

BRIEF REPORT

A Randomized Clinical Trial of Online–Biblio Relationship Education for Expectant Couples

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This study evaluated the efficacy of a self-paced, Internet-based marriage and relationship skills education program (“Power of Two Online”). The program integrated an online intervention with print supplemental resources. New and expectant parents ($n = 79$) were randomly assigned to the 2-month intervention or placebo-control group. Assessments were conducted at baseline, 1-month, and 2-month follow-up intervals. Latent growth curve modeling was used to examine differences between conditions for marital satisfaction and conflict management. Participants who received the intervention reported trajectories of improved marital satisfaction and improved marital conflict management over time relative to controls. Implications for widespread dissemination of marriage and relationship education as a primary prevention tool are discussed.

Keywords: computer-based interventions, prevention, relationship education, marriage satisfaction

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Marriage and relationship education (MRE) has been widely adopted as a tool to help couples create happy, healthy relationships and to decrease divorce rates. Recent meta-analyses show that MRE increases marital satisfaction and communication skills while also reducing aggression between partners and lowering divorce rates (Hawkins, Blanchard, Baldwin, & Fawcett, 2008; Blanchard, Hawkins, Baldwin, & Fawcett, 2009). As the benefit of MRE services becomes clear, calls for ways to provide a more diverse demographic of couples with empirically based services in a broader spectrum of settings have grown (Braithwaite & Fincham, 2011). In light of the need for new delivery mechanisms and with the explosion of Internet use and capabilities online resources emerge as a logical vehicle for MRE delivery. Existing trials of online MRE appear promising, though they have used only the most basic of technological advances (e.g., Braithwaite & Fincham, 2011; Duncan, Steed, & Needham, 2009).

MRE is also especially promising as a vehicle for primary prevention during high-risk periods. Given the well-documented stresses and declines in marital satisfaction associated with the transition to parenthood and birth of a child, we have chosen to target this intervention to the pre- and postpartum period (e.g., Doss, Rhoades, Stanley, & Markman, 2009). Meta-analysis suggests that in-person MRE during this period is able to create positive impact on marital communication (Pinquart & Teubert, 2010).

In order to increase the reach of empirically validated relationship education, research done outside the laboratory is critical (Markman et al., 2004). Effectiveness trials, like this study, which examine treatment outcomes under the more practical conditions of everyday implementation, are essential for understanding how a program works in real-world conditions. Because we wanted to evaluate the potential of online MRE to function as a broad-based primary prevention mechanism, we recruited a community-based sample of new and expectant parents who utilized the intervention from the privacy and comfort of their own homes and chose when and how much they used the program. Although such an approach could limit the magnitude of the program’s effect, the information gleaned from testing the impact of the program in the real conditions that any Internet-based MRE would have to function is critical.

In summary, we believe a self-paced, skills-based, Internet-delivered MRE program for new and expectant parents will create a scalable and accessible vehicle for leveraging MRE’s primary-prevention potential, enabling participants to counter the potential slide into declining marital satisfaction over the pre- and postpregnancy period.

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Method

Participants and Procedure

We recruited a community sample of heterosexual individuals in committed relationships at metropolitan obstetrics/gynecology offices and via Internet advertising. Participants were required to be trying to conceive, currently pregnant, or parenting an infant under age one. They also needed to have no major mental health concerns, be proficient in English, and be interested in receiving an online relationship skills intervention in accordance with our approved Western Institutional Review Board protocol. All assessment, including informed consent, was conducted entirely online.

Participants were randomly assigned to the intervention condition or a placebo-control condition using a computer-generated, randomization list (see Figure 1 for subject flow). At baseline measurement (pretreatment), there were no significant between group differences on demographic or independent variables (i.e., age, gender, education, race/ethnicity, relationship status, time in relationship, living arrangement, number of children, pregnancy phase), or dependent variables (i.e., relationship satisfaction, conflict resolution, depression) when comparing subjects assigned to the intervention condition with those assigned in the placebo-control condition.

