

Online Programs Improve Relationship Functioning for Distressed Low-Income Couples: Results From a Nationwide Randomized Controlled Trial

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Objective: Although low-income couples experience greater relationship challenges, they have limited access to effective relationship interventions. Furthermore, most previous efforts to improve low-income couples' relationships have yielded very small effects (Hawkins & Erickson, 2015). In an effort to overcome these limitations, this study investigated the effectiveness of 2 web-based interventions for low-income couples. **Method:** In total, 742 low-income couples ($N = 1,484$ individuals; mean [M] age = 33; 55% White, non-Hispanic; 52% married; median [Mdn] annual household income = \$27,000) were recruited nationally and randomized to the OurRelationship program, the ePREP program, or a waitlist control group. Couples were repeatedly assessed for 6 months using self-report measures of relationship satisfaction, communication conflict, intimate partner violence, emotional support, and breakup potential. Relationship status was assessed at 6-month follow-up. **Results:** Compared to the control group, intervention couples experienced significantly greater improvements in all 5 domains of relationship functioning (Mdn $ldl = 0.46$) by the end of the program; these effects were maintained in the 4 months after treatment. However, neither program significantly reduced the frequency of breakups by the 6-month follow-up. Differences between couples in the two interventions were minimal (Mdn Cohen's $ldl = 0.11$); however, couples in the OurRelationship program experienced significantly greater decreases in conflict ($d = 0.24$). **Conclusions:** The results indicate that brief, web-based interventions can serve a central role in delivering effective services to low-income couples. Additionally, the general equivalence of the two interventions indicates that both communication-focused and problem-focused interventions can be successful in improving the relationship functioning of low-income couples.

What is the public health significance of this article?

Web-based interventions are effective in improving relationship functioning of low-income couples. Brief interventions, narrowly focused on improving relationship dynamics, are effective in overcoming multiple barriers to intervention reach and effectiveness in low-income populations. Both communication-focused and problem/insight-focused interventions can be effective for low-income couples.

Keywords: couples, low-income, online intervention, relationship education

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For a multitude of reasons, low-income individuals experience especially high rates of relationship distress and/or divorce. Couples in households making less than \$25,000 a year are significantly more likely to divorce than couples in households making \$25,000–\$50,000 or \$50K+ (Bramlett & Mosher, 2002). Additionally, nonmarried cohabiting couples making less than \$25,000 a year are significantly more likely to break up than these other income groups (Bramlett & Mosher, 2002). The quality of intact low-income couples' relationships is also lower than that of higher-income couples. Specifically, low-income couples report significantly lower marital quality (Lundquist et al., 2013) and greater fluctuations in relationship satisfaction (Jackson, Krull, Bradbury, & Karney, 2017) than do higher-income couples. Additionally, low household income is the strongest demographic predictor of increased risk for intimate partner violence (IPV) across White, Black, and Hispanic couples (Cunradi, Caetano, & Schafer, 2002), with some studies indicating that the majority of low-income couples have experienced IPV in the previous 5 years (Gustafsson, Cox, & the Family Life Project Key Investigators, 2016). Finally, low-income couples report significantly greater problems with alcohol and drug use, infidelity, and problems with money—even after accounting for race, ethnicity, and other important variables (Trail & Karney, 2012). Indeed, low-income couples often report external stressors as the source of the biggest disagreements in their relationship (Jackson et al., 2016).

Several large-scale efforts have been undertaken to strengthen the relationships of low-income couples by providing in-person, group-based relationship education in community settings across the United States. On average, across 47 independent samples, these efforts have been shown to have statistically significant, but very small, effects on relationship satisfaction, communication skills, and relationship aggression compared with a control group (all Cohen's $d = 0.06$ – 0.07 ; Hawkins & Erickson, 2015). Although the majority of community-based preventive relationship education programs have yielded minimal impacts, a subset of empirically based programs has yielded larger effects for low-income couples on various domains of relationship functioning ($d = 0.17$ – 0.37 ; Barton et al., 2018; Rhoades, 2015). Although relationship education has traditionally been conceptualized as a preventative intervention, more than half of couples who present to these community interventions report that their relationship is in trouble (Lundquist et al., 2013). Fortunately, couples with the greatest relationship distress experience the greatest benefit (Carlson, Rappleyea, Daire, Harris, & Liu, 2017; Coop Gordon et al., 2019; Hawkins & Erickson, 2015), with a difference in intervention effect size of approximately $d = 0.10$ (Hawkins & Erickson, 2015).

Couple therapy has also been shown to be effective in samples of primarily low-income couples in which at least one member was a veteran, with mean within-group effect sizes in the medium range (within-group $d = 0.46$ – 0.52 ; Doss et al., 2012; Fischer, Bhatia, Baddeley, Al-Jabari, & Libet, 2018) and stronger effect sizes for initially distressed couples (within-group $d = 0.60$). Although other studies of couple therapy have demonstrated large-sized effects on relationship functioning (e.g., Christensen et al., 2004), it is unclear whether these results would generalize to low-income couples because most studies have used samples of higher-income couples. Unfortunately, the provision of couple therapy is not an allowable activity under the federal initiative to

improve the relationships of low-income couples (Deficit Reduction Act of 2005, 2006), limiting the reach of couple therapy to these couples.

Increasing the Reach Through Web-Based Interventions

The very small effect sizes of current community-based programs are only one challenge in improving the relationships of low-income couples. Low-income couples are also less likely to receive in-person interventions to improve or save their relationships—including being half as likely to receive couple therapy before divorcing (Doss, 2014). Moreover, even when provided with extensive resources, such as child care, meals, and payment for attendance/transportation, low-income couples are able to attend only 10% (Dion, Avellar, & Clary, 2010) to 60% (Gaubert, Gubits, Principe Alderson, & Knox, 2012) of relationship classes in nationwide studies; work/school scheduling conflicts (45%), transportation (11%), and child issues (11%) are the most common reason for nonattendance (Gaubert et al., 2012).

Therefore, to increase the reach of relationship interventions for low-income couples, investigators have started to explore alternatives to in-person interventions. Brief online relationship interventions can overcome many of the major barriers to attendance faced by low-income couples. Although only approximately half of individuals with incomes under \$30K have access to broadband Internet, over 70% have smartphones—with 26% of these individuals using a smartphone as their only means of Internet access at home (Anderson, 2019). Furthermore, online interventions have the potential to reduce costs and scheduling conflicts with child care/work—two of low-income couples' most commonly reported barriers to seeking relationship interventions (Williamson, Karney, & Bradbury, 2019).

