EMBnet.journal
Bioinformatics in Action

Velegraki et al. (2023) EMBnet.journal 28, e1018
http://dx.doi.org/10.14806/ej.28.0.1018

Research Papers

Reliability and validity of the Dyadic Coping Inventory for Financial Stress in Greek couples

Joanne Maria Velegraki[1], Flora Bacopoulou[2], George P. Chrousos[3], Marilena Panagiotou[1], Orsalia Gerakini[1], Maria Charalampopoulou[1], Dimitrios Vlachakis[4], Christina Darviri[1] ✉

[1]Postgraduate Course of Stress Science and Health Promotion, School of Medicine, National and Kapodistrian University of Athens, Athens, Greece

[2]Center for Adolescent Medicine and UNESCO Chair on Adolescent Health Care, First Department of Pediatrics, School of Medicine, National and Kapodistrian University of Athens, Aghia Sophia Children's Hospital, Athens, Greece

[3]University Research Institute of Maternal and Child Health and Precision Medicine, and UNESCO Chair on Adolescent Health Care, National and Kapodistrian University of Athens, Aghia Sophia Children's Hospital, Athens, Greece

[4]Laboratory of Genetics, Department of Biotechnology, School of Applied Biology & Biotechnology, Agricultural University of Athens, Athens, Greece

Competing interests: JMV none; FB none; GPC none; MP none; OG none; MC none; DV none; CD none

Abstract

Financial stress can negatively affect a couple's relationship. The Dyadic Coping Inventory for Financial Stress (DCIFS) instrument assesses the way couples cope with financial stress. This study sought to validate the Dyadic Coping Inventory for Financial Stress (DCIFS) in Greek. The sample included 152 Greek couples (mean age: 42.82 ± 11.94). Confirmatory factor analyses provided support for delegated dyadic coping and evaluation of dyadic coping. Confirmatory Factor Analysis results supported a 33-item version consisting of the following subscales for both men and women: Stress Communication by Oneself and by Partner, Emotion and Problem-Focused Supportive Dyadic Coping (DC) by Oneself and by Partner, Negative DC by Oneself and by Partner, Emotion and Problem-Focused Common DC, and Evaluation of DC. The Dyadic Coping Inventory questionnaire and Perceived Stress Scale were used to assess the criterion validity of DCIFS.

Introduction

In times of economic turmoil, mental health issues such as anxiety and depression are reducing the well-being of the population (Viseu *et al.*, 2018). In recent years, due to the unstable economy, it is important to research the financial problems we face. Much research has been done on the problems couples face, but little has been said on financial problems (Falconier and Kuhn, 2019). The impact of chronic stressors, such as economic difficulties, is best understood within the context of one's close relationships (Karademas and Roussi, 2017). Significant stressors appear when there is an inability to meet economic needs. The couple that has economic hardships suffer both personally and as a couple (Kinnunen and Feldt, 2004). Stress influences communication, marital satisfaction, and the development of close relationships. Marriages subjected to chronic stress have a higher probability of ending up in divorce (Bodenmann *et al.*, 2006). There is increasing evidence that stress experienced by individuals in close relationships causes maladaptive relationship development, poor communication quality and decreased sexual functioning (Papp and Witt, 2010). Stressful experiences and financial stress can negatively affect a couple's relationship. Under financial stress, individuals tend to experience symptoms of depression, anxiety, or emotional distress (Falconier *et al.*, 2019). However, the negative behaviours that occur can be reduced if the couple is able to cope with stress together (Xu *et al.*, 2016). Dyadic coping is a stronger predictor of relationship satisfaction than individual coping (Herzberg, 2013). Taking into consideration that couples tend to be concerned about financial matters, it is obvious that financial stress is linked to negative effects within the relationship such as increased inter-partner hostility and aggression (Falconier *et al.*, 2019). Research on stress and coping in couples has received increasing empirical attention in North America and Western Europe. Generalisation of these findings may be limited due to the lack of variation in the contextual factors (such as culture and socioeconomic status) of the samples (Rusu, 2016). Since the early 1990s, authors

