196	.189	.084	.675	-.156	.125	.358
22	07	Negative dyadic	-.167	.554	.048	.217	-.106	.632	.121	.050
25	10	Negative dyadic	-.303	.707	.060	.077	-.064	.843	-.112	.024
26	11	Negative dyadic	-.119	.482	.127	.037	-.033	.466	.021	.041
27	15	Negative dyadic	-.089	.801	-.001	.076	-.151	.629	.120	.040
28	12	Delegated	.271	.264	.641	.020	.309	.151	.028	.874
30	14	Delegated	.187	.001	.982	.015	.257	.082	-.012	.720
		<i>Eigenvalue</i>	<i>2.81</i>	<i>2.00</i>	<i>1.64</i>	<i>1.62</i>	<i>2.92</i>	<i>1.84</i>	<i>1.78</i>	<i>1.54</i>
		<i>Explained variance %</i>	<i>18.75</i>	<i>13.34</i>	<i>10.95</i>	<i>10.82</i>	<i>19.49</i>	<i>12.24</i>	<i>11.84</i>	<i>10.30</i>
Female										
Self	Partner	Scale	1	2	3	4	1	2	3	4
01	16	Stress communication	.027	.528	.075	-.023	.206	-.018	.570	.151
02	17	Stress communication	-.049	.498	.309	.297	-.048	.217	.536	.252
03	18	Stress communication	.013	.782	-.146	.095	.017	.079	.741	-.110
04	19	Stress communication	.231	.702	-.087	.143	.241	.081	.711	-.058
20	05	Supportive dyadic	.781	-.048	.146	-.199	.645	-.382	.130	.173
21	06	Supportive dyadic	.917	-.041	-.009	-.141	.807	-.244	.192	.049
23	08	Supportive dyadic	.659	.192	.138	-.238	.692	.020	.053	.169
24	09	Supportive dyadic	.553	.227	.174	-.373	.685	-.218	.085	.070
29	13	Supportive dyadic	.465	.036	.314	-.124	.623	-.133	.094	.278
22	07	Negative dyadic	-.219	.239	.119	.395	-.086	.690	-.043	-.010
25	10	Negative dyadic	-.239	-.014	-.103	.713	-.300	.752	.126	-.030
26	11	Negative dyadic	-.128	.071	.017	.693	-.302	.819	.130	.041
27	15	Negative dyadic	-.104	.182	.039	.277	-.014	.468	.228	-.150
28	12	Delegated	.264	.023	.740	.027	.176	-.056	.054	.854
30	14	Delegated	.106	-.038	.894	.018	.361	-.082	.046	.741
		<i>Eigenvalue</i>	<i>2.68</i>	<i>1.82</i>	<i>1.67</i>	<i>1.61</i>	<i>2.86</i>	<i>2.27</i>	<i>1.83</i>	<i>1.55</i>
		<i>Explained variance %</i>	<i>17.85</i>	<i>12.16</i>	<i>11.15</i>	<i>10.75</i>	<i>19.04</i>	<i>15.14</i>	<i>12.21</i>	<i>10.32</i>

Maximum Likelihood extraction with Varimax rotation

Item numbers refer to the Hungarian version of DCI (Martos et al. 2012)

Factor loadings above .35 (absolute value) are in bold

and female respondents in factor analysis with maximum likelihood extraction and Varimax rotation. Two factors accounted for 49.2 and 51.02% of the total variance, these factors clearly representing positive (self- and other supportive, self- and other delegated, and both types of common coping strategies) as well as negative dyadic coping strategies

(Table 4). Correspondingly, we computed the summed scores of positive and negative strategies for further descriptive statistical and APIM analyses. Moreover, we computed the sum of the last two items of the DCI; the former represent the respondents' evaluations of their dyadic coping with stress in their personal projects.