There are two web-based interventions designed to strengthen couples' relationships that have been developed and tested in several studies. The first, ePREP, is an online adaptation of the Prevention and Relationship Enhancement Program (PREP; Markman, Renick, Floyd, Stanley, & Clements, 1993). PREP is a preventive relationship education program typically offered in groups. PREP and its adaptations specifically for low-income couples have been shown to be effective in improving relationship functioning (Owen, Quirk, Bergen, Inch, & France, 2012; Rhoades, 2015) in low-income samples. Initial research on the online version, ePREP, showed that it resulted in improved communication and decreased self- and partner-reported assault and physical aggression in a sample of college students (Braithwaite & Fincham, 2011). Furthermore, in a community sample of married couples, ePREP was successful in decreasing IPV compared with an active control; however, no differences in constructive communication or in relationship satisfaction were reported in that study (Braithwaite & Fincham, 2014).

The OurRelationship program is an online program that was adapted from integrative behavioral couple therapy (IBCT), an effective in-person couple therapy (Christensen et al., 2004). OurRelationship helps couples identify a central problem in their relationship, develop a comprehensive and balanced understanding of that problem, and then work to solve the problem (Doss, Benson, Georgia, & Christensen, 2013). Relative to a waitlist control group, OurRelationship has been shown to create signifi-

cant improvements in relationship satisfaction ($d = 0.69$), relationship confidence ($d = 0.47$), and several domains of individual functioning (e.g., depression, anxiety, perceived health)—especially for those who began the program with problems in those areas (Doss et al., 2016). Furthermore, the effects of the program have generally been shown to last for at least a year following the intervention (Doss, Roddy, Nowlan, Rothman, & Christensen, 2019).

The Current Study

The present study examines the effectiveness of the ePREP and OurRelationship programs (relative to a 6-month waitlist control group) for low-income couples. This study sought to answer three questions:

Do couples randomized to the OurRelationship and ePREP programs experience greater changes in relationship functioning than couples randomized to a waitlist control group? Based on previous research on both programs, we hypothesized that couples in both programs would experience significantly greater improvements in relationship functioning than would couples in the waitlist control condition.

Do couples randomized to the ePREP and OurRelationship programs experience different gains in relationship functioning? Given the general equivalence of communication-focused and acceptance-focused relationship interventions during the intervention period (Christensen et al., 2004; Rogge, Cobb, Lawrence, Johnson, & Bradbury, 2013) and over short-term follow-up (Christensen, Atkins, Yi, Baucom, & George, 2006; Rogge et al., 2013), we hypothesized that the two programs would yield generally equivalent effects.

Does initial relationship distress moderate the impact of OurRelationship and ePREP? Consistent with previous research (Hawkins & Erickson, 2015), we expected both programs to have significantly greater effects for couples who were initially more relationally distressed.

Method

All procedures were approved by the University of Miami Institutional Review Board. Study aims and procedures were registered on [ClinicalTrials.gov](https://clinicaltrials.gov) (NCT02806635) prior to data collection.

Participants

Participants ($N = 752$ couples; 1,484 individuals) were on average 33.19 years old (standard deviation [SD] = 8.51) and 52.5% female. The majority of participants were White non-Hispanic (55.3%), with fewer Black (24.5%), White Hispanic (9.4%), biracial (5.9%), Asian (1.1%), Black Hispanic (1.1%), American Indian or Alaskan Native (1.0%), and Native Hawaiian or Pacific Islanders (0.3%). Additionally, 1.3% of participants identified their race as “other.” Participants’ highest level of educational attainment varied widely, with 5.5% having no degree, 8.8% having a general education diploma (GED) or equivalent, 6.8% having a vocational or technical certification, and 14.7% having a high school diploma. About one quarter of the sample had some college but no degree completion (23.2%), 8.6% had an

associate’s degree, 11.5% had a bachelor’s degree, and 4.6% had a master’s/advanced degree. Less than half of the sample was working full time at enrollment (43.7%). Some were working part time (15.4%), and fewer were working temporarily/seasonally (7.4%) or employed with variable hours (6.1%). Just over a quarter of the sample was unemployed (27.4%).

Couples made on average \$29,046 annually ($SD = \$16,671$, median [Mdn] = \$27,000, range = \$6,000–\$108,000); 41.8% of couples were at or below the federal poverty line, and 85% of the sample was within 200% of the federal poverty line (based on household income and number of individuals in the household).¹ The majority of the sample was married (52.0%), whereas the remainder of participants were either engaged (25.3%) or cohabiting for 6 months or longer (22.7%). Participants had been with their current partner for an average 6.14 years ($SD = 5.32$; range = 0–38 years). The majority of participants were in opposite-sex relationships (93.4%), with the remainder in same-sex female (5.8%) and same-sex male relationships (0.8%).

Procedure

Participants were recruited to the OurRelationship.com website primarily through a combination of organic search results and paid advertising on Google. For example, two of the most common search terms that led couples to the site were “online marriage help” and “free marriage counseling.” Other recruitment methods included social media, word of mouth from previous participants, and fliers and pamphlets in agencies serving low-income couples.

Interested individuals completed an online informed consent form and a subsequent eligibility survey. Couples were eligible if they reported on the online survey that they were married, engaged, or cohabiting with their partner for 6 months or more; had a household income within 200% of the federal poverty line; lived in the United States; were between the ages of 18 and 64 (inclusive); were able to fluently read and write in English; had high-speed or 3G Internet access; agreed to forego other couple treatment for the next 6 months; and had not previously participated in the PREP, ePREP or OurRelationship programs. Additionally, couples were excluded if either participant answered affirmatively to experiencing any of the following behaviors (in the past 6 months) from their partner: (a) “choked me,” (b) “repeatedly punched me during a fight or beat me up,” (c) “threatened me with (or used) a gun or knife,” or (d) “physically forced me to have sex when I didn’t want to.” Furthermore, couples were excluded if either partner reported in the past 6 months that (e) he or she was “quite afraid,” “very afraid,” or “extremely afraid” that a partner would physically hurt him or her during an argument (see Figure 1 for CONSORT diagram). If the first member of the couple was eligible, he or she was provided instructions to send the screening survey to his or her partner. The second partner completed an identical screening survey, with the exception of the income questions. Ineligible participants were offered appropriate referrals

¹ Although all couples initially estimated a yearly household income below 200% of the federal poverty line, when both individuals were asked to report their income in the previous month, 15% of the final sample had a projected annual income higher than that cutoff. The difference could be due to fluctuations in monthly income over the year, inaccurate estimates of the partner’s income, or purposely misleading responses on the screening questionnaire in order to qualify for the study.