Article history
Received: 14 March 2022
Accepted: 26 July 2022
Published: 07 March 2023

emphasise the significance of the social context and the role of significant others in managing stressful encounters (Ledermann *et al.*, 2010). Evidence suggests that dyadic coping has a protective influence on marital quality, marital stability, and partners' well-being (Rusu *et al.*, 2016). Dyadic coping requires both partners mutually involved in the stress coping process such as providing and receiving support from each other and engaging in common problem-solving activities and shared emotion regulation (Traa *et al.*, 2014). It is important to understand how partners cope with financial stress. Among the many available models to understand couples coping with stress, also known as dyadic coping, the systemic-transactional model (STM; Bodenmann, 1995) offers the most comprehensive conceptualisation of dyadic coping, particularly when stressors can affect both partners. Bodenmann developed the Dyadic Coping Inventory (DCI), a self-report questionnaire specifically designed to measure dyadic coping (Gmelch , 2008). The DCI is the only available instrument that measures most aspects of the dyadic coping process, though it only addresses coping with stress in general, and does not address how couples cope with stress related to financial matters specifically. Given the need to understand couples' coping responses to financial stress and the potential benefits of an instrument that evaluates couples' dyadic coping with financial stress only, an adaptation of the DCI to assess couples' coping strategies regarding financial stressors has been created by Marianna K. Falconier (Falconier and Kuhn, 2019).

Materials, Methodologies and Techniques

Translation procedure

After receiving the authors' permission, the questionnaire was translated according to the World Health Organization's guidelines for the adaptation of instruments. A pre-test of the translated questionnaire was then held to identify the presence of unclear expressions. The participants of the pre-test were representative of the target population.

Participants and Procedure

The current study was conducted in Greece. The questionnaire was distributed to Greek couples by hand and online (google forms) from 2020 to July 2021.

Measures

Demographic data

The participants answered question regarding gender, date of birth, nationality, education level and job status, length of relationship, marital status, and number of children, as well as income satisfaction.

Dyadic Coping Inventory for Economic Stress

The DCIFS is a 33-item self-report inventory, designed to measure how couples cope with stress in general and not with a specific set of stressors. The DCIFS was adapted by the authors from the English version of the original 37-item DCI (Gmelch, 2008) to situations of financial stress. Similar to the DCI, items are rated on a five-point Likert scale (1 = very rarely to 5 = very often). Except for the Common DC and Evaluation of DC subscales (see Table 1 for specific items), the DCIFS includes the following subscales with a by Oneself item and a by Partner item: Stress Communication, Emotion-Focused Supportive DC, Problem-Focused Supportive DC–Negative DC, Emotion-Focused Common DC, Problem-Focused Common DC, and Evaluation of DC. The measure can yield a total score for DC resulting from addition of all item values after converting the Negative DC scores. The DCIFS can also produce two types of aggregated scales, DC by Oneself versus DC by Partner. A simple change of instructions to help participants respond in relation to financial stressors would not be sufficient to assess DC with financial stress due to the fact that some items are worded for stressors in general DCI items were adapted to make them specifically about situations of financial stress

Dyadic Coping Inventory

The DCI is a self-report questionnaire that was developed to measure all the dimensions proposed by STM. It initially included 55 five-point Likert-scale items (1 = very rarely, 5 = very often) (Bodenmann, 2006) but, as a result of factor analyses, the questionnaire was subsequently reduced to 41 items first and later on to 37 items (Bodenmann, 2008). The 37-item version of the DCI is widely used and validated in various languages assesses the various dimensions of dyadic coping with five different subscales: Stress Communication, Supportive DC, Delegated DC, Negative DC, and Common DC. Both Supportive DC and Common DC include two subscales: Emotion-Focused and Problem-Focused. Except for Common DC (Emotion-Focused and Problem-Focused), which assesses coping behaviours involving both partners, each of the other scales and subscales measure the respondent's perception of their own coping (by Oneself) and of their partner's coping (by Partner) in each of those dimensions. These dimensions result in the following 12 scales: (1) Stress Communication by Oneself; (2) Stress Communication by Partner, (3) Emotion-Focused Supportive DC by Oneself; (4) Emotion-Focused Supportive DC by Partner; (5) Problem-Focused Supportive DC by Oneself; (6) Problem-Focused Supportive DC by Partner; (7) Delegated DC by Oneself; (8) Delegated DC by Partner; (9) Negative DC by Oneself; (10) Negative DC by Partner; (11) Emotion-Focused Common DC and (12) Problem-Focused Common DC. The DCI includes a thirteenth scale made of two items to assess the respondent's