Table 3 Explorative factor analysis of common dyadic coping items

Item No.	Item content	Male		Female	
		Factors	Factors	Factors	Factors
		1	2	1	2
31	Problem solving	.764	.262	.827	.185
32	Problem solving	.854	.140	.794	.059
33	Problem solving	.796	.201	.737	.264
34	Emotional support	.102	.902	.170	.517
35	Emotional support	.322	.643	.099	.995
	<i>Eigenvalue</i>	2.06	1.36	1.90	1.36
	<i>Explained variance %</i>	41.23	27.12	37.94	27.27

Note: Maximum Likelihood extraction with Varimax rotation
 Item numbers refer to the Hungarian version of DCI (Martos et al. 2012)
 Factor loadings above .35 (absolute value) are in bold

Psychometric Evaluation

Table 4 shows the means, standard deviations, and correlations of the variables. First, we tested the reliability of the variables which we used in the model: inspection of alpha coefficients showed that the reliability of the scales was adequate. Specifically, alpha coefficients for the positive and negative dyadic coping sub-scales were all 0.827 or above, indicating that all dyadic coping dimensions also formed reliable scales when they referred to the pursuit of an actual personal project. Reliability estimates of relationship satisfaction scales were comparable to those identified in previous studies (c.f., Martos et al. 2014). Second, we computed Pearson correlation coefficients between the variables in the study. Results

indicated several significant associations among the examined variables that were in the expected direction (see Table 5).

Model Building

In the next step, two models were built using the general scheme of the actor-partner interdependence Model (APIM; Kenny 1996; see Fig. 1) where the two models differed only in the focus of outcome. The maximum likelihood (ML) estimator was used to estimate the model parameters. Since positive and negative dyadic coping scores, as well as the outcome variables, correlated significantly between the partners, all of the exogenous variables and error terms of the outcome measures were set to covary, thus the resulting models were saturated. First, we tested how the frequency of positive and negative dyadic coping styles predicted the satisfaction of partners concerning their dyadic coping as a couple. This model accounted for 60.2% of the variance in the male partners' and 58.6% of the female partners' positive evaluations. Second, we tested the same model using the relationship satisfaction scores of the partners. This model accounted for 48.3% of the variance in the male partners' and 49.3% of the female partners' satisfaction with their relationship. Throughout the models we also tested whether individual path coefficients significantly differed from each other in magnitude (i.e., in absolute value when positive and negative coefficients were involved). When we refer to differences in magnitude (i.e., absolute values) between standardized coefficients below, these statements are based on significance tests.

The results of the path of the coefficients for the two models are presented in Table 6. First, we tested satisfaction with dyadic coping as a potential outcome of the dyadic coping experiences. Results show that the actor effects prevailed

Table 4 Second-order explorative factor analysis of dyadic coping subscales

Item No.	Item content	Male		Female	
		Factors	Factors	Factors	Factors
		1	2	1	2
33	s_supportive	.693	-.303	.824	-.140
s31	p_supportive	.731	-.344	.793	-.293
32	Problem-solving common	.723	-.219	.807	-.156
34	Emotionally-supporting common	.482	-.177	.408	.001
32	s_delegated	.469	.200	.452	.080
33	p_delegated	.418	.076	.442	-.124
33	s_negative	-.089	.873	-.064	.745
33	p_negative	-.102	.810	-.120	.912
	<i>Eigenvalue</i>	2.18	1.75	2.54	1.54
	<i>Explained variance %</i>	27.28	21.92	31.79	19.23

Maximum Likelihood extraction with Varimax rotation
 s_ = self ratings, p_ = partner ratings
 Factor loadings above .4 (absolute value) are in bold

Table 5 Descriptive statistics and bivariate correlations for the variables

	Range	m	SD	Pearson correlation coefficient										
				1	2	3	4	5	6	7	8			
1 M-DCsat	2	10	7.75	1.98	.894 ^l									
2 M-RAS	9	35	29.99	4.92	.58***	.873								
3 F-DCsat	2	10	7.87	2.02	.63***	.56***	.925 ^l							
4 F-RAS	11	35	29.66	4.78	.48***	.77***	.66***	.868						
5 M-DCpos	30	93	69.01	11.91	.74***	.48***	.54***	.35***	.896					
6 M-DCneg	8	33	15.84	6.22	-.41***	-.58**	-.35***	-.51***	-.32***	.827				
7 F-DCpos	19	95	68.99	13.09	.55***	.52***	.74***	.53***	.65***	-.22**	.910			
8 F-DCneg	8	35	15.13	6.40	-.20*	-.43***	-.40***	-.52***	-.09	.57**	-.25**	.851		