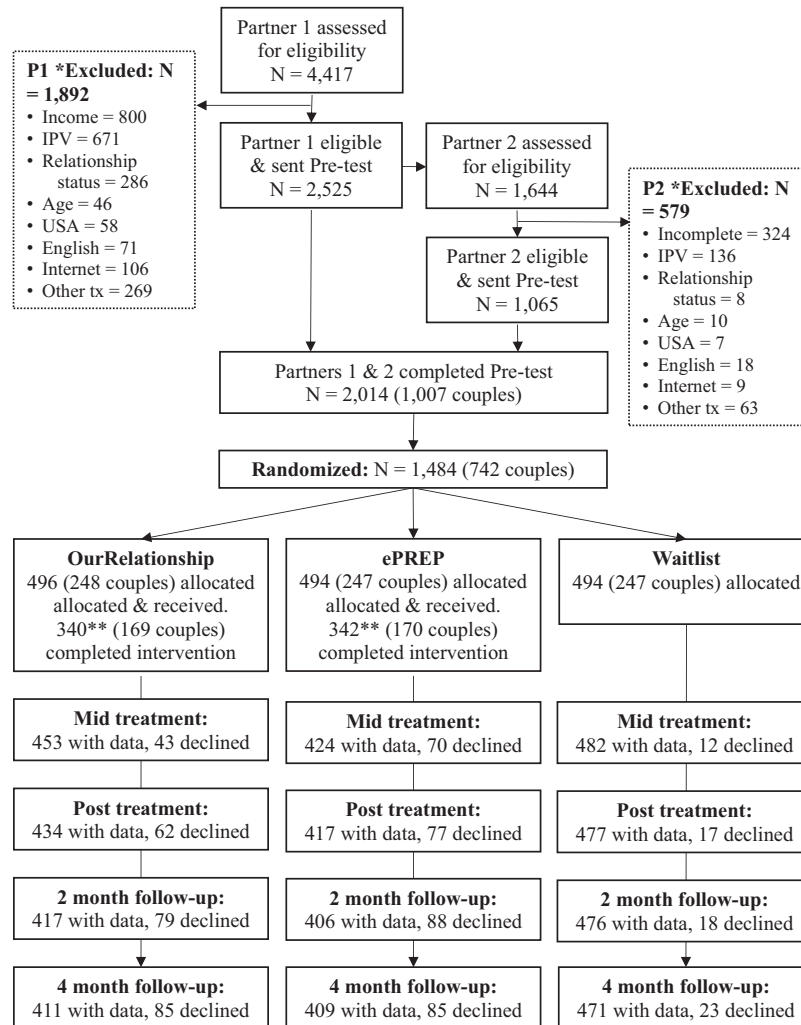


Figure 1. CONSORT Diagram. * Numbers do not sum because people could be ineligible for more than one reason. ** Defined as completing all required online content.

(e.g., other online programs, self-help books; if violence was endorsed, resources such as the National Domestic Violence Hotline were provided).

Eligible couples then had a first call with their coach, in which they reviewed the study protocol and provided verbal informed consent. Couples were then stratified by relationship distress (distressed and nondistressed) and randomized to one of three conditions: the OurRelationship program, the ePREP program, or the waitlist control group. Couples randomized to the waitlist control group were instructed not to seek help for their relationship during the next 6 months. They completed four surveys over the course of 6 months (matching the timeline of surveys given to treatment-group couples), and each individual was paid a \$50 gift card for each survey they completed. At the end of the 6 months, waitlist couples were offered enrollment in their choice of the ePREP or OurRelationship programs; postwaitlist data are not reported here. Individuals randomized to the two treatment conditions were paid a \$25 gift card for completing each of four surveys over 6 months, plus up to a total of \$15 in gift cards per person for attending their coach calls as originally scheduled.

Couples in both OurRelationship and ePREP met with the same coach every other week during the program. Coaches were 13 graduate students in clinical psychology doctorate or marriage and family master's programs who worked with a median of 48 couples (range = 4–175). Five coaches had prior training with ePREP or PREP, three coaches had prior experience with OurRelationship or IBCT, and five coaches had no prior exposure to either program. Coaches were nonrandomly assigned couples in all three conditions equally, $\chi^2(24) = 12.583, p = .973$, based on mutual availability of the coach and the couple. Across both active conditions, total average coach time was less than 1 hr per couple ($M_{OR} = 50.94, SD_{OR} = 17.97; M_{ePREP} = 50.19, SD_{ePREP} = 21.11$), and there were no differences in total call time by condition, $t(492) = 0.422, p = .673$.² Coach calls were tightly scripted and sought to help couples (a) practice skills learned from the online activities

² One couple in the OurRelationship program was deaf and hard-of-hearing; therefore, their coach calls were completed via asynchronous chat and excluded from the call-time analyses.

and apply them to their own relationships, (b) complete the online content in a timely manner, and (c) assist with any technical difficulties. Coaches were also available via e-mail between scheduled calls; the majority of coaches' e-mail responses also used scripts. Coaches received weekly group supervision, led in alternate weeks by experts in either ePREP or OurRelationship.

Interventions

ePREP. Couples randomized to the ePREP program completed 6 hr of online content, completed approximately 1–2 hr of additional homework over 6 weeks, and met with their coach every other week. The online content focused on communication skills, commitment, and activities together—with a different theme each week (see the [online supplemental materials](#) for more information). Couples were asked to watch the online content together. ePREP consisted of psychoeducational presentations, videos of example couples, and questions for couples to discuss during the presentation. During the coach calls for ePREP, participants spent the majority of the time practicing skills learned in the online materials, including the speaker–listener technique, XYZ statements, and time-out.

