

Enhancement of Couples' Communication and Dyadic Coping by a Self-Directed Approach: A Randomized Controlled Trial

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Although prevention of relationship distress and dissolution has potential to strengthen the well-being of partners and any children they are raising, dissemination of prevention programs can be limited because couples face many barriers to in-person participation. An alternative strategy, providing couples with an instructional DVD, is tested in the present study, in which 330 Caucasian couples ($N = 660$ participants; mean age: men 41.4 years, women 40.0 years) were randomly assigned to a DVD group without any further support, a DVD group with technical telephone coaching, or a wait-list control group. Couples completed questionnaires at pretest, posttest, and 3 and 6 months after completion of the intervention. Self-report measures of dyadic coping, communication quality, ineffective arguing, and relationship satisfaction were used to test whether the intervention groups improved in comparison with the control group. Women in both intervention groups increased in dyadic coping, reduced conflict behavior, and were more satisfied with their relationship 6 months after the intervention. Effects for men were mixed. Participants with poorer skills reported stronger improvement. Intimate relationships can, within limits, be positively influenced by a self-directed approach. Effective dissemination of principles underlying successful relationships can be facilitated through the use of emerging low-cost tools and technologies.

Keywords: couples, dyadic coping, social support, communication, self-directed relationship education

Relationship quality is one of the most powerful predictors of life satisfaction (e.g., Ruvolo, 1998), physical and psychological health (e.g., Proulx, Helms, & Buehler, 2007), and performance in the workplace (e.g., Renick, Blumberg, & Markman, 1992). As a consequence, relationship scientists have proposed several evidence-based relationship education and distress prevention programs (see Jakubowski, Milne, Brunner, & Miller, 2004). This endeavor is particularly relevant as almost every second marriage in Western societies is projected to end in divorce (e.g., Bramlett & Mosher, 2002), whereas among stable couples, one couple in three reports chronic unhappiness (Whisman, Beach, & Snyder, 2008).

Relationship education programs are designed to provide structured and standardized education about healthy relationships, focusing in particular on commitment, attitudes, and communication in an effort to reduce the incidence of relationship distress and the

likelihood of separation and divorce (Halford, Markman, Kling, & Stanley, 2003). Although evidence-based programs are effective, at least over short intervals (effect sizes for relationship quality range between $d = 0.24$ and 0.36 ; see Hawkins, Blanchard, Baldwin, & Fawcett, 2008), a major problem concerns their dissemination, as many couples that might benefit from such programs do not participate (Halford, Markman, & Stanley, 2008). Reasons for this restricted reach are manifold, ranging from geographical barriers, constraints on couples' time and financial resources, limited child care opportunities, lack of anonymity, and fear of self-disclosure in group settings (Halford, Moore, Wilson, Farrugia, & Dyer, 2004).

Whereas traditional approaches to preventive intervention involve couples participating in workshops, current technologies now enable couples to receive instructional material in a number of formats, including the Internet and interactive CD-ROM- or DVD-based interventions. A number of educational interventions have now been formalized into DVD-based programs to instruct couples in a wide range of relationship-enhancing skills (e.g., Bodenmann, Schaer, & Gmelch, 2008; Braithwaite & Fincham, 2011; Engl & Thurmaier, 2010; Halford et al. 2010; Wilson, & Halford 2008), yet few of these DVDs have received formal testing. Recent studies have suggested that programs delivered without professional or paraprofessional guidance may be ineffective; a 13-study meta-analysis by McAllister, Duncan, and Hawkins (2012) yielded a nonsignificant effect size of $d = 0.03$ for relationship satisfaction. On the other hand, programs that blend standardized instructional content with outside guidance have been shown to yield

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effect sizes of $d = 0.43$ (relationship satisfaction) and $d = 0.72$ (communication skills) and thus may be more promising.

A leading example of an evidence-based blended program, Couple CARE (Halford et al., 2004, 2010), is taught via DVD, a booklet that outlines specific exercises, and a psychologist who provides support via telephone or Skype. This format enables couples to learn key skills in communication (e.g., self-regulation tactics, problem resolution) conveniently at home. Couple CARE, however, is unique by focusing on self-change tactics: Couples reflect about their own behavior and its consequences, how it can be changed, how it best can be implemented into daily routine, and how the effect of the new behavior can be evaluated. Halford et al. (2010) reported that the combination of a curriculum-based couple relationship education program (Halford et al., 2004) and individual online feedback (RELATE; Busby, Holman, & Taniguchi, 2001) yields increases in constructive couple communication and relationship satisfaction compared to the online assessment alone. Wilson and Halford (2008) examined continuing implementation of self-directed learning at 6-month follow-up, suggesting that couples maintain the skills they learn.

Present Study

The current study aims to examine the effects of a purely DVD-based program, the Couple Coping Enhancement Training (CCET-DVD). The interactive CCET-DVD, which has a conceptual foundation in cognitive-behavioral principles of change in couple relationships and in how dyads manage stress, allows couples to work on their relationship fully self-directed for a total of 5 hours. For this purpose, couples were randomly assigned to one of three groups. The first group (DVD) received the DVD without further technical support and was, therefore, strictly self-directed. The second group received the DVD and technical support via telephone calls (DVD-T). The third group was a waiting-list control group (WCG).

Using a fully self-directed approach raises questions about how best to assess treatment adherence. Monitoring couples in a self-directed intervention contradicts the rationale of a self-directed approach and may influence how they interact with the DVD. At the same time, failing to monitor self-directed couples results in less use of the program, thereby compromising implementation of the intervention itself. To overcome this problem, we included a second intervention group. Couples in the first group received only the fully self-directed DVD, whereas couples in the second intervention group were monitored by means of a phone call after every chapter. Presented as “technical support,” these calls involved a technical assistant asking a standard set of questions (e.g., about the execution of each chapter, about the program content). These questions enabled regular monitoring of whether both members of the couple had worked on the DVD chapters and how intensively they had done so. The telephone contacts were also viewed as having a motivational component, in that the calls might remind participants to work on the DVD or perhaps motivate them to do so. Thus, we assumed that participants in the DVD-T group might be more involved in the use of the DVD. Using two intervention groups allowed us to compare whether self-directed intervention is also effective without further structured support or whether some structure and motivational guidance is necessary. Furthermore, this intervention group condition allowed us to examine whether tele-

phone contacts with a technical assistant influence program usage or dropout rates. Providing couples with technical assistance may be even more important than providing substantive guidance on the specific skills and competencies in the DVD (Titov et al., 2010), suggesting that any effects associated with the self-directed CCET-DVD might be strengthened by providing couples with technical assistance that would remind them to remain focused on the task. We were interested in whether a self-directed DVD approach with and without technical support could improve couples' communication and dyadic coping. We also sought to clarify whether technical assistance leads to differences in using the DVD in terms of the time couples work with the DVD and differences in dropout rates with respect to working with the DVD at all.