N = 149 couples, M denotes male and F denotes female partner, DCsat = satisfaction with dyadic coping

Alphas are presented in the diagonal except for satisfaction with dyadic coping where Pearson correlations between two items were calculated

RAS Relationship Assessment Scale, DCpos positive dyadic coping, DCneg negative dyadic coping

* $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$

for the evaluation scores in the case of both genders; that is, only the respondents' own dyadic coping experiences predicted how they evaluated the dyadic coping process. The frequency of positive dyadic coping styles predicted satisfaction with dyadic coping positively (betas = .622 and .592 for male and female partners, respectively; $ps < .001$), while the frequency of negative styles predicted evaluations negatively, albeit to a smaller extent (betas = -.186 and -.226 for male and female partners, respectively; $ps < .001$). In contrast, the dyadic coping experiences of the partner did not significantly predict respondent satisfaction with dyadic coping.

The model with relationship satisfaction as outcome revealed a more complex pattern in which all actor effects were significant (Table 6). The relationship satisfaction of both partners was positively associated with their positive DC and inversely with their negative DC (betas = .163, $p < .05$ and -.389, $p < .001$ for male partners; betas = .414 and -.261, $ps < .001$ for female partners, respectively). Beside significant

actor effects, two partner effects proved significant as well, suggesting that one's own relationship satisfaction may be partly predicted by the positivity (negativity) of the partner's dyadic coping experiences. Specifically, we found a positive relationship between the relationship satisfaction of the male partner and the positive dyadic coping scores of the female partner (beta = .272, $p < .001$), while the relationship satisfaction of the female partner was negatively related to the negative coping experiences of the male partner (beta = -.272, $p < .001$). The opposite partner effects remained non-significant.

Discussion

In the present study we have described a new approach to dyadic coping research that, to the best of our knowledge, has not been taken so far in this research field. We argued that

Table 6 Path coefficients of the actor-partner interdependence models

	Outcomes			
	Satisfaction with dyadic coping		RAS	
	Actor effects (a1 - a4)	Partner effects (p1 - p4)	Actor effects (a1 - a4)	Partner effects (p1 - p4)
M-DCpos	.62***	.12	.16*	-.03
M-DCneg	-.19**	-.04	-.39***	-.27***
F-DCpos	.59***	.09	.41***	.27***
F-DCneg	-.23***	-.01	-.26***	-.13

N = 149 couples, a1 - a4 and p1 - p4 refer to the actor- and partner-effect paths in Fig. 1

M denotes male and F denotes female partner

RAS Relationship Assessment Scale, DCpos positive dyadic coping, DCneg negative dyadic coping

* $p < 0,05$; ** $p < 0,01$; *** $p < 0,001$

a personal-project-based assessment of dyadic coping experiences can be used to expand the theoretical focus of the Systemic Transactional Model to relational processes of self-regulation. Moreover, theoretical accounts about self-regulation can be also enriched by the inclusion of dyadic coping processes as significant factors in successful functioning. The methodological development and empirical results presented here can be regarded as building blocks of a more comprehensive model. In what follows, we first discuss the methodology and results, and then the specific theoretical and practical implications of the former.