OurRelationship. Couples randomized to the OurRelationship program completed approximately 7 hr of online content over 6 weeks designed to help couples focus on, understand, and solve a relationship problem (see the [online supplemental materials](#) for more information). Couples completed most activities individually and came together for structured conversations with their partners at the conclusion of each phase to discuss what they had written into the program. Coach calls for the OurRelationship program employed techniques from IBCT, including unified detachment, empathic joining, and problem solving.

Measures

Satisfaction with services. User satisfaction with the OurRelationship and ePREP programs was evaluated using three items selected from the longer Client Evaluation of Services Questionnaire (Nguyen, Attkisson, & Stegner, 1983). Participants were asked to rate the following: whether they would recommend the program to a friend (ranging from *No, Definitely not* to *Yes, definitely*), how satisfied they were with the services they received (ranging from *Quite dissatisfied* to *Very Satisfied*), and how helpful they felt the program was (ranging from *Not at all* to *A lot*). The sum of these items was calculated. Internal consistency was high: .80.

Relationship satisfaction. The four-item version of the Couple Satisfaction Index (CSI-4) was used in the present study; it provides more psychometric information than many longer measures of relationship satisfaction (Funk & Rogge, 2007). An example item is, “I have a warm and comfortable relationship with my partner.” The Likert scale ranged from *extremely unhappy* (0) to *perfect* (6) on the first item and from *not at all true* (0) to *completely true* (5) on all subsequent items. Scores range from 0 to 21, with higher scores representing greater satisfaction. In the current study, internal consistency for the CSI-4 was excellent ($\alpha = .92$).

An index of whether participants entered the study with clinical levels of relationship distress was created by dichotomizing baseline CSI-4 scores at the established cutoff of 13.5 (Funk & Rogge, 2007). Participants with scores above this level were coded as nondistressed (0), and participants with scores below were coded as distressed (1). Of participants, 81% reported initial relationship distress in the clinical range.

Communication conflict. Negative communication was measured using a seven-item measure developed for the Administration for Children and Families (ACF) Supporting Healthy Marriage initiative. Participants were asked to report how often communication conflict occurred during the past month on a Likert-type scale from *Never* (1) to *Often* (4). Sample items include, “My partner/spouse was rude or mean to me when we disagreed,” and “Small issues suddenly became big arguments.” For the present sample, alpha was .89.

Emotional support. A five-item version of the seven-item measure developed for the ACF Supporting Healthy Marriage project was used to assess emotional support. Participants were asked to rate their level of agreement with questions about their partner on a scale from *Strongly agree* (1) to *Strongly disagree* (4). These items were reverse-coded for the present study such that higher scores were indicative of greater emotional support. Questions include, “I can count on my partner/spouse to be there for me,” and “My partner/spouse knows and understands me.” Internal consistency was good ($\alpha = .83$).

Intimate partner violence. Experience of IPV was assessed using seven items created for this study in consultation with the National Domestic Violence Hotline; sample items included “pushed or shoved me,” “slapped me,” and “punched me.” Individuals were asked to report “how often YOUR PARTNER has done the following things in the PAST MONTH” (emphasis in original). Response options were along a 7-point scale (0 = *Never*; 6 = *More than 20 times*). Internal consistency in the current sample was acceptable ($\alpha = .78$). Items were summed, with higher scores indicating greater IPV.

Breakup potential. Perceived likelihood of breakup was assessed using a three-item Likert-style scale adapted from the Marital Instability Index (Edwards, Johnson, & Booth, 1987). Sample items (scored on a 5-point scale) include, “The thought of ending my relationship has crossed my mind,” with item response options ranging from *Never in the past month* (1) to *More than once a day* (5). Higher scores were indicative of greater likelihood of breakup. The measure of breakup potential had good internal consistency in the current sample ($\alpha = .83$).

Relationship status. Relationship status was assessed dichotomously (0 = *We broke up*; 1 = *We are still together*) using a single item at 6-month follow-up: “What is your current relationship with the partner with whom you started the program?” Couples were considered broken up if either member of the couple reported they were no longer in a relationship. Of all couples, 90% reported their relationship status on this item at the final assessment. We obtained relationship status on an additional 4% of couples by assuming that couples who had broken up at an earlier assessment were still broken up and by gathering data from participants' social media profiles (in ac-

cordance with institutional review board [IRB] procedures and our informed consent form).

Missing Data

In the baseline survey, 2% of participants were missing data on one or more of the outcome measures. By the postprogram survey, 14% were missing data due to survey noncompletion or missing items, and by the 6-month follow-up, 22% had missing data due to noncompletion or missing items (see CONSORT diagram). Whether a participant had missing data was related to some important study variables, including program completion, relationship status, and demographic characteristics. Therefore, we employed multiple imputations using Blimp Version 1.1 software (Enders, Keller, & Levy, 2018; Keller & Enders, 2018) to impute all missing data on the analytic variables, including auxiliary variables to reduce bias. We used substantive model-compatible fully conditional specification (SMC-FCS) procedures in Blimp to construct multilevel imputation models that accounted for interdependence in our longitudinal dyadic data. All analyses were conducted on a set of 30 imputed data sets.

Results

Program Completion and Evaluation

Of participants in both ePREP and OurRelationship, 69% completed all of the online content. Participants in the intervention groups evaluated the program positively (mean [M] = 9.9 out of 11), with 96% saying they would recommend it to a friend and 93% saying they were satisfied with the services they received (56% “very satisfied” and 37% “mostly satisfied”). There were no significant differences in mean program evaluation ratings between programs ($b = -0.058$, standard error [SE] = 0.148, $p = .695$) or between genders ($b = 0.066$, $SE = 0.224$, $p = .768$).

Relationship Functioning Outcomes

Descriptive statistics at all study waves and correlations at baseline for the five relationship-quality outcomes (relationship satisfaction, breakup potential, emotional support, communication conflict, and IPV) are reported in the [online supplemental materials](#). There were no significant differences between conditions at baseline.