Rationale and Theoretical Background of the CCET-DVD

Based on recent studies addressing successful relationship management (see Randall & Bodenmann, 2009), a central aim of the CCET-DVD is to enhance couples' communication, with specific emphasis on stress and couple-level coping with stress. As dyadic coping is a reliable predictor of relationship functioning (e.g., Bodenmann, 1997; Bodenmann, Pihet, & Kayser, 2006; Brock & Lawrence, 2008; Revenson, Kayser, & Bodenmann, 2005), strengthening this skill is a major goal of the CCET (Bodenmann & Shantinath, 2004). When delivered as a workshop, CCET improves relationship satisfaction (Ledermann, Bodenmann, & Cina, 2007), communication skills and dyadic coping (Bodenmann, Bradbury, & Pihet, 2009; Bodenmann, Pihet, Cina, Widmer, & Shantinath, 2006; Schaer, Bodenmann, & Klink, 2008), and psychological well-being (Pihet, Bodenmann, Cina, Widmer, & Shantinath, 2007). Creating an interactive DVD version of the CCET therefore seemed promising.

Building on cognitive-behavioral therapy and the coping-oriented approach, the CCET-DVD adopts the general model of behavior change outlined by Maccoby and Solomon (1981), which assumes that change requires awareness of the problem (i.e., sensitization to the problem), knowledge of adequate behavior (i.e., psycho-education), motivation for change (i.e., compliance for engaging in behavior change), specific skills (i.e., training of behavioral skills such as problem solving, dyadic coping), performance of the skills (i.e., implementation of skills in daily routine), and skill maintenance (i.e., motivation for long-term practice of new adequate behavior). These steps of the CCET-DVD are further aimed to enhance partners' sense of self-efficacy (Bandura, 1977), another key determinant of behavioral change.

The five CCET-DVD chapters introduce couples to stress and its impact on close relationships, individual and dyadic coping, and positive and negative communication, as well as conflict resolution and problem solving (see Table 1 for detailed information). The complete DVD contains material for working on one's relationship for about 5 hours, including a theoretical overview, diagnostic assessments, exercises, video examples, self-evaluation, further reading, and tests. All diagnostics and exercises are stored electronically and can be watched, used, and reedited again in later sessions. Partners can log in separately or together, entering their name or password and using the DVD as a personal tool.

Table 1
 Content of the DVD-Based Couple Coping Enhancement Training Program

Unit	Content	Didactical elements
1. Stress	Transactional theory of stress, causes for stress, expression of stress, consequences of stress, impact of stress on close relationships	Theoretical inputs with illustrations, interviews with a specialist, diagnostic (stress in different areas of life)
2. Individual coping	Relaxation techniques, reduction of unnecessary stress, hedonistic, stress-antagonistic activities, coping strategies matching situation demands	Theoretical inputs with illustrations, examples and video examples of techniques, diagnostic (coping inventory), exercises
3. Dyadic coping	Realizing partner's stress, adequate communication of one's own stress (emotional self-disclosure), forms of dyadic coping	Theoretical inputs with illustrations, video examples of dyadic coping, diagnostic (dyadic coping inventory), exercises
4. Communication	Forms of negative communication and their impact on close relationships, adequate communication (speaker and listener rules)	Theoretical inputs with illustrations, video examples of negative communication, diagnostic (communication style of both partners), exercises
5. Conflict resolution and problem solving	Role of conflicts in close relationships, 6-step scheme of problem solving	Theoretical inputs with illustrations, video examples of problem solving, exercises

Like Couple CARE (Halford et al., 2004), the CCET-DVD teaches couples about communication and problem solving. However, the CCET differs in term of the structure and major parts of the content: Couple CARE focuses mainly on self-regulation, self-reflection, and self-changes with self-directed and coaching parts; the CCET-DVD focuses primarily on understanding the deleterious impact of external stress on couples' functioning and how to deal individually and as a couple (through dyadic coping) with these demands.

Hypotheses

Based on promising results obtained with the workshop version of the CCET, we hypothesized that participants receiving the CCET-DVD with or without telephone monitoring (DVD-T and DVD group) would improve in dyadic coping, dyadic communication, and conflict resolution and would be more satisfied with their relationship, compared to a waiting-list control group (WCG), where no effect was expected. Although women appear to benefit from prevention training more than men do in general (Halford et al., 2010; Ledermann et al., 2007; cf. Hawkins et al., 2008), we assumed for our first hypothesis (H1) that such gender differences might be eliminated or even reversed through the use of a DVD format (Whitley, 1997). Based on the findings of Titov et al. (2010), we presumed for our second hypothesis (H2) that couples in the DVD-T group (with additional telephone coaching) would spend more time working on the DVD, have a lower dropout rate, and improve more than would couples in the DVD group. For our third hypothesis (H3), we believed that people who score lower in a particular skill or in global relationship satisfaction would benefit more from the DVD than would those with higher scores in these domains; this prediction follows from Halford, Sanders, and Behrens' (2001) finding that high-risk couples benefit more than low-risk couples from skill-based interventions. Finally, our fourth hypothesis (H4) was that time spent working with the DVD and the amount of time couples practice skills would predict changes in skill improvement and relationship satisfaction (Maccoby & Solomon, 1981).

Method

Participants and Procedure

Participants lived in Switzerland and ranged in age between 18 and 65 years (men: $M = 41.4$ years, $SD = 9.2$, range: 20–65 years; women: $M = 40.0$ years, $SD = 9.0$, range: 18–65 years) and had been in their relationship on average for 12.9 years ($SD = 8.6$, range: 1–39 years). Most couples were married (71%) and had at least one child (72%). Four percent of men and women had finished obligatory schooling, 39% of men and 61% of women completed vocational school or high school, and 57% of men and 35% of women had a university degree. The sample corresponds to the Swiss population according to marriage status, education, and number of children. Participants in the intervention and control groups did not differ in their demographics (marital status, number of children, education, and income) or skills usage (e.g., dyadic coping, conflict resolution; see Table 2), which implies that the randomization was successful.

Participants were recruited through advertisements in newspapers and magazines. Inclusion criteria included partners' consent to participate, understanding and speaking German, relationship duration of at least 1 year, and no severe mental disorders. Interested couples were screened by telephone and, if eligible, were sent an informed consent form that they sent back before participation in the study. Couples were then randomly assigned to one of the three treatment conditions: DVD (self-directed administration of the DVD), DVD-T (self-directed administration with weekly telephone contacts), and WCG (waiting-list control group). The individual responsible for the random assignment was not involved in the administration of interventions or in the assessment of outcomes.