In addition, there were no significant differences at baseline measurement on demographic independent variables or dependent variables when comparing subjects that completed the study to those who were lost during follow-up, both within their respective condition (i.e., comparing the specific condition’s completers to the specific condition’s drop outs) and across all conditions (i.e., comparing everyone who completed the study to all those who dropped out of the study). We also computed change from baseline to 1 month and found no substantial differences between those who dropped out with those who completed the study.

The intervention condition received access to an interactive MRE intervention teaching broad relationship skills (“Power of

Table 1
Power of Two Online Intervention Skills

Topic area	Power of two skills covered
Overview	1. Why marriage skills? 2. Does marriage matter? 3. Introduction to skill areas
Communication	4. Talking 5. Listening 6. Dialogue
Emotion regulation	7. Understanding anger 8. Managing anger
Decision making	9. Decision making patterns 10. Win-win decision making
Positivity and intimacy	11. Being a supportive spouse 12. Building intimacy 13. Maintaining safety

Note. For more details about the skills covered in the Power of Two online MRE Intervention, see <http://www.PowerofTwoMarriage.com>

Two Online”) and associated resource materials after completing the baseline online assessment. Power of Two Online consisted of 12 different modules grouped into five areas: Overview, Communication, Emotion Regulation, Decision Making, and Positivity and Intimacy. See Table 1 for more details on the types of skills taught in each unit. Each module had 8 to 12 specific activities that could be completed in any order, such as interactive flash games, videos, real-world challenges, and assignments related to sections from the Power of Two print and DVD resources also sent to each participant (Heitler, 1997; Heitler & Hirsch, 2003, 2006). More details on the intervention are provided in the online supplemental materials. During the first active intervention month, participants received biweekly reminders to use the online materials via their choice of text-message or e-mail. After this, they receive biweekly generic messages expressing appreciation for participation or sharing generic relationship statistics.

The control group was asked to complete the same online assessments as the intervention condition. Participants in the control condition were told that they would be participating in a study of relationship education and would receive regular communication from our team with information about marriage as well as when they would be asked to take assessments. During this period, they received the same kinds of generic messages that the intervention group received during their second month. After the study was completed, control group participants were offered the online intervention.

Participants were generally in their late twenties ($N = 79$; mean $[M]_{\text{age}} = 28$ years, standard deviation $[SD]_{\text{age}} = 5.75$ years) and female (85.7%). The ethnic breakdown of participants was as follows: 84.3% White (non-Hispanic), 7.1% Hispanic, 5.7% biracial, and 2.9% Black. Participants were relatively diverse in terms of educational background—approximately half held a bachelor’s degree or higher (51.5%), 47.1% completed high school, and 1.4% reported that they did not have a high school education. Participants mostly were having their first or second child (42.9% and 40.0%, respectively), and were married (72.9%). On average, subjects had been with their partner/spouse for 5.41 years ($SD = 3.39$ years). Of the 27.1% of participants who reported that they were not currently married, 78.9% said they were currently cohab-

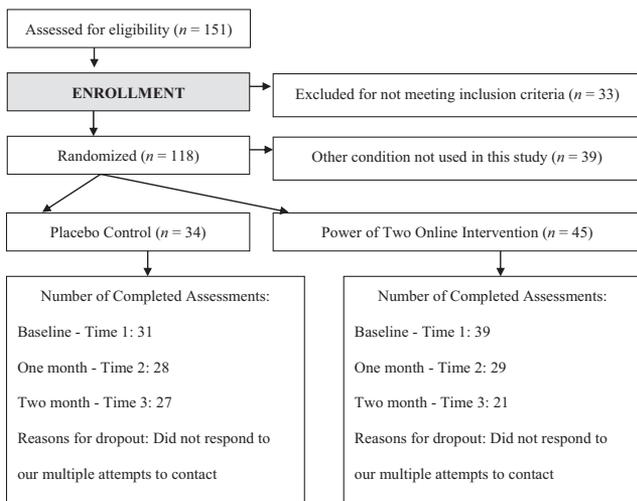


Figure 1. Sampling and flow of participants through the randomized clinical trial. Please note that the other condition not used in this study was a 1-month waitlist control group without follow-up data, therefore not appropriate for the latent growth curve model used in our analyses.