Data from the relationship-quality outcomes were analyzed using three-level multilevel (or mixed-effects) models, with time nested within individuals and individuals nested within couples. Piecewise models were used to test changes over time during the intervention period (baseline to program completion) separately from changes during the follow-up period (program completion to the 6-month follow-up). All models contained random intercepts at all levels, as well as random slopes over the intervention period at the couple level. Time was centered on the date of program completion for the two intervention groups and 2 months postrandomization for the waitlist control group. Two sets of analyses were conducted: The first tested treatment effects for both the OurRelationship and ePREP groups compared with the waitlist control group (main treatment effects), and the second tested for differences between OurRelationship and ePREP (relative pro-

gram effects). Models also included tests of moderation by both gender and initial relationship distress. Because IPV was highly skewed with an excess of zero responses (representing no IPV), we dichotomized the IPV measure to represent the presence or absence of IPV and modeled that dichotomized outcome using multilevel logistic regression.³

Effect sizes (Cohen's d) were calculated by multiplying the slope coefficient by the corresponding length of time and dividing that product by the pooled pre- and posttreatment standard deviation. Cohen's d for binary outcomes was computed by dividing the natural log of the odds ratio by 1.65 (Sánchez-Meca, Marín-Martínez, & Chacón-Moscoso, 2003).

The results for the main treatment effects are shown in Table 1. Couples within the waitlist control group experienced significant improvements in the first 2 months across all five domains of relationship functioning (see the top row of results the middle panel of Table 1). Additionally, over the intervention period (middle panel of Table 1), those assigned to either OurRelationship or ePREP improved significantly more than those assigned to the waitlist condition on each of the five outcomes of relationship quality (95% confidence intervals shown in brackets): relationship satisfaction ($d_{OUR} = 0.53$ [0.40, 0.66], $d_{ePREP} = 0.42$ [0.29, 0.55]), breakup potential ($d_{OUR} = -0.53$ [-0.66, -0.40], $d_{ePREP} = -0.45$ [-0.57, -0.32]), emotional support ($d_{OUR} = 0.46$ [0.34, 0.59], $d_{ePREP} = 0.36$ [0.23, 0.48]), conflict ($d_{OUR} = -0.78$ [-0.91, -0.65], $d_{ePREP} = -0.54$ [-0.67, -0.41]), and presence of IPV ($d_{OUR} = -0.10$ [-0.05, -0.14], $d_{ePREP} = -0.08$ [-0.03, -0.12]). See Figure 2 for within-group effect sizes. These initial gains did not attenuate significantly over the follow-up period for either treatment condition (all $ps > .14$); see the bottom panel of Table 1 for results over the follow-up period.

Within the waitlist control group, those who were initially distressed experienced significantly greater improvements than did those who began the study in the nondistressed range in all relationship-functioning outcomes except IPV (middle panel of Table 1, third row of results). However, there were no significant differences in either treatment's effectiveness (relative to the waitlist control) by initial distress levels.

We also calculated the proportion of participants who reported a reliable and clinically significant change in relationship satisfaction at the end of the study period, consistent with guidelines presented by Jacobson and Truax (1991). Based on the change in relationship satisfaction scores from baseline to the 6-month follow-up survey, we calculated whether participants fell into one of four groups: recovered (i.e., reliably improved and no longer in the clinically distressed range), reliably improved but not recovered, unchanged, and deteriorated/broken up. Within the waitlist control group, 12% of participants recovered, 14% improved, 51% did not change, and 23% deteriorated. The results for OurRelationship and ePREP were superior to those for waitlist (and nearly identical to each other): 29% recovered in each treatment condition, 13% improved in OurRelationship and 14% improved in ePREP, 37% in both conditions reported no change, and 21% in OurRelationship and 20% in ePREP deteriorated.

³ We also conducted Poisson regressions analyzing the nonzero data representing the frequency of IPV; the results from these analyses are available in the [online supplemental materials](#).

Table 1
Program Effects on Relationship Functioning Relative to Waitlist Control

Dependent variable	Satisfaction			Breakup potential			Intimacy			Conflict			IPV		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	<i>SE</i>	<i>p</i>
Intercept (at program completion)															
Waitlist	10.180	.236	<.001	2.326	.070	<.001	14.151	.166	<.001	19.249	.282	<.001	.035	.220	<.001
OUR	2.208	.338	<.001	-.441	.100	<.001	1.547	.239	<.001	-2.775	.402	<.001	.647	.287	.128
ePREP	1.816	.339	<.001	-.461	.118	<.001	1.167	.238	<.001	-2.862	.403	<.001	.400	.297	.002
Gender	.555	.163	.001	-.155	.039	<.001	.883	.135	<.001	.234	.195	.230	1.073	.188	.710
Distress	-3.558	.271	<.001	.507	.070	<.001	-2.429	.214	<.001	2.581	.325	<.001	1.754	.295	.057
Intervention period															
Waitlist	.102	.027	<.001	-.048	.009	<.001	.060	.019	.002	-.225	.033	<.001	.857	.023	<.001
× Gender	-.033	.036	.364	.006	.009	.474	-.005	.028	.847	.014	.043	.750	.936	.039	.083
× Distress	.540	.050	<.001	-.080	.014	<.001	.155	.040	<.001	-.220	.065	.001	.997	.054	.952
OUR	.337	.041	<.001	-.075	.015	<.001	.207	.030	<.001	-.543	.050	<.001	.855	.037	<.001
× Gender	-.044	.052	.394	.004	.013	.749	.011	.042	.791	-.039	.063	.535	1.080	.078	.322
× Distress	.044	.072	.545	-.020	.021	.324	-.009	.059	.882	-.029	.094	.757	.993	.052	.897
ePREP	.268	.040	<.001	-.064	.016	<.001	.160	.029	<.001	-.374	.049	<.001	.884	.037	.001
× Gender	-.035	.050	.483	-.004	.013	.736	-.010	.040	.804	-.044	.060	.464	.953	.078	.530
× Distress	.023	.069	.733	-.007	.019	.710	.062	.056	.273	-.154	.089	.083	1.000	.051	.973
Follow-up period															
Waitlist	.011	.009	.224	-.003	.005	.561	-.006	.007	.412	-.018	.011	.103	.996	.011	.763
× Gender	-.018	.016	.268	.006	.004	.151	-.001	.013	.914	.008	.020	.694	1.030	.020	.143
× Distress	.016	.022	.483	.006	.006	.287	.009	.017	.612	-.057	.027	.036	.995	.028	.862
OUR	.010	.013	.431	-.004	.004	.331	.014	.010	.149	.003	.015	.823	.993	.016	.650
× Gender	.002	.020	.910	-.003	.005	.589	-.020	.017	.235	-.000	.025	.987	.991	.025	.543
× Distress	.010	.030	.751	-.001	.008	.929	.028	.022	.206	.028	.037	.450	1.014	.036	.806
ePREP	.019	.014	.191	-.003	.004	.433	.012	.010	.217	-.002	.016	.912	1.000	.040	.998
× Gender	.036	.022	.099	-.005	.006	.411	-.001	.017	.961	-.036	.026	.172	1.003	.040	.930
× Distress	.028	.032	.378	-.002	.008	.801	.006	.023	.780	-.025	.036	.493	1.025	.027	.365

Note. IPV = intimate partner violence; OUR = OurRelationship. Gender was coded as female = 0 and male = 1, and initial distress was coded as nondistressed = 0 and distressed = 1; both were then grand-mean centered. The intervention variables were uncentered and coded such that waitlist control = 0 and OUR/ePREP = 1. Time during both the intervention and follow-up periods was centered around the date of program completion.