Afterward, the first set of questionnaires was mailed to the couples. Couples were required to complete the questionnaires independently from the partner and to send them back in separate envelopes. Both partners completed questionnaires at four times. The first set of questionnaires was mailed to the couples at the beginning of the study (prior to treatment), the second had to be completed 2 weeks after the completion of the DVD, and the two follow-ups were at 3 and 6 months after the completion of the

Table 2
Means and Standard Deviations Among All Study Variables

Variable	WCG				DVD				DVD-T				All participants together			
	Husband		Wife		Husband		Wife		Husband		Wife		Husband		Wife	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
EDC	3.54	.90	3.31	.94	3.36	.84	3.16	.98	3.41	.88	3.24	.97	3.44 _a	.87	3.24 _a	.96
PC	4.07	.83	4.25	.91	3.94	.69	4.35	.78	3.83	.73	4.25	.75	3.94 _b	.76	4.27 _b	.82
NC	2.17	.49	2.29	.53	2.05	.41	2.23	.42	2.12	.41	2.34	.58	2.12 _c	.44	2.29 _c	.52
IAI	2.66	.86	2.64	.85	2.58	.76	2.62	.90	2.62	.81	2.58	.89	2.63	.81	2.61	.87
RAS	4.03	.57	3.97	.64	3.97	.57	3.92	.73	3.97	.54	3.99	.66	3.99	.55	3.96	.67
TI ₃ ^a					1.85	.57	1.94	.60	1.9	.53	2.02	.56	1.88	.55	1.98	.58
TI ₄ ^a					1.83	.63	2.00	.56	1.86	.62	1.87	.65	1.84	.63	1.93	.62
PT ^a					79	19	79	17	79	18	82	18	79	18	81	17

Note. Subscripts (a, b, and c) indicate significant differences. WCG = waiting-list control group; DVD = DVD group; DVD-T = DVD group with telephone coaching; EDC = evaluation dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale; TI₃ = technique implementation at Time 3; TI₄ = technique implementation at Time 4; PT = processing time (measured in minutes).

^a Technique implementation and processing time were assessed for only both intervention groups (DVD and DVD-T).

training. All couples in the DVD and DVD-T intervention groups received basic instructions outlining how to work with the DVD.

The duration of the intervention was 5 weeks, 1 week per chapter of the CCET-DVD. To ensure regular participation, time for working on each chapter was restricted to 1 week. Each partner had to record the time when he/she worked on the DVD (date, time starting, time ending) with a standardized sheet and to send this protocol to the investigators after each week. The first DVD group worked independently without further support, whereas the second intervention group (DVD-T group) received additional telephone coaching. The telephone calls were scheduled weekly by the technical assistant with both members of the couple. The calls were not requested by the couples but were an element of the DVD-T condition that was communicated to the couples at the beginning.

The telephone contacts involved one call for each of the five chapters. Calls were directed to individual partners and addressed whether he or she (a) had finished the chapter, (b) had worked through the chapter's exercises, (c) had faced any problems in understanding the chapter's content, and/or (d) had had any technical problems. The interview was structured as follows: (a) questions on the DVD chapter (e.g., "Were you able to work on the chapter that you intended to? How did it work? Were you able to complete the exercises? What is your general impression of this chapter? What was helpful, what was less useful?"), (b) questions on understanding and technical problems (e.g., "Did you have technical problems or misunderstandings?"), (c) outlook ("Next week chapter X has to be administered. Please reserve 90 min of time for this work during the next week"), and (d) next telephone call ("I will call you next week again. What day and time would fit?"). Technical assistants logged standardized evaluation sheets about the call's content. Beyond technical support, technical assistants did not provide any couple-related psychological support such as advice or psycho-education. Couples in the WCG received the DVD at the end of data collection.

This study was ethically approved by the Swiss National Science Foundation. All participants were informed that participating was strictly voluntary and that they could discontinue at any time.

Measures

Demographic variables. Participants reported their age, education, religion, nationality, ethnicity, occupation, number of children, and duration of their relationship.

Dyadic Coping Inventory (DCI; Bodenmann, 2008). To assess global satisfaction with dyadic coping, the *evaluation of dyadic coping* subscale of the DCI was used. This two-item subscale asks respondents to evaluate the extent to which they are satisfied with partner support and dyadic coping ("I am satisfied with the support I receive from my partner and the way we deal with stress together"; "I experience the support by my partner and the way we deal with stress together to be effective") on a 5-point scale (1 = *never* to 5 = *very often*). In this study, α ranged from .88 to .94 across assessments.

Marital Communication Questionnaire (MCQ; Bodenmann, 2000). This questionnaire assesses positive and negative marital communication behaviors in conflict situations, such as defensiveness, contempt, belligerence, and domination versus interest, affection, and care. It is based on the communication categories proposed by the Specific Affect (SPAFF) coding system developed by Gottman (1994) and contains 19 items completed on a 6-point scale (1 = *never* to 6 = *very often*). In this study, α for positive communication ranged from .85 to .89 and for negative communication from .80 to .85 across all assessments.

Ineffective Arguing Inventory (IAI; Kurdek, 1994). To assess mutual conflict resolution, we used the eight-item IAI (e.g., "Our arguments seem to end in frustrating statements"; 1 = *disagree strongly* to 5 = *agree strongly*). Each partner's view of how they handle arguments as a couple was assessed, and a high score on the IAI implied poor conflict strategies. In this study, α ranged from .88 to .91 across assessments.

Relationship Assessment Scale (RAS; Hendrick, 1988; translated into German by Sander & Böcker, 1993). To assess relationship satisfaction, we used the seven-item RAS, which assesses functional (e.g., "In general, how satisfied are you with your relationship?") and dysfunctional aspects (e.g., "How often do you wish you hadn't gotten into this relationship?") of the

relationship on a 5-point scale. Higher scale values always indicate higher relationship satisfaction. Reliability for the current study ranged from $\alpha = .85$ to $\alpha = .93$.

Processing time (PT). To assess, how long participants of both intervention groups (DVD and DVD-T) worked with the DVD, they reported the log-in and log-out time each time they used the DVD. Processing time (PT) consists of the average of their processing time per chapter. Men and women in the DVD group averaged 79 min; for the DVD-T group men and women averaged 82 and 79 min, respectively.

Technique implementation in daily life (TI). To assess how often participants implemented the new techniques into their daily life, they were asked to answer the question “How often have you used the DVD’s techniques in stressful situations in the last 3 months?” at Follow-up 1 and at Follow-up 2. TI was assessed with a single item (1 = *never* to 4 = *always*).