iting with their significant other. Although including participants from across the pregnancy/young baby demographic might lessen the program's overall effect, in the spirit of an effectiveness trial, we opted for broad inclusion criteria. Only one member of a couple was allowed to complete study surveys, although subjects were encouraged to share materials with their spouse/partner.

Measures

Participants completed the Ineffective Arguing Inventory (IAI; Kurdek, 1994), which is a measure of conflict resolution; the Couples Satisfaction Index (CSI; Funk & Rogge, 2007), which is a measure of relationship satisfaction; and the Center for Epidemiologic Studies Depression scale (CESD; Radloff, 1977), which is a measure of depressive symptom severity. Coefficient alphas for these measures in the present sample were .95 for the IAI, .95 for the CSI, and .86 for the CESD. Means and standard deviations at baseline, 1 month and 2 month follow-ups are presented in Table 2.

Results

Latent growth curve (LGC) analysis was used to examine the data. Please note all references related to statistical methodology are provided in the Appendix. LGC represents repeated measures of a given concept as a function of time. Each time point measurement is an indicator of two latent growth factors, initial status and change of slope, on which individuals may vary. Because initial status is similar to the intercept in a regression equation, the unstandardized loadings of all indicators (the three time points for each subscale) on initial status were fixed to one. To specify a linear trend, the loading of T1 on slope was fixed to 0, T2 was fixed at 1, and T3 was fixed at 2; this is analogous to centering in hierarchical linear modeling.

Because postpartum depression impacts 10–15% of the postpartum population, is likely to correlate with marital satisfaction/functioning and would likely vary over the course of our intervention, we chose to include depression scores as a time varying covariate (Robertson, Grace, Wallington, & Stewart, 2004).

Condition was included in the model as a fixed covariate, and the variances from the latent variables (intercept and slope) were allowed to covary; thus, providing information about the relationship between initial levels of the dependent variable and the rate of change across time. Specifying the model as described provides

information about the impact of the intervention on change or “growth” over time. By using maximum likelihood estimation, missing data could be handled so that a growth curve could be fit for all respondents even if they did not have complete data.

Ineffective Arguing

When ineffective arguing was entered into the model, a negative variance contributed to a nonpositive definite matrix (a Heywood case). Per standard practice, the offending variance was set to zero and the model was rerun. The corrected model provided a good fit to the data that was not significantly different from the uncorrected model, $\chi^2(9) = 10.79, p = .29$, comparative fit index (CFI) = .99, Tucker Lewis Index (TLI) = .87; root mean square error approximation (RMSEA) = 0.054. In this model, condition predicted slope such that those who received the intervention showed more effective arguing over time relative to the control group, ($\beta = -.40, p < .005$, Hedges' $g = .42$). Slope and intercept were significantly inversely associated ($r = -.39, p < .05$) with one another, suggesting that higher initial levels of ineffective arguing were associated with a lower rate of change in ineffective arguing over time. See Figure 2 for path diagram.

Relationship Satisfaction

When scores for the CSI were entered into the model, a negative variance was generated, thus the offending estimate was set to 0 and the model was rerun. The corrected model provided an excellent fit to the data that was not significantly different from the uncorrected model, $\chi^2(9) = 4.84, p = .84$, CFI = 1.00, TLI = 1.07; RMSEA = 0.00. In this model, condition only predicted slope such that those who received the intervention had greater satisfaction over time relative to the control group ($\beta = .420, p < .005$, Hedges' $g = .24$).