The results for relative program effects are shown in Table 2. Although there was a consistent pattern of couples in the OurRelationship program reporting slightly larger effect sizes across outcome measures (*Mdn* *dl* = 0.10) during treatment, the only significant difference between OurRelationship and ePREP was that couples in the OurRelationship program reported significantly greater declines in conflict than those in ePREP program (Table 2, middle panel, fourth row of results, right-hand columns; *d* = -0.24 [-0.27, -0.11]). Initial levels of distress did not significantly moderate the differences in effects between the two interventions (see bottom rows of results in middle and bottom panels of Table 2).

Relationship Status

The overall breakup rate in the study was 15%; by the end of the study period, 83% of couples in both intervention conditions remained intact, and 87% of couples in the waitlist control condition remained intact. Because relationship status was modeled at the couple level, treatment effects on relationship status at the 6-month follow-up were tested using single-level logistic regression. We coded a couple as initially distressed if either partner reported clinical distress at baseline, which resulted in 90% of couples categorized as initially distressed. The results showed that there were no statistically significant impacts of the OurRelationship program (*b* = -0.337, *SE* = 0.260, *p* = .197; odds ratio

[*OR*] = 0.71; *d* = -0.21) or ePREP (*b* = -0.264, *SE* = 0.273, *p* = .333; *OR* = 0.77; *d* = -0.16) on the likelihood of remaining in their relationship by the end of the study. Further, there was no moderation of either intervention by the couple’s initial distress level (*ps* > .16) or significant differences in final relationship status between the intervention groups (*b* = 0.072, *SE* = .261, *p* = .782; *OR* = 1.08; *d* = 0.05).

Discussion

The results from this randomized controlled trial show that both ePREP and OurRelationship led to improvements in relationship quality for low-income couples. Compared with the couples assigned to the 6-month waitlist control group, the couples in ePREP and OurRelationship experienced significantly greater improvements during the program in relationship satisfaction, conflict, IPV, emotional support, and breakup potential; these differences were generally medium in magnitude. Furthermore, in the approximately four months following the program, neither couples in OurRelationship nor couples in ePREP experienced significantly greater relapse than couples in the control group in any of these five domains. However, neither program significantly reduced the frequency of breakups at the 6-month follow-up.

Contrary to our hypotheses, the between-groups difference in outcomes between the control group and the intervention groups was not significantly moderated by baseline relationship distress,

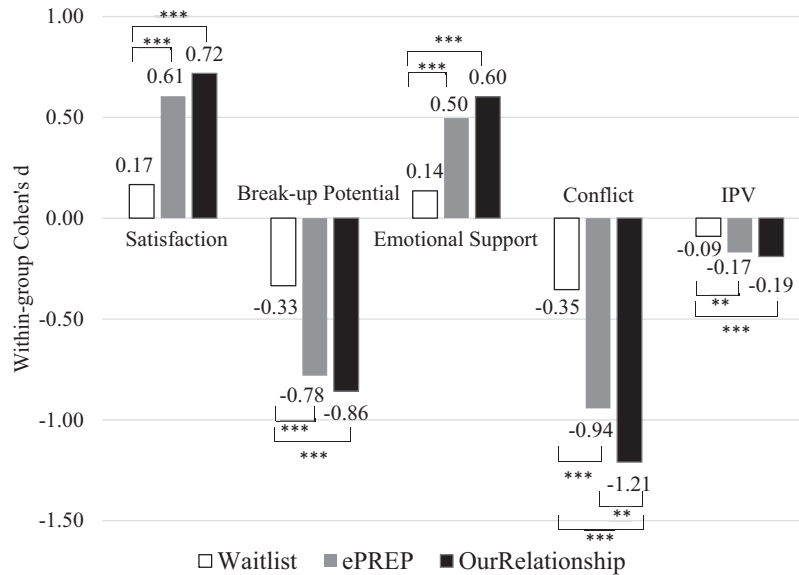


Figure 2. Magnitude of within-group changes by the end of treatment. IPV = intimate partner violence. $^{***} p < .01$. $^{****} p < .001$.

perhaps because the overwhelming majority of couples scored in the distressed range at baseline, limiting the power to detect differences. Indeed, given the distribution of initial distress, the present study was only sufficiently powered to detect the slope-by-distress-by-condition interaction at magnitudes of $d = 0.40$ and greater (Heo & Leon, 2010). However, it is notable that that distressed couples in the interventions experienced significantly greater improvements from baseline to the end of treatment on four of five indicators of relationship quality than did nondistressed couples.⁴ Thus, the present findings are consistent with previous studies using a within-group design showing greater gains for couples who are initially more distressed (e.g., Coop Gordon et al., 2019).

As hypothesized, there were very few significant differences in outcomes between OurRelationship and ePREP. Across the five outcomes, only conflict showed a significant difference, with couples in the OurRelationship program experiencing significantly greater decreases in verbal conflict than couples in the ePREP program (Cohen's $d = -0.24$). Given that the OurRelationship program focuses couples on understanding and solving a specific relationship problem, this difference perhaps reflects a differential emphasis on current problems. Reductions in conflict during OurRelationship (along with increases in constructive communication) have been shown to predict improved maintenance in the year following the program (Roddy, Stamatis, Rothman, & Doss, 2019). Notably, there were no significant between-groups differences in reductions in conflict throughout the 6-month follow-up period, with couples in ePREP continuing to lag OurRelationship couples' further reductions in conflict.