Statistical Analyses

Our analyses build upon latent change score models for two factors (see McArdle, 2009). The model (see Figure 1) combines two latent change score models, allowing for the examination of change over time as well as the interdependence of change within couples. Moreover, cross-lagged effects and effects of covariates were incorporated. Cross-lagged effects predicted change from the

initial level or from preceding change scores of the partner. Time-invariant or time-varying covariates (e.g., relationship satisfaction or processing time) were used to predict initial level and change for both partners. We used a multigroup approach to examine differences in model parameters between the three experimental groups. That is, we simultaneously estimated three group-specific latent change score models for two factors. This approach allowed for examining similarities and differences between groups in terms of mean structures (means and intercepts) as well as association measures (correlations or regression coefficients).

We adopted a stepwise procedure to test the aforementioned hypotheses in a constructive model building process. In Step 1, a multigroup latent change score model was estimated. In this model, mean comparisons of change scores were possible between the three groups. First, we assumed both that couples in the intervention groups would improve in comparison with couples in the waiting-list control group, and we further predicted that men in the intervention groups would benefit more from the intervention than would women (H1). Second, mean differences between the DVD and DVD-T groups (higher scores in DVD-T than in DVD) point to stronger effects in the DVD-T group (H2). The correlation between initial status (score at Time 1) and change scores was expected to be negative in the intervention group, indicating that individuals with lower abilities would benefit more than would those with higher abilities (H3). Incorporating processing time and maintenance as covariates in the model allowed for examining whether these aspects would predict the success of the intervention. Due to sample size restrictions, we followed a stepwise forward approach, adding one covariate at a time; to control for order effects, we used different covariates in the first step (H4).

All analyses were run using the multigroup function in MPlus 7 (Muthén & Muthén, 1998–2013), applying the robust maximum likelihood estimator. Due to computational complexity, all analyses were run for only one dependent variable (dyadic coping, positive communication, negative communication, conflict resolution, and relationship satisfaction) at a time. Because we were interested in analyzing how couples improve in relationship-relevant skills, couples were excluded if they did not submit at least pre- and postassessment data. We handled dropouts at Follow-up 1 and Follow-up 2 as follows: We tested in a logistic regression whether dropouts could be predicted (by demographic variables and variables such as behavior or stress level at pre- or postassessment). If dropout at Follow-up 1 and Follow-up 2 could be almost perfectly predicted, we included those variables as auxiliary variables (see Muthén & Muthén, 1998–2007) into the model and assumed dropout rates would follow a missing at random (MAR) mechanism. The use of full information maximum likelihood (FIML) estimation then led to unbiased results (Graham, 2003, 2009).

Results

Figure 2 outlines participants’ flow through the prevention program. Altogether, 320 couples started with the program. The dropout rate was highest at postassessment (15.6%). As is previously stated, only couples who provided data at pre- and postassessments remained in the sample. This criterion ensured that couples worked on the DVD until the end, which we conceived as a prerequisite to evoke any change in those couples. Chi-square

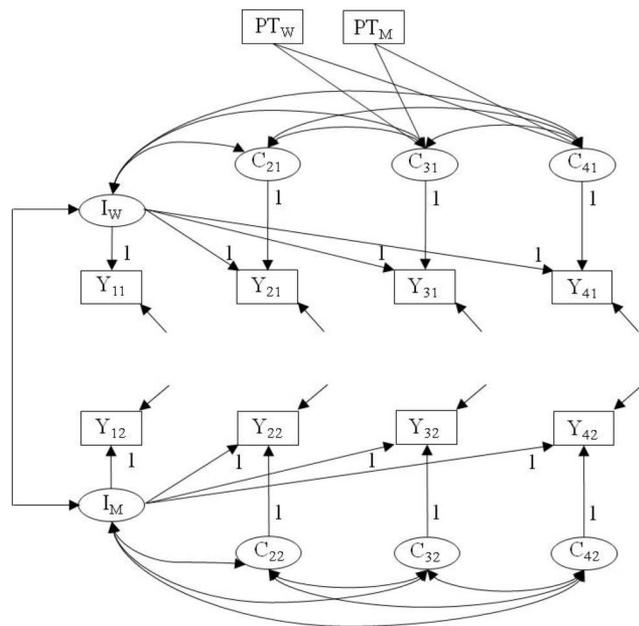


Figure 1. A latent change score model for two factors (men and women) for a specific observed variable Y (e.g., dyadic coping, positive communication, negative communication, conflict resolution, or relationship satisfaction). For Time 1, we calculated latent intercepts (I_W = intercept for women; I_M = intercept for men) and latent change score for all other measures in time (C_{21} – C_{42}). All loading parameters are restricted to equal 1. For each of the three groups (DVD, DVD-T, and WCG), such a model was simultaneously calculated. Two additional covariates (PT_W = processing time for women, PT_M = processing time for men) were added in the model, predicting changes at Time 3 (C_{31}) and Time 4 (C_{41}). DVD-T = DVD group with telephone coaching; WCG = waiting-list control group.