Velegraki et al. (2023) EMBnet.journal 28, e1018
http://dx.doi.org/10.14806/ej.28.0.1018

overall evaluation of DC. Scales can be aggregated in two different ways. On the one hand, subscales can be grouped into DC by Oneself and DC by Partner by adding all the scores from the by Oneself subscales and all the scores from the by Partner subscales respectively. On the other hand, subscales can also be grouped into Positive and Negative DC. Positive DC is the aggregation of the following By Oneself and By Partner subscales: Stress Communication, Emotion-Focused Supportive DC; Problem-Focused Supportive DC; Delegated DC; Emotion-Focused Common DC, and Problem-Focused Common DC. Negative DC is the aggregation of the subscales Negative DC by Oneself and by Partner. The DCI can also provide a total assessment for the couple's coping by adding the response values of each item after reversing the Negative DC responses. The DCI has been translated and validated in Greek.

Perceived Stress Scale

PSS is the most widely used psychological instrument for measuring the perception of stress. The PSS was developed to measure the degree to which situations in one's life are appraised as stressful (Cohen and Williamson, 1988). It has Likert-type scale with response categories ranging from 1 = Never to 5 = Very often (Taylor, 2015). PSS scores are obtained by reversing responses (*e.g.*, 0 = 4, 1 = 3, 2 = 2, 3 = 1 & 4 = 0) to the four positively stated items (items 4, 5, 7, & 8) and then summing across all scale items. A short 4 item scale can be made from questions 2, 4, 5 and 10 of the PSS 10 item scale. The PSS has been translated and validated in Greek.

Statistical analysis

Data are presented as frequencies N (%) for qualitative variables and as median and interquartile range (IQR) and means and standard deviations (SD) for quantitative variables. Confirmatory Factor Analysis (CFA) was conducted using SPSS Amos (Arbuckle, 2019). To confirm the hypothesised four-factorial structure of DCIFS (Stress Communication, Emotion-Focused Supportive DC, Problem-Focused Supportive DC, and Negative DC) by Oneself and by Partner for men and women separately. CFA was used to confirm the two-factor dimension (Emotion-Focused and Problem-Focused) of the Common DC for men and women separately. CFA was also used to confirm the 11-factorial structure of the total DCIFS (Stress Communication by Self and by Partner, Emotion-Focused Supportive DC by Self and by Partner, Problem-Focused Supportive DC by Self and by Partner, Negative DC by Self and by Partner, Emotion-Focused Common DC, Problem-Focused Common DC, and Evaluation of DC). Model fit was measured using the following fit indices: chi-square test ($\chi 2$), comparative fit index (CFI), the standardised root mean square residual (SRMR), and the root mean square residual of approximation (RMSEA). Considering that $\chi 2$ is sensitive to sample size, the recommended ratio of $\chi 2$/df to be smaller than 3 (Schermelleh*et al.*, 2003) was used to assess model fit. Good model fit is usually indicated by models reaching the following cut-off values (Hu and Bentler, 1999): CFI > 0.96, SRMR > 0.08, RMSEA < 0.06. However, models in which only the RMSEA index was slightly higher than 0.06 were not rejected given its likelihood of Type II error with small sample sizes (Chen, *et al.*, 2008). Normality of data distribution was tested and, as it was violated, non-parametric Spearman's rho coefficient was used to assess correlations. Correlations between DCIFS subscales were calculated in order to test overlapping between factors. A value >0.85 indicates a strong overlap. Also, correlations were calculated between DCIFS subscales and other measurements of the study. SPSS programme v.25 for Windows was used to perform statistical analyses and p = 0.05 was considered to be the level of significance for all analyses.

Results

Descriptives of the study's sample are presented in Table 1. Total participants' mean age in years was 42.82 ± 11.94, 44.16 ± 12.46 for men and 41.47 ± 11.28 for women. Participants reported being in a relationship with their partner for an average of 16.03 years ±12.52. Most of them were married; 167 ±70.8. Most married couples had 1-2 kids (204 ± 67.1). Concerning education background, most women had a Bachelor's degree (95 ± 62.5) while men had a lower percentage 78 ± 51.3. The most common job status was private employe; 100 ± 42.4. Most of the participants had a somewhat income satisfaction; 130 ± 55.1.