The Measurement of Dyadic Coping in Personal Projects

In the majority of STM-based research, dyadic coping experiences are measured using items from the Dyadic Coping Inventory (DCI; Bodenmann 2008) on a general level that reflects a partner's or a couple's characteristic, generalized way of coping with stress. In contrast, and corresponding to our theoretical focus, we adapted the complete DCI to the assessment of concrete experiences during the accomplishment of a stressful personal project. Our results show that respondents were able to meaningfully relate the DCI items to their experiences in a real personal project. Moreover, both the structure of the items in explorative factor analyses and the scales' reliability indices proved to be comparable to those of the original DCI (e.g., Ledermann et al. 2010; Randall et al. 2016; Vedes et al. 2013; Xu et al. 2016). We thus conclude that the proposed procedure can reliably be used to assess the personal-project-related dyadic coping experiences of couples and is appropriate for studying the context-bound aspects of actual dyadic coping behaviors.

While the study of specific life contexts, such as living with a chronic illness, is a major domain in the dyadic coping literature, we also note that the genuine assessment of contextualized dyadic coping experiences is rare. In most of the latter cases researchers have applied the Dyadic Coping Inventory (DCI, Bodenmann 2008) in its original form; that is, have measured dyadic coping in general, while partners were involved in a specific stress situation. In contrast, a recent example of a more context-sensitive assessment procedure was described by Badr and colleagues (Badr et al. 2018), who explicitly referred to the situation of illness in the instructions to a dyadic coping assessment. A personal-project-based approach may represent an even more flexible frame for capturing a variety of life situations, related strivings and challenges, and the coping processes of partners.

Moreover, the multiple significant associations between dyadic coping behaviors in the personal project and satisfaction with dyadic coping and relationship satisfaction as outcome measures also show that the proposed assessment generates valid data about coping behavior in specific contexts.

First, satisfaction with dyadic coping in an actual stressful personal project was predicted only by actor effects; that is, by the individual's own experiences of the dyadic coping behaviors that accompanied his or her own project. This is a plausible association that indicates that satisfaction with the quality of dyadic coping relies primarily on the evaluation of personal dyadic coping experiences, while partners' experiences are not involved in the evaluation process. Moreover, positive dyadic coping was a stronger predictor of satisfaction with coping in both partners, indicating that respondents favored their positive dyadic coping experiences in the evaluation process. This association contrasts with the vast majority of empirical results about negativity bias in affective evaluation (see Rivers and Sanford 2018, for a recent study on relationship satisfaction), and deserves further investigation. One possible explanation may be that majority of the DCI items – including the last block before the satisfaction items – refer to supportive and cooperative behaviors, thus positive experiences were more salient in the final evaluations (c.f., Ganzach and Yaor 2019) and our results may be partly explained as an effect of the method. On the other hand, however, this association may also reflect a general tendency in relationships. When partners face challenging situations (e.g., the accomplishment of a stressful personal project), experiences of positive dyadic coping may be of specific significance to them: positive responses to hardship may be interpreted by the partners as meaning that they are available for each other (c.f., Donato et al. 2018), even if negative reactions also occur.

Second, our results also show that greater use of positive (and less use of negative) dyadic coping in personal projects is related to better relationship satisfaction in both partners. These results are in line with an increasing body of research about general dyadic coping strategies (c.f., Falconier et al. 2015; Hilpert et al. 2016) and thus validate the procedure. Similarly to our findings, supportive, positive dyadic coping has routinely been found to predict higher relationship satisfaction (e.g., Wunderer and Schneewind 2008), while the use of negative dyadic coping strategies is more strongly associated with relationship dissatisfaction (e.g., Regan et al. 2014).

Implications for Relationship Functioning

Beyond their value for validating the assessment procedure, our results also have implications for understanding how couples function in their joint processes of self-regulation. Respondents evaluated similarly their own and their partner's dyadic coping behaviors in the projects; evidence for this was found in the factor analyses of DCI subscales where self and partner subscales loaded on the same factors in both partners. Although the evaluation shows the perception of one partner, and therefore may reflect biased representations to a certain extent, this finding may also indicate that partners coordinate their coping

behaviors in the course of project accomplishment and maintain relative equilibrium in terms of how they relate to each other. In this way, individuals' own dyadic coping scores capture relationship experiences that represent the couple's coordinated actions in relation to certain projects. Our results also indicate that in later research it may be reasonable to differentiate between positive and negative dyadic coping experiences, instead of relying on just one summed score.