The generally equivalent effects of the OurRelationship and ePREP programs are consistent with two previous randomized controlled trials that have contrasted relationship interventions with similar theoretical bases. In a comparison of the PREP and Compassionate and Accepting Relationships Through Empathy

(CARE) interventions, which closely match the theories underlying ePREP and OurRelationship, respectively, there were minimal differences between the interventions. However, mirroring the present results, the CARE intervention created significantly greater decreases in hostile conflict than did PREP (Rogge et al., 2013). Additionally, in a randomized controlled trial of two couple therapy approaches with the same theoretical foundations as ePREP and OurRelationship (traditional behavioral couple therapy [TBCT] and IBCT, respectively), there were no significant differences between interventions at the end of treatment (Christensen et al., 2004). However, results favored IBCT through 2 years of follow-up but not over 3- to 5-year follow-up (Christensen, Atkins, Baucom, & Yi, 2010). Therefore, the minimal differences between the ePREP and OurRelationship programs in the present study are consistent with previous research on couple relationship education and therapy.

Comparisons to In-Person Interventions for Low-Income Couples

Compared with the previous multisite investigations of relationship education for low-income couples, our effect sizes were 4 to 11 times larger across several domains of relationship functioning (Hawkins & Erickson, 2015; Moore, Avellar, Patnaik, Covington, & Wu, 2018). Moreover, our effect sizes were approximately twice as large as those in previous studies that have investigated the effectiveness of curricula developed specifically for low-income couples (Barton et al., 2018; Coop Gordon et al., 2019; Rhoades, 2015). In contrast, consistent with previous interventions for low-income couples (Hawkins & Erickson, 2015; Moore et al., 2018),

⁴ This seemingly discrepant finding is reconciled by recognizing that distressed couples within the waitlist control group also experienced greater improvements than nondistressed couples.

Table 2
Comparing Effects of ePREP and the OurRelationship Program on Relationship Functioning

Predictor	Satisfaction			Breakup potential			Intimacy			Conflict			IPV		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	<i>SE</i>	<i>p</i>
Intercept (at program completion)															
OUR	12.400	.251	<.001	1.883	.124	<.001	15.702	.172	<.001	16.475	.298	<.001	.028	.227	<.001
vs. ePREP	-.402	.356	.259	-.020	.078	.796	-.384	.243	.114	-.089	.426	.835	.559	.290	.045
Gender	.613	.202	.002	-.130	.046	.005	.930	.164	<.001	.324	.249	.193	1.080	.231	.740
Distress	-3.006	.333	<.001	.455	.083	<.001	-1.922	.248	<.001	2.394	.406	<.001	1.950	.365	.067
Intervention period															
OUR	.444	.034	<.001	-.125	.019	<.001	.268	.024	<.001	-.768	.041	<.001	.746	.029	<.001
× Gender	.640	.067	<.001	-.103	.018	<.001	.178	.052	.001	-.274	.086	.001	1.076	.071	.305
× Distress	-.073	.046	.113	.014	.011	.224	.008	.035	.824	-.014	.057	.803	.946	.048	.245
vs. ePREP	-.072	.047	.121	.011	.012	.350	-.047	.032	.146	.169	.057	.003	1.019	.040	.639
× Gender	.009	.055	.865	-.008	.014	.545	-.021	.044	.640	-.010	.068	.885	.885	.053	.765
× Distress	-.028	.078	.722	.016	.022	.465	.064	.063	.307	-.128	.102	.210	.984	.083	.138
Follow-up period															
OUR	.021	.009	.024	-.006	.003	.033	.008	.007	.232	-.014	.011	.184	.988	.011	.292
× Gender	.017	.022	.425	-.005	.005	.310	.030	.016	.057	-.026	.026	.315	.980	.028	.467
× Distress	-.017	.015	.278	.002	.004	.644	-.022	.012	.068	.004	.019	.831	1.038	.020	.062
vs. ePREP	.009	.014	.520	.000	.003	.938	-.002	.010	.207	-.005	.017	.763	1.009	.017	.609
× Gender	.035	.021	.097	-.002	.005	.663	.019	.016	.180	-.036	.025	.149	1.008	.027	.748
× Distress	.018	.029	.543	-.001	.007	.826	-.021	.022	.166	-.052	.037	.165	1.009	.038	.844

Note. IPV = intimate partner violence; OUR = OurRelationship. Gender was coded as female = 0 and male = 1, and initial distress was coded as nondistressed = 0 and distressed = 1; both were then grand-mean centered. The intervention variable was uncentered and coded such that OUR = 0 and ePREP = 1. Time during both the intervention and follow-up periods was centered around the date of program completion.

our interventions did not decrease the likelihood of breakup 4 months after the interventions.

Why were effect sizes larger in the present study than in previous studies of relationship education with low-income couples? To answer this question, it is first helpful to review what was *not* different between this trial and most studies of community-based group services. First, the content of ePREP is very similar to that covered during in-person workshops (many of which use the PREP curriculum), helping to rule out the content of our interventions as a viable explanation. Second, most of the couples' demographic characteristics (e.g., age, percentage employed, percentage married, percentage below 100% and 200% of the federal poverty line) in the present study were similar to those in one or both recent trials of ACF-provided services (Lundquist et al., 2013; Moore et al., 2018). Finally, the planned program dosage in the present study (about 6–7 hr of instructional content) was less than half of what participants received in previous studies (14–17 hr of couple workshops), suggesting that the effect sizes from these online interventions should actually be *smaller* than those of previous studies.

Instead, we suspect two factors are responsible for our larger effect sizes. One contributor was the higher percentage of couples who presented with relationship distress. Previous meta-analyses of relationship education for low-income couples have found somewhat larger improvements in studies with more relationally distressed couples (Hawkins & Erickson, 2015); a similar pattern also held for low-income couples presenting to couple therapy (Doss et al., 2012). The second, and likely most important, factor was that we provided a service to couples who were already seeking help for their relationships (primarily through online searches using help-seeking terms) rather than recruiting couples to attend services. As such, we were much more likely to catch

couples in the “action” stage of behavior change (Prochaska & Norcross, 2001), making couples more likely to implement the skills and knowledge they obtained in our interventions. A related possibility is that the self-directed online activities required more active engagement by participants than attending a class or workshop, which may have led to the selection of more motivated couples into the study and/or more learning by the couples who participated. Notably, the distressed presentation and help-seeking nature of our couples are more consistent with couples presenting to couple therapy—which may explain why the effect sizes from the current study are similar to the results from couple therapy for low-income couples (Doss et al., 2012). For example, 43% of distressed couples receiving treatment in Veterans Affairs (VA) hospitals experienced improvement or recovery from relationship distress—the same percentage who made similar gains in the present study. Additionally, the within-group changes in relationship satisfaction across the two treatments were very similar (within-group *d* of 0.60 for distressed, low-income couples in couple therapy [Doss et al., 2012] vs. within-group *d* of 0.67 in the present study). Notably, however, the effect sizes in the current study were smaller than those from studies of couple therapy provided to higher-income couples (e.g., recovery/improved rates of 65% and within-group *d* of 0.86; Christensen et al., 2004).