The initial four-factor model (Stress Communication, Emotion-Focused Supportive DC, Problem-Focused Supportive DC, and Negative DC) didn't show a good fit of the data for gender's reports in either the DC by Oneself or DC by Partner aggregated scales. (See Model 1 on Table 2).

The misfit of Model 1 could be attributed to low-factor loadings (<0.40). Chi-square is not good due to a large sample. Covariances were made between errors of the same group showing high M.I. The resulting second model fits the data significantly better than the first one for the aggregated scales. Men's reports of DC by Oneself: $\Delta\chi 2$ (55) = 130.28, p < 0.01; women's reports of DC by Oneself: $\Delta\chi 2$ (55) = 106.23, p < 0.001; men's reports of DC by Partner: $\Delta\chi 2$ (56) = 185.90, p < 0.001; and women's reports of DC by Partner: $\Delta\chi 2$ (57) = 190.09, p < .001. Despite the significant fit improvement over Model 1, Model 2 did not reach the values for fit indices in all the aggregated scales. Items 1/14 showed p > 0,01 in both gender's reports of DC by Oneself/Partner and were removed from the scale. The items 1/14 in the Stress Communication subscale refers to letting one's partner know that we appreciate his/her practical support, advice, or help on how to resolve the financial difficulties and is different from the other three items on the subscale about showing one's stress to the partner, telling the partner about one's stress, or asking partner

Velegraki et al. (2023) EMBnet.journal 28, e1018
http://dx.doi.org/10.14806/ej.28.0.1018

Table 1. Participants' sociodemographic characteristics.

	Total	Male	Female	P-value
Gender N(%)				
- Male	152 (50)	-	-	
- Female	152 (50)			
Nationality N(%)				
- Greek	304 (100)	152 (100)	152 (100)	1
- Other	0 (0)	0 (0)	0 (0)	
Marital Status N (%)				
- Married	167 (70.8)	84 (71.2)	83 (70.3)	1
- Unmarried	69 (29.2)	34 (28.8)	35 (29.7)	
Age				
- Median (IQR)	41 (17.25)	42 (19)	40 (17)	0.081
- Mean (SD)	42.82 (11.94)	44.16 (12.46)	41.47 (11.28)	
Duration of relationship N(%)				
- Median (IQR)	12 (22)	12 (22)	12 (22)	0.973
- Mean (SD)	16.03 (12.52)	16.01 (12.55)	16.05 (12.54)	
Kids N(%)				
- None	2 (0.7)	1 (0.7)	1 (0.7)	1
- 1-2	204 (67.1)	103 (67.8)	101 (66.4)	
- 3+	98 (32.2)	48 (31.6)	50 (32.9)	
Education level N(%)				
- High school	56 (18.4)	33 (21.7)	23 (15.1)	0.128
- BSc	173 (56.9)	78 (51.3)	95 (62.5)	
- Msc/Phd	75 (24.7)	41 (27)	34 (22.4)	
Job status N(%)				
- Unemployed	17 (7.2)	2 (1.7)	15 (12.7)	
- Private employee	100 (42.4)	51 (43.2)	49 (41.5)	<0.0001
- State employee	39 (16.5)	15 (12.7)	24 (20.3)	
- Freelancer	80 (33.9)	50 (42.4)	30 (25.4)	
Income satisfaction N(%)				
- Not at all	26 (11)	12 (10.2)	14 (11.9)	
- little	31 (13.1)	14 (11.9)	17 (14.4)	0.682
- somewhat	130 (55.1)	63 (53.4)	67 (56.8)	
- A lot	47 (19.9)	28 (23.7)	19 (16.1)	
- Very much	2 (0.8)	1 (0.8)	1 (0.8)	
Income covers needs N(%)				
- yes	89 (37)	48 (40.7)	41 (34.7)	0.42
- no	147 (62.3)	70 (59.3)	77 (65.3)	
PSS Total				
- Median (IQR)	35 (14)	35 (14)	35 (15)	0.295
- Mean (SD)	35.82 (10.21)	35.07 (10.02)	36.58 (10.38)	
DCI Total				
- Median (IQR)	121 (22)	121.50 (22.75)	121 (22.25)	0.834
- Mean (SD)	119.70 (17.15)	119.74 (17.48)	119.66 (16.86)	

PSS: Perceived Stress Scale, DCI: Dyadic Coping Inventory

to do something. Showing appreciation may be different from communicating stress to partner and/or asking for assistance (Falconier *et al.*, 2019).