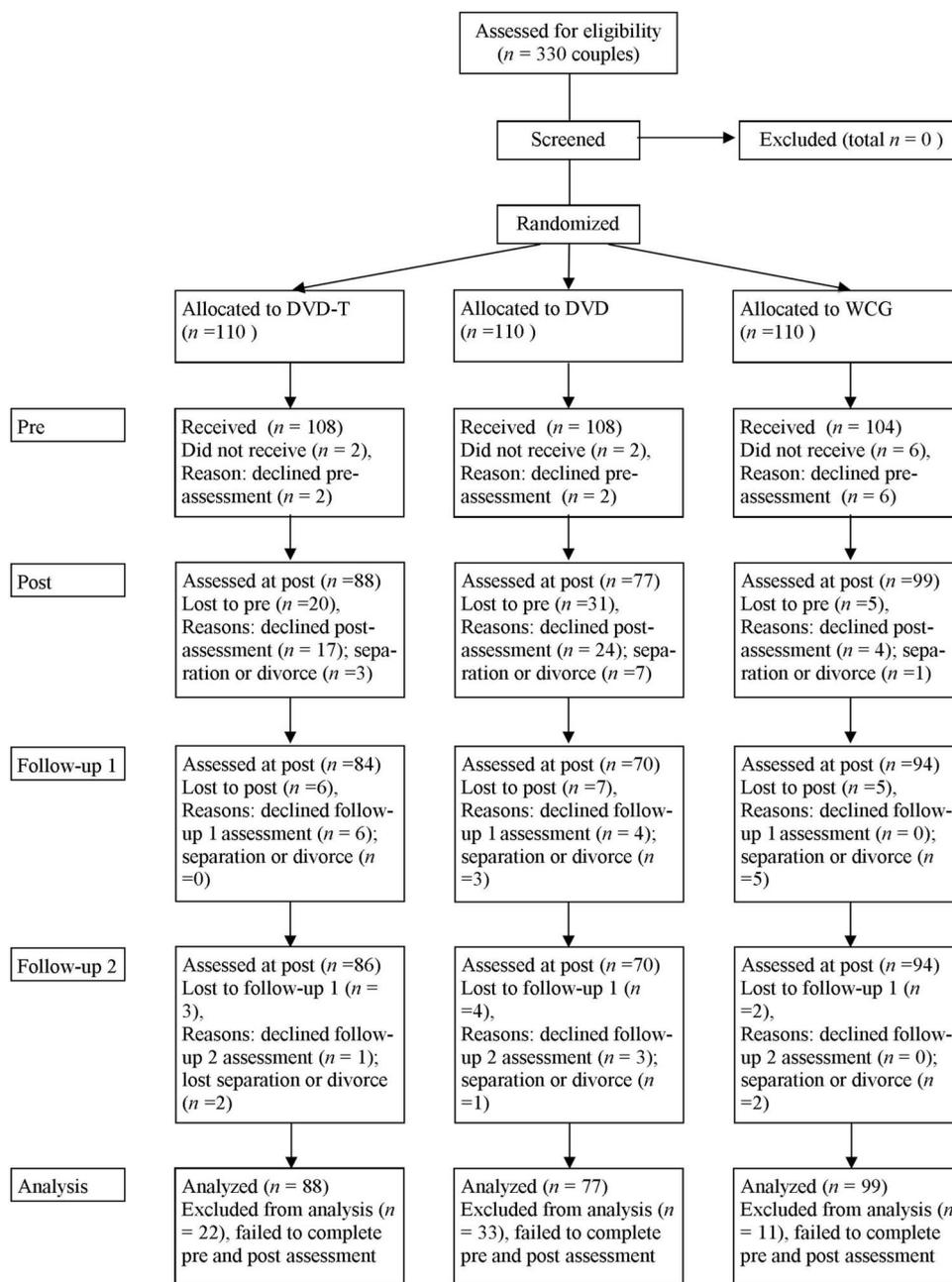


Figure 2. Participant flow through the study and allocation to groups (DVD-T, DVD, WCG). To analyze the data, the full information maximum likelihood estimator was used. Because the current study examines the effect of the intervention, the number analyzed is equal to number of available assessments at postintervention ($N = 264$ couples). DVD = DVD group; DVD-T = DVD group with telephone coaching; WCG = waiting-list control group; pre = preassessment; post = postassessment.

tests were used to compare the dropout rate between the intervention and control groups. At postassessment, the dropout rate was significantly higher in the intervention groups compared to the waiting-list control group ($\chi^2 = 15.2$; $df = 2$; $p < .01$). Using a logistic regression, we predicted dropout at follow-up ($\chi^2 = 8.2$; $df = 1$; $p = .02$), which points to a MAR mechanism. Thus, using the FIML estimator in MPlus yields valid results.

Descriptive

Table 2 shows means and standard deviations for men and women (for each group and for all participants together), and Table 3 presents intercorrelations among all study variables. No group differences were found for men or women at Time 1, indicating that the randomization was successful (tested by a multivariate

Table 3
Intercorrelations Among All Study Variables

Variable	1	2	3	4	5
1. EDC	—	.47	-.36	-.41	.33
2. PC	.59	—	-.30	-.33	.18
3. NC	-.39	-.31	—	.51	-.37
4. IAI	-.53	-.51	.50	—	-.67
5. RAS	.53	.42	-.40	-.75	—

Note. Intercorrelations for women are shown above the diagonal, and intercorrelations for men are shown below it. All correlations are significant. EDC = evaluation dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale.

analysis of variance with partners as repeated measures). Predominantly, couples were quite satisfied with their relationship, reported a relatively high level of positive communication and relatively low level of negative communication and conflict interactions, and evaluated their level of dyadic coping at a moderate level before the intervention. Overall, the couples were satisfied and happy in their relationship and therefore seem to be an appropriate sample for a prevention program. Comparing genders, men reported significantly higher levels of satisfaction with dyadic coping, whereas women reported more positive and more negative communication. All variables correlated significantly with relationship satisfaction ($.19 < |r| < .74$ for both sexes). We did not find any group differences between the two intervention groups (DVD-T group, DVD group) according to processing time of the chapters (between 79 and 82 min per chapter; $\chi^2_{\text{Women}} = 61.9$, $df = 72$, $p = ns$; $\chi^2_{\text{Men}} = 76.5$, $df = 76$, $p = ns$) or of technique implementation in everyday life ($\chi^2_{\text{Women}} = 3.8$, $df = 3$, $p = ns$; $\chi^2_{\text{Men}} = 0.2$, $df = 2$, $p = ns$).

Main Findings

Table 4 presents the mean scores per group for each measured time point and the results of the multigroup comparison. Table 5 provides an overview of the change scores in the latent change models. Two kinds of change scores are reported in Table 5. The

upper part shows standardized differences in latent change scores of the two intervention groups compared to the WCG (standardization at a given point in time); because the mean values of the WCG change scores are set to 0 by default, the standardized latent means of the change scores can be interpreted as differences with respect to the WCG. The lower part shows within-group standardized unit of change scores (see Equation 13 in Morris & DeShon, 2002), which is the change from Time 1 to a later point in time divided by the standard deviation of the initial status at Time 1. This coefficient shows whether the mean change of a particular group is small or large compared to the differences within that group at the beginning of the study (or the beginning of the change process). In other words, this coefficient indicates the difference between time points in terms of initial *SD* units. This coefficient may be compared across groups with different variability in the beginning of the study. The standardized change score as well as the standardized unit of change can be regarded as effect sizes.

Overall, results show that couples in the intervention groups improved in comparison with the couples in the waiting-list control group. Thus, the findings support our main assumption. But more specific and in contrast to our expectation, we found significant changes mainly for women in the intervention groups. We found lasting effects for women on *dyadic coping* in the DVD and DVD-T groups, indicating that women reported being more satisfied with their partner's support and with their common dyadic coping style through the intervention in comparison with the WCG women. For *positive communication*, men in the DVD and DVD-T groups described themselves as using more positive communication in comparison with the WCG at postassessment, and both men and women reported more positive communication 6 months after the intervention. For *negative communication*, women in the DVD and DVD-T groups reported using less negative communication behavior in comparison with the WCG at postassessment 3 months and 6 months after the intervention. For *conflict resolution*, we found lasting effects for women in the DVD and DVD-T groups and a significant change for men in the DVD-T group at Follow-up 1. Finally, women in both intervention groups and men in the DVD group were more satisfied with their relationship 6 months after the intervention in comparison with the WCG. Effect sizes for all significant group differences were $.15 \leq$