Slope and intercept were not significantly associated, suggesting that initial levels of relationship satisfaction were not associated with the rate of change in satisfaction over time. See Figure 3 for path diagram.

Discussion

This effectiveness study investigated the impact of a self-paced, skills-based, Internet-delivered MRE program administered to new and expectant parents. The Power of Two Online appears to be

Table 2
Couples Satisfaction Index and Ineffective Arguing Inventory Means and Standard Deviations

	Baseline		1-month F/U		2-month F/U	
	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>	<i>N</i>	<i>M (SD)</i>
Intervention						
CSI	39	4.83 (1.10)	29	4.91 (1.21)	21	5.10 (1.21)
IAI	39	2.54 (.77)	29	2.41 (.85)	21	2.27 (.81)
Placebo control						
CSI	31	5.14 (.90)	28	4.88 (.99)	27	4.85 (.89)
IAI	31	2.49 (.73)	28	2.63 (.72)	27	2.58 (.72)

Note. CSI = Couples Satisfaction Index; IAI = Ineffective Arguing Inventory. F/U = follow-up. Higher CSI scores = higher relationship satisfaction. Higher IAI scores = higher level of ineffective arguing skills.

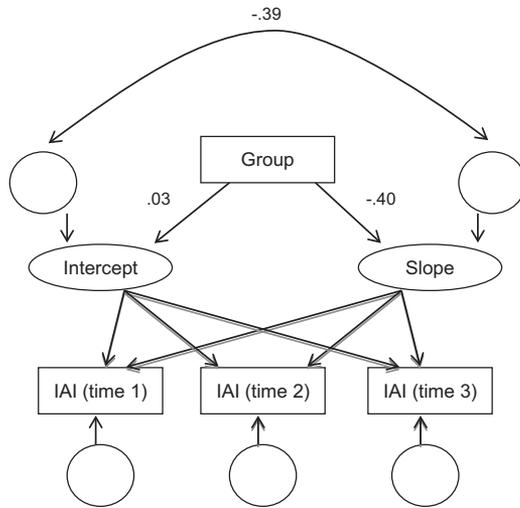


Figure 2. Ineffective Arguing Inventory (IAI).

viable as a primary prevention tool for preventing relationship decline during the period around the birth of a child. Specifically, we found that individuals in the intervention condition showed more productive management of conflict situations and experienced less of a decline in relationship satisfaction relative to controls.

These findings are particularly striking when looked at in comparison with other studies presented in the meta-analysis of in-person MRE for expectant parents. Though our observed effect sizes both fall in the small range (Hedges *g* of .2 to .49), they are also comparable to far more intensive and expensive workshop-based interventions. For example, Pinquart and Teubert (2010) found average effect sizes of around .3 for impact on couple adjustment and communications for interventions with six or more in person sessions. This work finds effect sizes of a similar magnitude for this self-paced, online–bibliotherapy intervention.

Limitations and Future Directions

Our study has several limitations. First, it focused on participants at a unique life-stage transition. Although having more resources in the empirically validated toolbox for expectant parents is most certainly an asset, research extending this online MRE intervention to a wider cross-section of couples would be beneficial in determining its overall scope of effectiveness.

Second, it would have been ideal to have a long-term follow-up. Future work investigating long-term impact and best practices for increasing duration of gains from an online MRE resource would also be advantageous.

A third limitation in this work concerns questions raised by the mixed Internet and print materials provided to participants. Because data are not available on the degree to which participants used the print versus the Internet materials, we were not able to determine the relative impact of the two aspects of the intervention. In addition, the literature on the efficacy of bibliotherapy for MRE is also strikingly lacking—to the best of our knowledge, the current literature includes no studies that directly address this question. At the same time, there is some evidence from a related

domain, parenting skills, that self-paced bibliotherapy does appear effective (Sanders, Markie-Dadds, Tully, & Bor, 2000), suggesting that this aspect of our combined Internet–bibliotherapy intervention may have been a potent contributor to the overall demonstrated effect.