The Stress Communication subscale has offered challenges in previous validation studies. Model 3 was significantly better than Model 2. The third model indicated a good fit to the data for both men and women and for both by Oneself: men's reports: $\chi 2$ (45) = 63.28, p = 0.00, CFI = 0.98, SRMR = 0.043, RMSEA = 0.05 (0.00–0.09); women's reports: $\chi 2$ (45) = 46.65, p = 0.00, CFI = 0.99, SRMR = 0.034, RMSEA = 0.01 (0.00–0.12); and by Partner: men's reports: $\chi 2$ (46) = 79.83, p = 0.00, CFI = 0.97, SRMR = 0.052, RMSEA = 0.07 (0.00–0.09); women's reports: $\chi 2$ (47) = 102.194, p = 0.03, CFI = 0.96, SRMR = 0.051, RMSEA = 0.08 (0.02–0.12) aggregated scales. As Model 4 in Table 2 shows, fit indices for a two-factor model (Emotion and Problem-Focused Common DC) for both women's and men's reports showed a good fit of the model to the data: men's reports: $\chi 2$ (4) = 11.98, p = 0.01, CFI = 0.99, SRMR = 0.012, RMSEA = 0.11 (0.00– 0.15); women's reports: $\chi 2$ (4) = 5.235, p = 0.26, CFI = 0.99, SRMR= 0.009, RMSEA = 0.04 (0.04–0.20).

In the final analysis of the DCIFS factor structure, all the subscales were included simultaneously in an 11-factor model (see Table 2, Model 5). This model fit indices indicated an acceptable fit for men's reports, $\chi 2$ (379) = 905.16, p = 0.00, CFI = 0.88, SRMR = 0.065, RMSEA = 0.09 (0.06–0.09), and a good fit for women's reports, $\chi 2$ (379) = 788.85, p = 0.00, CFI = 0.91, SRMR = 0.056, RMSEA = 0.08 (0.03–0.07). A second model

Velegraki et al. (2023) EMBnet.journal 28, e1018
http://dx.doi.org/10.14806/ej.28.0.1018

Table 2. Confirmatory Factor Analysis.

		Men's reports						Women's reports					
		χ^2	df	p	CFI	SRMR	RM-SEA	χ^2	df	p	CFI	SRMR	RM-SEA
DC by Oneself and by Partner	Model 1												
	Oneself	212.389	59	0.000	0.869	0.1194	0.131	177.765	59	0.000	0.888	0.0924	0.115
	Partner	235.847	59	0.000	0.856	0.1323	0.141	198.545	59	0.000	0.906	0.1026	0.125
	Model 2												
	Oneself	130.286	55	0.000	0.936	0.1096	0.095	106.230	55	0.000	0.952	0.0884	0.079
	Partner	185.901	56	0.000	0.896	0.1215	0.124	190.090	57	0.000	0.915	0.0955	0.124
	Model 3												
	Oneself	63.285	45	0.000	0.983	0.0435	0.052	46.655	45	0.000	0.998	0.0346	0.016
	Partner	79.832	46	0.001	0.970	0.0524	0.070	102.194	47	0.000	0.960	0.0515	0.088
Common DC	Model 4	11.989	4	0.017	0.990	0.0122	0.115	5.235	4	0.264	0.999	0.0092	0.045
DCIFS Total	Model 5	905.167	379	0.000	0.883	0.0655	0.096	788.857	379	0.000	0.915	0.0561	0.085
	Model 6	824.530	375	0.000	0.900	0.0621	0.089	741.517	376	0.000	0.924	0.0537	0.080

Table 3. Descriptive characteristics of the subscales of DCIFS and total score.