Moreover, we found significant partner effects on relationship satisfaction, providing evidence for the systemic, interdependent nature of the link between dyadic coping processes and partner relationship satisfaction. We were also able to distinguish gender differences in this regard. Beyond the effects of their own dyadic coping methods, female partners' relationship satisfaction was also inversely associated with their partners' negative coping experiences concerning their projects. In contrast, male partners' satisfaction was predicted by their partners' positive coping experiences in theirs. This may mean that, compared to male partners, female partners are more sensitive to signs of negative appraisals by their partners, which may have a deleterious effect on their relationship satisfaction. Male partners are more sensitive to positive appraisals of coping behavior (e.g., support, delegated coping, and common efforts) from their partners.

Unfortunately, most studies with DCI have applied summed scores, making direct comparison of the results difficult. However, previous studies with romantic partners and APIM analyses confirm that male partners' relationship satisfaction is partly predicted by better dyadic coping experiences of female partners, while the opposite partner effects were found to be not significant (Herzberg 2013; Papp and Witt 2010). Since our study applied a different focus and methodology (i.e., the dyadic coping experiences referred to a personal project) our results may reflect relationship processes that are specific to personally significant goals.

Finally, it is intriguing that these associations were observable when using only one – albeit the individually most stressful – personal project as the proxy for actual coping processes in each partner. The highly significant associations indicate that experiences with particular projects may still reflect a more general pattern of relationship functioning. Studies also show that there may be a circular link between relationship satisfaction and dyadic coping processes. Positive dyadic coping with stress is associated with well-being and better relationship quality, while negative dyadic coping more often occurs between couples who experience personal and relational distress (Bodenmann et al. 2004; Bodenmann 2005; Falconier et al. 2015; Herzberg 2013). Moreover, couples who are more satisfied with their relationship have been found to be more likely to resolve their stressful situations together (Bodenmann and Cina 2000).

Theoretical Implications

In addition to its psychometric merits and potential for exploring relationship functioning, the approach described herein has broader theoretical significance. In other domains of psychology there is an ongoing movement towards employing a multilevel perspective of systemic functioning (Dunlop 2015; Sheldon et al. 2011) wherein both general and contextualized levels of description contribute to better understanding complex phenomena. On the one hand, our results confirm that an assessment of dyadic coping experiences in the context of personal projects matches the concept of personal projects as central units of self-regulation (Little 2006). On the other hand, our approach is in line with recent theoretical approaches to self-regulation that have emphasized the fundamentally relational nature of the goal-striving processes: individual goal-striving is closely interwoven with the goal-directed efforts of close others (Fitzsimons et al. 2015; Fitzsimons and Finkel 2015). For example, while working on their personal projects, individuals have to deal with effects and challenges that result from others' strivings and actions (Fitzsimons and Finkel 2015; Fitzsimons et al. 2015). Therefore, dyadic coping with project-related stress may represent one way in which individual and relational regulations are mutually related (Finkel and Fitzsimons 2011; Fitzsimons and Finkel 2011). Later studies may further address the details of these systemic processes.

Personal-project-based assessments of dyadic coping may also add to our understanding of cultural variation in dyadic coping (c.f., Bodenmann et al. 2016; Nussbeck and Jackson 2016). Cultures may differ according to their specific types of stressors and personal project analysis can provide an ecologically valid way to reveal the fine-grained differences between them. Moreover, as we noted earlier, dyadic coping has been found to be a higher-than-average predictor of relationship satisfaction in couples from the Eastern European region (c.f., Hilpert et al. 2016), among them Hungarians. A recent review confirmed that successful coping with chronic everyday stress is an important theme in the lives and well-being of Hungarian couples (Martos et al. 2016). Since we carried out our study in a Hungarian context, the associations we have identified may also partly reflect these cultural characteristics, thus cross-cultural verification of the results is desirable.