Comparison to Previous OurRelationship Studies

Effect sizes for the OurRelationship program in the present study were roughly comparable to those in previous nationwide trials of the OurRelationship program (not limited to low-income couples). Specifically, although the between-groups effect size for relationship satisfaction was somewhat smaller in the current study (*d* = 0.53 vs. 0.69; Doss et al., 2016), the effect size for conflict

was somewhat larger in the present study ($d = -0.78$ vs. -0.33 ; Roddy et al., 2019), and the absolute value of the effect size for breakup potential in the present study ($d = -0.53$) was roughly comparable to the effect size for relationship confidence in previous studies ($d = 0.47$; Doss et al., 2016). The fact that effect sizes replicated in a low-income sample is encouraging and is consistent with previous studies on OurRelationship (Georgia Salivar, Roddy, Nowlan, & Doss, 2018). However, because the program was modified between these trials in an attempt to strengthen its effects, it is possible that factors common to low-income samples (e.g., lower education, more external stress) may moderate the program's effects.⁵

Completion rates in the present study (69%) were lower than the average completion rate in prior nationwide studies of OurRelationship (86%; Doss et al., 2016). This finding is consistent with previous studies of OurRelationship showing that low-income couples were significantly less likely to complete the program than were couples with higher household income ($OR_{dir} = 0.24$; Georgia Salivar, Roddy, et al., 2018). Therefore, future studies should explore ways to increase low-income couples' completion rates of online interventions.

Limitations and Future Directions

In interpreting these results, there are several limitations that should be considered. First, we relied solely on self-reported measures of relationship functioning. Because meta-analyses of prevention interventions have typically found larger intervention effects on observed communication than self-reported measures of communication (Fawcett, Hawkins, Blanchard, & Carroll, 2010), our effect sizes may be somewhat smaller than would have been found with observational measures. Second, the current study included only a relatively brief follow-up period. It is possible that one of the reasons the interventions had a significant impact on breakup potential but not on the number of couples who actually broke up is that couples in the waitlist condition were not followed for long enough to have an opportunity to actually break up or separate/divorce. However, a 6-month waiting period is somewhat longer than is typically used in studies of couple therapy for distressed couples (Baucom, Hahlweg, & Kuschel, 2003). Furthermore, previous studies of OurRelationship have found gains during the intervention to persist for at least a year, with no evidence of significant relapse (Doss et al., 2019).

Finally, because we did not include an active control group, it is possible that the effects of these programs are due in part (or in full) to nonspecific effects. Indeed, taking active steps to improve one's relationship—especially when one's partner agrees to work together to improve the relationship—is a powerful intervention in itself. For example, watching movies together and actively discussing the implications of those movies for couples' own relationship has been shown to be as effective as interventions very similar in content to the ePREP and OurRelationship programs (Rogge et al., 2013).

In future investigations of this sample, it will be important to examine moderators of these effects, especially constructs that may be especially common or influential for low-income couples and thus act as barriers to generalizability or further dissemination. It will also be important to identify client mechanisms of change that can be used to inform revision of these programs (Doss, 2004).

In previous investigations of the OurRelationship program, improvements in emotional support and self-reported communication were associated with changes during the program; however, only improvements in self-reported positive and negative communication predicted maintenance of gains over follow-up (Roddy et al., 2019). However, there is mixed evidence about whether communication acts as a mechanism of change in interventions for low-income couples (Barton et al., 2017; Williamson, Altman, Hsueh, & Bradbury, 2016). Finally, given the previously documented effects of OurRelationship on physical and mental health in a national sample (Doss et al., 2016), it will be important to determine if online programs can improve the health of low-income couples.

Implications

There are three important implications for future efforts to improve the relationships of low-income couples. First, the present results indicate that web-based interventions can serve a central role in delivering effective services to low-income couples. Indeed, the ability of these interventions to overcome the attitudinal and logistical barriers that low-income couples face in accessing relationship services may make them especially well suited for low-income populations. Additionally, the online recruitment and delivery of these interventions make them well positioned to attract help-seeking, distressed low-income couples who might be especially likely to benefit from a relationship intervention. Online interventions are also very cost-effective; for samples of this size, the OurRelationship program is more cost-effective than the couple therapy approach on which it is based (Georgia Salivar, Rothman, Roddy, & Doss, 2018).

Second, the relatively large intervention effects (compared with previous trials of relationship education for low-income couples) suggest that comprehensive services—addressing employment, housing, mental health, and other stressors common to low-income couples—that have been integrated with previous nationwide trials of relationship education are not essential for low-income couples to improve their romantic relationships. Instead, brief and targeted relationship interventions can improve the relationship functioning of low-income couples. However, given that less than half of couples reported reliable improvements from these online interventions, we should also continue to strive to increase their effects and completion rates.

Finally, the general equivalence of the ePREP and OurRelationship programs indicates that both communication-focused and problem/insight-focused interventions can be successful in improving the relationship functioning of low-income couples. (Of course, this does not mean that either improved communication or insight served as mechanisms of change—it may be that nonspecific factors are operating in both.) Although researchers should continue to strive to improve the effectiveness of these interventions by further tailoring them to the needs of low-income couples, the present results counter previous concerns that communication-focused interventions are inappropriate for low-income couples

⁵ The ePREP program has not previously been tested in an online format, and the only published effects in community samples have been for the outcome of IPV (Braithwaite & Fincham, 2014); therefore, previous studies of ePREP are not contrasted here.

(e.g., Johnson, 2012). Instead of focusing on intervention content, future interventions might be best served by focusing on enrolling couples who are actively seeking to improve their relationships and serving those couples in a way that overcomes attitudinal and logistical barriers common in low-income couples.

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