Subscale	Items	Range	Mean	SD	Minimum	Maximum
FSCO	2,3,4	3-15	10.41	2.81	3.00	15.00
FSCP	15,16,17	3-15	10.06	2.97	3.00	15.00
FEFSDCO	18,19,22	3-15	11.46	2.16	3.00	15.00
FEFSDCP	5,6,9	3-15	10.81	2.50	3.00	15.00
FPFSDCO	21,25	2-10	7.01	1.54	2.00	10.00
FPFSDCP	8,12	2-10	6.43	1.75	2.00	10.00
FPFCDC	27,28,29	3-15	10.52	2.96	3.00	15.00
FEFCDC	30,31	2-10	6.99	2.12	2.00	10.00
FEDCO	32,33	2-10	7.20	2.07	2.00	10.00
FNDCO	20,23,24, 26	4-20	10.25	3.52	4.00	18.00
FNDCP	7,10,11,13	4-20	10.62	4.04	4.00	20.00
DCIFSTOTAL	All items	29-145	101.75	10.72	31.00	134.00

Table 4. Correlations (Spearman's rho) between DCIFS subscales and total DCIFS.

	FSCO	FSCP	FEFSD-CO	FEFSD-CP	FPFSD-CO	FPFSD-CP	FPF-CDC	FEF-CDC	FEDCO	FND-CO	FNDCP	Total DCIFS
FSCO	1											
FSCP	0.800**	1										
FEFSDCO	-0.484**	-0.466**	1									
FEFSDCP	-0.418**	-0.498**	0.686**	1								
FPFSDCO	-0.288**	-0.236**	0.692**	0.471**	1							
FPFSDCP	-0.306**	-0.364**	0.560**	0.738**	0.519**	1						
FPFCDC	-0.469**	-0.491**	0.735**	0.706**	0.604**	0.624**	1					
FEFCDC	-0.409**	-0.403**	0.617**	0.634**	0.559**	0.610**	0.772**	1				
FEDCO	-0.524**	-0.545**	0.676**	0.690**	0.509**	0.619**	0.810**	0.777**	1			
FNDCO	0.617**	0.644**	-0.569**	-0.553**	-0.394**	-0.492**	-0.577**	-0.525**	-0.597**	1		
FNDCP	0.679**	0.713**	-0.652**	-0.643**	-0.445**	-0.520**	-0.653**	-0.604**	-0.708**	0.785**	1	
Total DCIFS	0.367**	0.367**	0.296**	0.345**	0.416**	0.423**	0.368**	0.397**	0.271**	0.195**	0.132**	1

Note: *DCIFS: Dyadic Coping Inventory for Financial Stress*
***correlation is significant at the 0.01 level (2-tailed)*

Velegraki et al. (2023) EMBnet.journal 28, e1018
http://dx.doi.org/10.14806/ej.28.0.1018

Table 5. Associations between DCIFS subscales and total score and other study variables.

Study measurements	FSCO	FSCP	FEFSD-CO	FEFSD-CP	FPFSD-CO	FPFSD-CP	FPF-CDC	FEF-CDC	FEDCO	FND-CO	FNDCP	Total DCIFS
DCI Total Spearman rho	-0.118*	-0.129*	0.341**	0.367**	0.398**	0.460**	0.461**	0.553**	0.447**	-0.234**	-0.258**	0.424**
PSS Total Spearman rho	0.571*	0.568*	-0.501*	-0.584*	-0.418*	-0.571*	-0.579*	-0.526*	-0.613*	-0.549*	0.660*	-0.06

Note: *PSS: Perceived Stress Scale*
*** Correlation is significant at the 0.01 level (2-tailed)*
** Correlation is significant at the 0.05 level (2-tailed)*

(Model 6 in Table 2) indicated a better fit. For men's reports: $\chi2$ (375) = 824.530, p = 0.00, CFI = 0.90, SRMR = 0.062, RMSEA = 0.08 (0.06–0.09), and a good fit for women's reports, $\chi2$ (376) = 741.517, p = 0.00, CFI = 0.92, SRMR = 0.053, RMSEA = 0.08 (0.03–0.07).

Descriptive characteristics of the subscales of DCIFS were calculated (See Table 3). The total score, including all items, was 101.75 (SD = 10.72), minimum and maximum range was 31.00 and 134.00, respectively.

Correlations (Spearman's rho) between DCIFS subscales and total DCIFS were calculated (See Table 4). There is a negative correlation between subscales because the results indicate values < 0.85. There is a strong positive linear relationship between Emotion-Focused DC by Oneself and Problem-Focused DC Common (FEDCO and FPFCDC: 0.81), as well as between Negative DC by Partner and Negative DC by Oneself (FNDCP and FNDCO: 0.78). There is a strong negative linear relationship between Negative DC by Partner and Emotion-Focused DC by Oneself (FNDCP and FEDCO: -0.70).