Table 4
Mean Scale Scores for Each Group at Each Measured Time Point

Scale	Gender	WCG				DVD				DVD-T			
		M_{T1}	M_{T2}	M_{T3}	M_{T4}	M_{T1}	M_{T2}	M_{T3}	M_{T4}	M_{T1}	M_{T2}	M_{T3}	M_{T4}
EDC	Men	3.54	3.59	3.51	3.58	3.36	3.40	3.49	3.48	3.41	3.53	3.59	3.52
EDC	Women	3.32	3.32	3.39	3.26	3.16	3.40	3.39	3.57	3.24	3.45	3.44	3.62
PC	Men	4.07	4.00	4.10	4.04	3.94	4.10	3.96	4.15	3.83	4.01	3.93	4.00
PC	Women	4.25	4.30	4.31	4.26	4.35	4.35	4.43	4.47	4.25	4.29	4.22	4.40
NC	Men	2.17	2.06	2.03	2.00	2.05	2.11	2.04	2.06	2.12	2.11	2.05	2.08
NC	Women	2.29	2.21	2.18	2.20	2.23	2.14	2.12	2.13	2.34	2.23	2.24	2.20
IAI	Men	2.66	2.56	2.56	2.49	2.58	2.65	2.51	2.48	2.63	2.54	2.48	2.61
IAI	Women	2.64	2.59	2.56	2.59	2.62	2.45	2.45	2.37	2.58	2.40	2.46	2.38
RAS	Men	4.03	4.05	4.00	4.03	3.97	3.95	4.03	4.09	3.97	3.97	4.02	3.96
RAS	Women	3.97	3.93	3.96	3.91	3.92	3.96	4.01	4.08	3.99	4.03	3.95	4.12

Note. Significant group differences between intervention groups and control group are in bold ($p < .05$; one-tailed). Effect sizes (Cohen's d) for all significant group differences are $.23 \leq d \leq .47$. M_{T1-T4} = mean score at Times 1 to 4; WCG = waiting-list control group; DVD = DVD group; DVD-T = DVD group with telephone coaching; EDC = evaluation of dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale.

Table 5
Standardized Change Scores (Effect Sizes) and Standardized Units of Change of the Intervention Groups Above and Beyond the Change Score of the Waiting-List Control Group

Scale	DVD group						DVD-T group					
	Men			Women			Men			Women		
	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁
Within-group standardized change score												
EDC	.07	.21	.22	.31	.28	.48	.15	.23	.14	.27	.26	.43
PC	.29	.05	.37	.01	.14	.17	.31	.17	.25	.07	-.03	.24
NC	.24	-.01	.03	-.25	-.29	-.30	-.05	-.25	-.15	-.29	-.23	-.36
IAI	.15	-.15	-.16	-.30	-.31	-.42	-.08	-.15	-.02	-.18	-.12	-.20
RAS	-.05	.14	.29	.10	.21	.36	.01	.17	-.01	.09	-.06	.28
Within-group standardized unit of change												
EDC	.05	.16	.15	.25	.24	.41	.13	.20	.13	.21	.20	.39
PC	.24	.04	.30	.01	.10	.15	.25	.15	.23	.06	-.03	.21
NC	.15	-.01	.03	-.20	-.26	-.24	-.03	-.18	-.11	-.18	-.17	-.23
IAI	.10	-.08	-.13	-.18	-.19	-.28	-.10	-.18	-.02	-.23	-.15	-.24
RAS	-.02	.10	.22	.05	.13	.23	.01	.11	-.01	.07	-.05	.20

Note. All change scores of the intervention groups are calculated above and beyond the changes of the waiting-list control group. All significant changes are in bold ($p < .05$; two tailed). DVD = DVD group; DVD-T = DVD group with telephone coaching; C₂₋₁ = changes of a particular scale (T₂ - T₁); C₃₋₁ = changes of a particular scale (T₃ - T₁); C₄₋₁ = changes of a particular scale (T₄ - T₁); EDC = evaluation of dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale.

$d \geq .47$, indicating that these effects were small to medium. Overall, these findings support our hypothesis that at least for women, a self-directed approach is effective in improving dyadic coping, positive and negative dyadic communication, conflict resolution, and relationship satisfaction in comparison with participants in a waiting-list control group up to 6 months after working with the DVD.

Besides statistical significance and effect sizes, clinical significance is often a major concern. In general, clinical significance is estimated regarding the improvement of participants in a dysfunctional sample above a predetermined cutoff value. Yet, prevention programs are suited for functional individuals or couples with scores above the cutoff values. Hence, we adapted the classical JT method to test for clinical significance (Jacobson & Truax, 1991). Because the mean values of our scales did not differ from the means of independent normative samples, we classified individuals at risk if they scored half an SD unit below the sample mean. Applying the reliable change index (Jacobson, Follette, & Revenstorf, 1984), we identified the percentages of those participants who improved above the cutoff (for being at risk) until the end of the study and those who fell below the cutoff (for being at risk). Table 6 provides the reliable change indices. Overall, the effects are mixed. Some results indicate that the program prevents women from deteriorating (dyadic coping, positive communication, and conflict resolution); other results indicate that the program helps distressed/low-skilled couples to move from an at-risk range (-0.5 SD below the sample mean) into the functional range (relationship satisfaction for men and women), whereas for some statistically significant changes, clinical significance could not be shown.

Against predictions, men did not benefit more from the intervention than did women. To the contrary, women reliably outperformed men (20 significant changes for women, six for men) to the point where one might ask whether men benefited from the program at all. Overall, men did report gains in positive communication, but only men in the DVD-T group reduced their conflict

behavior at Follow-up 1, and only men in the DVD group were more satisfied at Follow-up 2.

Contrary to our hypothesis, we did not find evidence that participants of the DVD-T group benefited more from the intervention in comparison to the DVD group (see Table 4). On first inspection, it seems that the DVD group outperformed the DVD-T group (14 significant changes in the DVD group, 12 in the DVD-T group). However, direct group comparisons reveal only one significant difference: Men in the DVD group were significantly more satis-

Table 6
Testing Whether Statistically Significant Results at Time 4 are Also Clinically Significant

Scale	Gender	Recovered ^a			Deteriorated ^b		
		WCG	DVD	DVD-T	WCG	DVD	DVD-T
EDC	Women	6.1 _a	16.9 _a	11.4	11.1 _{bc}	3.9 _b	4.5 _c
PC	Men	12.1	6.5 _d	15.9 _d	11.1	5.2 _e	13.6 _e
PC	Women	9.1	6.5	15.9	13.1 _f	3.9 _f	6.8
NC	Women	12.1	10.4	17.0	7.1	2.6	4.5
IAI	Women	8.1	14.3	10.2	7.1 _g	1.3 _g	2.3
RAS	Men	5.1 _h	13.0 _h		4.0	5.2	
RAS	Women	4.0 _{ij}	10.4 _i	10.2 _j	9.1	5.2	4.5

Note. Data are given in percentages. Subscripts indicate significant differences. WCG = waiting-list control group; DVD = DVD group; DVD-T = DVD group with telephone coaching; EDC = evaluation of dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale.