Implications for Praxis

The results described above may have implications for praxis. The identification of important but stressful personal projects may help practitioners to address specific vulnerabilities in couples. For example, projects such as overcoming financial challenges, managing infertility, or raising a disabled child are frequent latent stressors for many Hungarian couples (c.f., Martos et al. 2016). In these core projects, couples'

appropriate use of dyadic coping strategies may be supported by STM-based focused training programs (e.g., Couples Coping Enhancement Training, Bodenmann and Shantinath 2004; TOGETHER, Falconier 2015). Moreover, an assessment of couples' personal projects can be utilized in relationship counseling to elicit context-related dyadic coping experiences and use them as a basis for further discussion.

Limitations and Conclusions

When interpreting these results, it is important to understand the limitations of our study. We examined dyadic coping through one personal project for each respondent but we did not study the content of these projects. Moreover, we did not assess the level of stress in the projects, although this could have influenced the results. Due to the cross-sectional research design, the causal relationships are speculative, thus we cannot draw final conclusions with respect to the effects. Finally, our results may reflect cultural biases, thus they require further verification.

Even taking these limitations seriously, we maintain that the present approach to dyadic coping research merits further investigation. People often shoulder a considerable amount of stress when striving to accomplish important personal projects. At other times, personal projects themselves are used to handle stressful life challenges and transitions. In both cases, interactions with close others may play a significant role in self-regulation processes. More specifically, the dyadic coping capacity of partners, as we have demonstrated in our study, may be a significant factor in the pursuit of personal projects that, in turn, may contribute to maintaining relationship satisfaction.

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Compliance with Ethical Standards

Conflict of Interests None to declare.

Ethical Approval All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

Appendix

Dyadic Coping in a Stressful Personal Project Inventory: instructions and sample items.

Instruction: Now we would like to ask you some questions about how you and your partner experienced stress in your stressful personal project. Please think of the experiences of the last two weeks.

- A) How did you let your partner know when you were stressed about this project? (*Stress communication from the self*)
1. I let my partner know that I would have appreciated his/her practical support, advice, or help.
- B) To what extent did your partner demonstrate the following action when you were stressed about this project? (*Dyadic coping from the partner*)
5. My partner showed empathy and understanding. (*supportive dyadic coping: emotion focused*)
 7. My partner blamed me for not coping well enough with stress. (*negative dyadic coping*)
 8. My partner helped me to see stressful situations in a different light. (*supportive dyadic coping: problem focused*)
 14. When I was too busy, my partner helped me out. (*delegated dyadic coping*)
- C) How did your partner let you know that he/she was stressed about your project? (*Stress communication from the partner*)
16. My partner let me know that he/she appreciated my practical support, advice, or help.
- D) To what extent did you demonstrate the following action when your partner was stressed about this project? (*Dyadic coping from the self*)
20. I showed empathy and understanding. (*supportive dyadic coping: emotion focused*)
 22. I blamed my partner for not coping well enough with stress. (*negative dyadic coping*)
 23. I told my partner that his/her stress was not that bad and helped him/her to see the situation in a different light. (*supportive dyadic coping: problem focused*)
 29. When my partner felt he/she had too much to do, I helped him/her out. (*delegated dyadic coping*)

E) To what extent did you and your partner undertake the following action when both of you were stressed about this project? (*Common dyadic coping*)

31. We tried to cope with the problem together and find shared solutions. (*problem-focused common dyadic coping*)

34. We helped each other relax by doing such things like having a massage, taking a bath together, or listening to music together. (*emotion-focused common dyadic coping*)

F) How do you evaluate your coping with stress in this project as a couple? (*Satisfaction with dyadic coping*)

36. I am satisfied with the support I receive from my partner and the way we deal with stress together.

Notes Personal project elicitation and selection of the most stressful project should precede this procedure.

Beyond modification to past tense and reference to stressful project, wording of all items strictly followed the original items in the Dyadic Coping Inventory.

Item numbers are from the original questionnaire.

Sub-scale names and item captions are for illustrative purposes and were not provided in the questionnaire.

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