Associations between DCIFS subscales, total score and other study variables were calculated (See Table 5). DCI has a positive correlation with the DCIFS (DCI Total Spearman rho and Emotion-Focused DC Common/FEFCDC: 0.55). The PSS correlates positively only with 3 variables (FSCO: 0.57; FSCP: 0.568; FNDCP: 0,66). Total mean of DCI was 119.70; SD = 17.15 and PSS 35.82; SD = 10.21 (See Table 1).

Discussion

The goal of the present study was to validate DCIFS in a sample of Greek couples not seeking couple or family therapy. The results of CFA, led to the removal of two items from the Stress Communication subscale. The results supported a 33-item version consisting of the following subscales: Stress Communication by Oneself and by Partner, Emotion and Problem-Focused Supportive DC by Oneself and by Partner, Negative DC by Oneself and by Partner, Emotion and Problem-Focused Common DC, and Evaluation of DC. Confirmatory factor analyses showed that delegated dyadic coping by oneself and the partner and evaluation of dyadic coping were reasonable and reliable in terms of model fit and factor loadings.

Except for the Stress Communication subscale that was positively related to the Negative DC subscales, most subscales have a negative linear correlation meaning that most couples have a poor relationship. The fact that Stress Communication subscale was associated positively with Negative DC, could be suggesting that when couples cope with financial stressors, communicating stress by requesting support with finances, or showing financial stress through behaviour, may increase the likelihood of Negative DC through mutual blaming and may decrease the likelihood of providing Emotion-Focused Supportive DC and engaging in Common DC. Finances are what couples tend to argue the most. The results may be indicating that stress communication may not be as positive as perceived for some types of stressors. So communicating stress about finances through behaviour or by asking for financial support might not be beneficial for the couple's relationship (Falkonier *et al.*, 2019). Associations between DCIFS and Dyadic Coping Inventory (DCI) subscales have a positive correlation. The associations between DCIFS subscales show a negative correlation with Perceived Stress Scale (PSS) meaning that PSS is not the best tool to use along the DCIFS.

Conclusions

Although couples were mailed the questionnaires and were instructed to complete the measures independently, we cannot exclude the possibility that one partner completed both sets of questionnaires. Same with the internet version (google forms). The DCIFS has not been translated and validated in other languages apart from the original (English) so there is a restriction in comparisons with other countries. The model should be tested further. Future studies should seek to examine the broader applicability of this model to other dyads, including same-sex couples, which would provide evidence for its validity in a wider range of couples.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Key Points

- Stressful experiences and financial stress can negatively affect a couple's relationship.
- Dyadic Coping Inventory for Financial Stress (DCIFS) is a self-report inventory, designed to measure how couples cope with financial stress.
- Validation of the DCIFS was performed in Greek couples.

Acknowledgement

We would like to thank all participants of the study.

References

Arbuckle, J. L. (2019). Amos (Version 26.0) [Computer Program]. Chicago: IBM SPSS.

Bodenmann G. (1995) A systemic-transactional conceptualization of stress and coping in couples. Swiss Journal of Psychology **54**(1), 34-49. https://psycnet.apa.org/record/1996-14234-001 (accessed 8 August 2022)

Bodenmann G., Randall A. K., Falconier M. K. (2016) Coping in couples: the systemic transactional model (STM). Couples coping with stress: A cross-cultural perspective: In Falconier, M. K., Randall, A. K., Bodenmann, G. (eds). Couples Coping with Stress: A cross-cultural perspective. (pp. 5-22). New York: Routledge

Chen, F., Curran, P. J., Bollen, K. A., Kirby, J., Paxton, P. (2008). An empirical evaluation of the use of fixed cutoff points in RMSEA test statistic in structural equation models. Sociological methods & research, **36**(4), 462-494. http://dx.doi.org/10.1177/0049124108314720

Cohen, S., Williamson, G.(1988) Perceived Stress in a Probability Sample of the United States. Spacapan, S. and Oskamp, S. (Eds.) The Social Psychology of Health. Sage, Newbury Park, CA.