^a Indicates that participants below the cutoff (i.e., -0.5 standard deviation of the sample mean) in a specific skill at preintervention improved reliably and were above the cutoff 6 months after the intervention. ^b Indicates that participants above the cutoff (i.e., -0.5 standard deviation of the sample mean) in a specific skill at preintervention reliably deteriorated and were below the cutoff 6 months after the intervention.

fied with their relationship at Time 4, compared to men in the DVD-T group (details can be obtained from the authors). In addition and as mentioned before, we did not find a difference between the couples in the DVD-T group and couples in the DVD group according to process time or dropout rate. Therefore, it seems that the technical assistance in the DVD-T group did not affect the intervention in terms of processing time, dropout rates, or effects on the dependent variables.

Table 7 shows correlations between the intercept of a particular scale and changes on that particular scale within an intervention group (T2, T3, and T4). For skill improvement, 47 out of 48 correlations were negative and significant. Though the correlations were relatively small ($-.04 \leq r \leq -.35$), they indicate that participants with lower initial levels of a particular skill seemed to change more through the intervention. For relationship satisfaction, however, results were slightly different. Even though all the correlations were negative, only half of the correlations were significant, yielding a mixed picture on whether unsatisfied participants benefited more from the intervention than did more satisfied ones.

Finally, we estimated effects of technique implementation and processing time on observed significant changes. About half of the significant changes could be predicted by processing time and technique implementation. For women in the DVD group, higher processing time predicted changes in dyadic coping at T3 ($\beta = .11$), negative communication at T4 ($\beta = -.08$), conflict resolution at T4 ($\beta = -.20$), and relationship satisfaction at T4 ($\beta = .10$). This indicates that an additional 10 min working with the DVD led to higher scores in the above-mentioned variables 3 or 6 months later. Implementation time was predictive for only conflict resolution at T4 ($\beta = -.26$), indicating that women who implemented the DVD content more into their daily routine experienced less conflict (or better conflict resolution). For men in the DVD group, technique implementation is the only predictor of relationship satisfaction at T4 ($\beta = .24$). For women in the DVD-T group, processing time predicted positive communication at T4 ($\beta = .15$) and technique implementation predicted negative communication at T3 ($\beta = -.24$), resolution at T4 ($\beta = -.20$), and conflict resolution at T4 ($\beta = -.18$). Finally, change for men in the DVD-T group could not be predicted by any of the covariates.

Discussion

The fact that many eligible couples do not attend relationship education programs raises new opportunities for reaching couples with scientifically based knowledge and skill training. Self-directed relationship education approaches may represent a viable strategy for reaching more couples in the general population. Several authors and research groups in the this field have developed DVDs (e.g., Bodenmann et al., 2009; Braithwaite & Fincham, 2011; Engl & Thurmaier, 2010; Halford et al., 2010; Hansen, Resnick, & Galea, 2002; Wilson & Halford, 2008) for use either blended with classical workshops or used with therapy, coaching, or telephone contacts. A main purpose of this study was to investigate whether such an additional element is necessary to guarantee a successful outcome. To answer this question, couples were randomly assigned to one of three treatment conditions: (1) couples working with the DVD without further coaching (DVD group), (2) couples working with the DVD with technical telephone contacts (DVD-T group), or (3) a waiting-list control group (WCG) receiving the CCET-DVD only at the end of the study.

Hypothesis 1

Overall, couples in the intervention group improved in comparison with the couples of the waiting-list control group. But in contrast to our expected gender effects, men did not benefit from the DVD more than did women. Instead, the intervention created little change in men, whereas women outperformed men on most dependent variables (women: total 20 positive changes; men: total six positive changes). Women in the intervention groups reported improvements in relationship satisfaction as well as higher skill usage with mainly lasting effects, implying that the intervention is effective, at least over 6 months. For men, however, the effects of the intervention were less evident. Men reported more positive communication in both intervention groups, but only men in the DVD group were more satisfied with their relationship 6 months after the intervention. Thus, the assumption that men would be amenable to a DVD approach, which would in turn produce better effects, was not supported. Finding few significant effects for men raises the questions of why men are less accessible and benefit less from an approach that seems more tailored to their needs and customs. Actually, the findings that men benefit less than women are in line with findings of Halford and colleagues (2004) and

Table 7

Correlations Between Intercept of a Particular Scale (at Time 1) and Changes of the Particular Scale at Time 2, 3, or 4

Intercept at Time 1	DVD						DVD-T					
	Men			Women			Men			Women		
	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁	C ₂₋₁	C ₃₋₁	C ₄₋₁
EDC	-.11	-.15	-.16	-.33	-.32	-.33	-.24	-.30	-.35	-.33	-.23	-.33
PC	-.20	-.19	-.15	-.21	-.17	-.23	-.17	-.17	-.20	-.25	-.28	-.23
NC	-.05	-.04	-.04	-.07	-.08	-.07	-.04	-.06	-.06	-.08	-.10	-.10
IAI	-.13	-.09	-.17	-.22	-.18	-.26	-.15	-.22	-.22	-.21	-.23	-.22
RAS	-.03	.01	-.09	-.10	-.14	-.17	-.02	-.02	-.04	-.09	-.10	-.13

Note. All significant changes are in bold ($p < .05$; two-tailed). DVD = DVD group; DVD-T = DVD group with telephone coaching; EDC = evaluation of dyadic coping; PC = positive communication; NC = negative communication; IAI = Ineffective Arguing Inventory; RAS = Relationship Adjustment Scale; C₂₋₁ = changes of a particular scale (T₂ - T₁); C₃₋₁ = changes of a particular scale (T₃ - T₁); C₄₋₁ = changes of a particular scale (T₄ - T₁).

Ledermann and colleagues (2007). On the other hand, our findings are in contrast to the results of Halford and colleagues (2010) and a recent meta-analysis (Hawkins et al., 2008), where comparable effects of relationship education were reported for both genders. Thus, it seems that there is no consistent pattern of results regarding gender differences when it comes to the effectiveness of relationship education programs. Experiences in the present study suggest that the phone calls were not perceived as necessary or valuable and may have been perceived as intrusive and controlling.