Two lines of future work would be merited here. First, would be to tease out the relative impact of the print versus Internet materials—especially, as more of the print content is made available in a digital format. Findings by Greg et al. (1999) about limitations of self-directed bibliotherapy for treating panic attacks as compared to bibliotherapy combined with periodic check-ins with a clinician suggest a second direction for future work—that the programs overall efficacy might be enhanced if a light-touch personalized check-in could be added to the program.

Fourth, the relatively high attrition levels, especially in the intervention condition are less than ideal. It is certainly possible that attrition in the intervention condition was driven by people not finding the intervention helpful, whereas similar people did not drop out from the control condition. This would result in the appearance of more impact than was actually created and the findings of this initial report should be read with some caution in light of this possibility. While such loss is likely normal for any real-world application, future work should look both to identify ways to reduce attrition and equally important must be designed to test if attrition is truly at random or has systematic bias.

Because this was an effectiveness study, we did not have the level of experimental control of a laboratory-based intervention. Unfortunately, we know nothing about what materials participants focused on most and how regularly they used the materials, making it impossible to distinguish which components of the intervention were the most helpful (e.g., online course components, video, supplemental print resources). Future work should address more specifically best practices for Internet-based MRE. How much material and at what time periods? How important is repeated exposure over time? What types of materials create the most robust changes? The possible digital MRE delivery formats are numerous and rapidly expanding, so it is crucial that we increase our sophis-

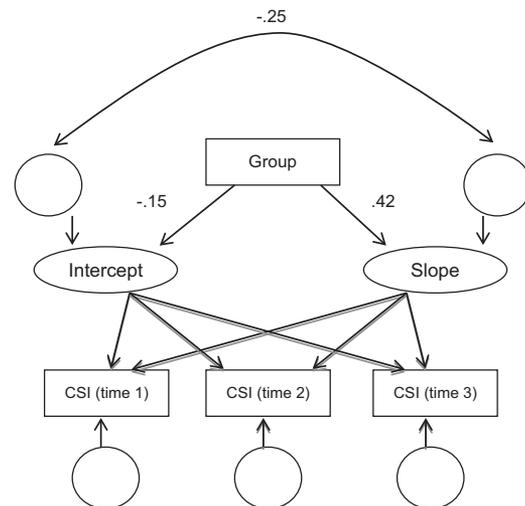


Figure 3. Couples Satisfaction Index (CSI) model diagram.

tication about the strengths and limitations of each type of media on its own and in conjunction with other media types.

Likewise, data gathered in the study also does not include information about dosage rates for each participant. While our qualitative impressions based on e-mails with participants prior to sending them compensation checks left our team with the belief that dosage rates varied considerably, we are unable to report on connections between dosage and impact. It is possible that a just-in-time approach like this can create considerable impact by providing even just a very brief dose of learning on a highly relevant topic. At the same time, it may be that the program's impact comes from the sustained, consistent presence that is possible with an online-biblio approach. Sorting out questions about optimal dosage would most certainly be an essential component for future work.

Implications and Conclusions

Our findings support the premise that it is possible to use the Internet and supplemental print materials to deliver effective MRE. Specifically, this work indicates that the characteristics of traditional MRE, such as live teachers and group settings, can be offset through the use of engaging and interactive digital and print self-study materials. This study provides a hopeful chord in the search for a way to make primary prevention MRE available to all interested individuals and couples. The scalability and cost-effectiveness of such an approach are most exciting—a course like Power of Two Online can be delivered for cents per user and is not constrained by geography. Likewise, the potential to move MRE into the online world so central in most young couples' lives is also encouraging. Indeed, as society becomes increasingly tied to our digital existence, the future of MRE may depend on our ability to successfully transition these tools into the digital sphere.

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(Appendix follows)

Appendix

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