Falconier M. K., Kuhn R. (2019) Coping in Couples: A Conceptual Integration and a Review of the Empirical Literature, Frontiers in Psychology, http://dx.doi.org/10.3389/fpsyg.2019.00571

Falconier, M. K., Rusu, P. P., Bodenmann, G. (2019). Initial validation of the dyadic coping inventory for financial stress. Stress and Health, **35**(4), 367-381. http://dx.doi.org/10.1002/smi.2862

Gmelch, S., Bodenmann, G., Meuwly, N., Ledermann, T., Steffen-Sozinova, O., Striegl, K. (2008). Dyadic coping inventory (DCI): A questionnaire assessing dyadic coping in couples. [Dyadisches Coping Inventar (DCI): Ein Fragebogen zur Erfassung des partnerschaftlichen Umgangs mit Stress] Zeitschrift Fur Familienforschung, **20**(2), 185-202. Retrieved from www.scopus.com

Herzberg, P. Y. (2013). Coping in relationships: The interplay between individual and dyadic coping and their effects on relationship satisfaction. Anxiety, Stress & Coping, **26**(2), 136-153., http://dx.doi.org/10.1080/10615806.2012.655726

Hu, L. T., Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. Structural equation modeling: a multidisciplinary journal, **6**(1), 1-55. http://dx.doi.org/10.1080/10705519909540118

Karademas, E. C., Roussi, P. (2017). Financial strain, dyadic coping, relationship satisfaction, and psychological distress: A dyadic mediation study in Greek couples. Stress and Health, **33**(5), 508-517. http://dx.doi.org/10.1002/smi.2735

Kinnunen, U., Feldt, T. (2004). Economic stress and marital adjustment among couples: Analyses at the dyadic level. European Journal of Social Psychology, **34**(5), 519-532. http://dx.doi.org/10.1002/ejsp.213

Ledermann T., Bodenmann G., Gagliardi S., Charvoz L., Verardi S., Rossier J., Bertoni A., Iafrate R. (2010) Psychometrics of the Dyadic Coping Inventory in Three Language Groups, Swiss Journal of Psychology, **69** (4), 201–212. http://dx.doi.org/10.1024/1421-0185/a000024

Papp, L. M., Witt, N. L. (2010). Romantic partners' individual coping strategies and dyadic coping: implications for relationship functioning. Journal of family psychology, **24**(5), 551. http://dx.doi.org/ 10.1037/a0020836

Rusu, P. P. (2016). Dyadic coping in Romanian couples. In: Falconier, M. K., Randall, A. K., Bodenmann, G. (Eds.), Couples coping with stress: A cultural perspective (pp. 187–202). New York, NY: Routledge

Rusu, P. P., Hilpert, P., Turliuc, M. N., Bodenmann, G. (2016). Dyadic coping in an eastern European context: Validity and measurement invariance of the Romanian version of dyadic coping inventory. Measurement and Evaluation in Counseling and Development, **49**(4), 274-285. http://dx.doi.org/10.1177/0748175616664009

Schermelleh-Engel, K., Moosbrugger, H., Müller, H. (2003). Evaluating the fit of structural equation models: Tests of significance and descriptive goodness-of-fit measures. Methods of Psychological Research Online, **8**, 23–74. https://psycnet.apa.org/record/2003-08119-003 (accessed 08 August 2022)

Taylor, J. M. (2015) Psychometric analysis of the ten-item perceived stress scale. Psychological assessment, **27**(1), 90. http://dx.doi.org/10.1037/a0038100

Traa, M. J., De Vries, J., Bodenmann, G., Den Oudsten, B. L. (2015). Dyadic coping and relationship functioning in couples coping with cancer: A systematic review. British journal of health psychology, **20**(1), 85-114. http://dx.doi.org/10.1111/bjhp.12094

Viseu, J., Leal, R., de Jesus, S. N., Pinto, P., Pechorro, P., Greenglass, E. (2018). Relationship between economic stress factors and stress, anxiety, and depression: Moderating role of social support. Psychiatry research, **268**, 102-107. http://dx.doi.org/10.1016/j.psychres.2018.07.008

Xu F., Hilpert P., Randall A. K., Li, Q., Bodenmann, G. (2016) Validation of the Dyadic Coping Inventory with Chinese couples: Factorial structure, measurement invariance, and construct validity. Psychological assessment, **28**(8), e127. http://dx.doi.org/10.1037/pas0000329