Furthermore, findings of this study partially contradict the results of a recent meta-analysis (McAllister et al., 2012) where only small or no effects were found for purely self-directed programs. According to McAllister and colleagues (2012), face-to-face interventions or blended programs were more effective ($d = 0.43$, $p < .01$, for relationship satisfaction and $d = 0.72$, $p < .01$, for communication skills) than self-directed programs ($d = 0.03$, *ns*, for relationship satisfaction and $d = 0.16$, $p < .05$, for communication skills). But even though the effect sizes in the current study were small to medium, they were, at least for women, clearly higher. There might be different reasons for why the effect sizes in the current study were higher than in other self-directed programs. The self-directed programs in the meta-analysis were books, computer- or online-based programs without video examples, self-tests, and interactive elements. Video examples, in particular, seem to be of great value. They allow evaluation of one's own behavior while providing concrete models for change. Overall, inconsistent findings on the efficacy of self-directed approaches reflect the need to investigate which specific elements increase the likelihood of positive change. This knowledge is important for tailoring self-directed tools aimed at unselected couples, as in-person relationship education workshops will never reach this goal for reasons of multiple barriers that were outlined earlier. Thus, universal prevention with the goal of reaching as many couples as possible without further support seems to be a viable approach to intervention. Nevertheless, future research should focus on improving the interventions in order to increase the effects in couples.

We further tested the clinical significance of changes. Results show that the intervention helped women to retain skills (dyadic coping, positive communication, and conflict resolution) in comparison with women in the control group. Except for men of the DVD-T group (where no significant change was found), results show that the intervention helped men and women from a lower level of relationship satisfaction (below the -0.5 *SD* cutoff) to move from below the cutoff into a nondistressed range. Thus, the intervention seems to prevent participants from deteriorating in specific skills, whereas the least satisfied participants increased the most according to relationship satisfaction, reaching a nondistressed range. These findings are encouraging and support the utility of analyses testing for questions of dose and initial skills or relationship satisfaction (Halford & Bodenmann, 2013).

Hypothesis 2

Regarding the hypothesis that couples in the DVD-T group would show better results than couples working on the DVD on their own, DVD-T couples did not show better results with regard to the amount of time they worked with the DVD (processing time), practical use of skills in everyday life, or stronger improvements in target variables (14 significant changes in the DVD

group; 12 significant changes in the DVD-T group). Thus, the group comparison did not show significant differences between intervention groups, indicating that the DVD alone (without further telephone contacts) already represents a valuable and perhaps sufficient way to help couples improve their relationship.

However, these findings are in contrast to those of Titov et al. (2010), who found not only that technical assistance has an impact on the intervention but that the effect was even stronger in comparison with clinical assistance. Nevertheless, other evidence has suggested that providing substantive support (e.g., feedback on specific skills, supervising homework) improves the efficacy of the intervention. For example, programs such as Couple CARE (Halford et al., 2004, 2010), which combine standardized instructional content with outside guidance, yield stronger effects. Future studies are needed to compare program efficacy as a function of different levels of assistance (e.g., fully self-directed, technical assistance, clinical assistance). Providing technical assistance did not alleviate the dropout rate in the present study, contrary to the findings of Titov and colleagues. Engagement with the DVD did put time demands on our participants, likely leading to a relatively high dropout rate. Couples in the control group, by contrast, merely filled out questionnaires and awaited the incentive (the DVD) after the last assessment, keeping the dropout rate quite low. To control for such effects, using a placebo control group might be useful in future research.

Hypothesis 3

We found support for the hypothesis that couples low in satisfaction or in particular skills would benefit more from the DVD, corroborating findings by Halford et al. (2001). Participants with lower scores at pretest showed more substantial increases in skills and relationship satisfaction. This finding might argue against a universal prevention approach, though such a conclusion might be premature for several reasons. First, nondistressed couples also vary in their skills, and even generally satisfied couples with below-average communication skills may benefit from improvements in relationship functioning. As Amato and Hohmann-Marriott (2007) showed, low-distress couples are at risk for divorce, suggesting that fostering their skills may stabilize their relationships. Second, a ceiling effect may be observed in skilled couples, as they cannot improve much further. Third, it is also possible that couples with lower skills improved more, while highly skilled couples improved less but maintained their skills better in the future. This assumption, however, would require a longer follow-up study to verify.

Hypothesis 4

Finally, we assumed that participants would benefit more from the DVD to the extent that they had worked through the entire DVD (high processing time) and reported practicing the skills in everyday life more often. Findings on this point are mixed. Among women in the DVD group, only processing time seemed relevant, while among men of the DVD group, only technique implementation in everyday life counted. For women in the DVD-T group, processing time or everyday practice increased positive effects depending on specific skills, whereas for men in the DVD-T group, no comparable effect was found.

Overall, however, time spent working with the DVD and practice of skills in everyday life matters and replicates previous findings showing that the use of learned skills predicts long-term effects on relationship satisfaction (Bodenmann, Bradbury, & Pihet, 2008; Wilson & Halford, 2008).

Conclusion

Perhaps the most important conclusion that we draw from our findings is that relationship enhancement by means of a DVD may be promising in the context of relationship education for couples. There seems to be no special need for many couples to have further support in working with this tool, which would allow low-cost and widespread dissemination. A next step would be to transform the DVD into an Internet-based e-learning tool reaching all couples having Internet access and reducing logistic matters (ordering, shipping, and invoicing of the DVD). However, this approach may be suitable for only younger, well-educated, and low-distress couples with the ability to benefit from such an approach and dosage. High-distress couples, older couples, and couples with lower educational background and specific challenges (e.g., extramarital affairs) may require a more intensive professional accompaniment, such as counseling or couple therapy.

Strengths, Limitations, and Future Directions

This study has several strengths that enhance our confidence in the results. First, the randomized assignment of couples to intervention (DVD, DVT-T) and control (WCG) group allowed for disentangling unmeasured effects on relationships over time from the effects of the intervention. Second, we examined possible effects of the intervention not only on relationship satisfaction but also on specific skills. Third, we considered a second intervention group, which yielded additional knowledge by comparing the DVD's efficacy with and without additional telephone coaching. Finally, our methodological approach controlled for dyadic interdependence in couples' data.

Besides these strengths, the current study has several limitations. First, our data are based on self-reports, which are subject to personal biases. Second, because we do not have an attention-only condition, placebo effects cannot be ruled out. Thus, the mere fact that the couple engaged in relationship education might already have a positive effect beyond the content of the DVD. Third, we observed relatively high attrition at postassessment. Most couples who dropped out of the study reported high levels of everyday stress, interfering with their ability to engage in a time-consuming intervention like the CCET-DVD, a more flexible intervention could alleviate this problem. Although we established comparability of those who dropped out and those who continued, systematic differences on unmeasured variables cannot be ruled out; high levels of stress, for example, may have reduced program uptake. Finally, we computed the latent change score models once with all participants ($N = 320$ couples) and once with only those couples who completed at least pre- and postassessments ($N = 264$ couples). The results for both analyses were similar, indicating robust results.

In sum, we believe that this study makes a contribution to an emerging field in couple research—universal prevention of

relationship distress by means of self-directed approaches. The fact that couples can learn how to improve their close relationship by means of a DVD is promising, and future studies with randomized designs, objective measures, and longer follow-up assessments are now needed to determine how readily accessible, low-cost interventions can enable a larger number of couples to experience fulfilling and enduring unions.

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