The effectiveness of marriage education was evaluated in two separate samples of primarily married couples in which at least one member of the couple was on active duty in the U.S. Army. The intervention was delivered by Army chaplains. Effects replicated well in the two samples, and demonstrated that marriage education was well received by this population and resulted in improvements in relationship functioning. Changes in relationship quality were examined separately for males and females, and also for couples in which both members of the couple were Caucasian as compared with all other couples. There were no significant differences in changes over time (i.e., from pre- to postmarriage education) among males and females or among couples with different ethnic makeup. These results have important implications for the generalizability of marriage education to diverse samples in nontraditional contexts.

Although most Americans desire a strong and stable marriage and do eventually marry (Millward, 1990), many marriages are either distressed or end in divorce (Notarius & Markman, 1993; United States Census Bureau, 2002). Relationship distress and instability are associated with a number of risks for adults and children, including problems with mental health and individual adjustment, child behavior, physical health, and economic success and stability (see review by Waite & Gallagher, 2000). In response to the high rates of marital dissolution and associated problems, efforts are under way at federal and state government levels to provide programs such as marriage education that might help a wide range of couples who choose marriage to have healthy marriages (Horn, 2003; Parke & Ooms, 2002). In this
context, it is important to provide empirical evidence regarding the effectiveness of marriage education for diverse couples in diverse contexts.

One popular marriage education program is the Prevention and Relationship Enhancement Program (PREP; e.g., Markman, Stanley, Blumberg, Jenkins, & Whitely, 2004; Stanley, Blumberg, & Markman, 1999), a program built around a best practices model (Halford, Markman, Kline, & Stanley, 2003). PREP was designed to prevent marital distress and divorce by helping couples lessen risks and increase protective factors (key aims of prevention; e.g., Coie et al., 1993) that have been empirically linked to relationship problems. The model is focused on risk factors that are relatively dynamic rather than static, and therefore potentially modifiable (Stanley, 2001). For example, one core aspect of PREP is teaching communication skills, because destructive conflict is a leading risk factor for future divorce and marital distress (Clements, Stanley, & Markman, in press; Gottman, 1993; Gottman, Coan, Carrere, & Swanson, 1998; Markman & Hahlweg, 1993). In addition, PREP targets protective factors such as friendship, commitment, fun, spiritual connection, and sensuality, mirroring advances in the field targeted at helping couples build and deepen the positive side of their relationships (e.g., Jacobson & Christensen, 1996).

Evidence from existing outcome studies is encouraging with regard to the preventive effects of PREP (e.g., Hahlweg, Markman, Thurmaier, Engl, & Eckert, 1998; Halford et al., 2003; Halford, Sanders, & Behrens, 2001; Laurenceau, Stanley, Olmos-Gallo, Baucom, & Markman, 2004; Markman, Renick, Floyd, Stanley, & Clements, 1993; Stanley, 2001; Stanley et al., 2001). However, the research on PREP and other marriage education programs is limited because most studies are with premarital samples of primarily young, White, well-educated middle-class couples (Carroll & Doherty, 2003; Sayers, Kohn, & Heavey, 1998). Moreover, the majority of research on marriage education has been conducted in a university setting with university-based providers, with few tests of effectiveness in naturalistic settings.

The current study begins to address some of these issues of dissemination and generalizability by evaluating an adaptation of PREP in an entirely new context: the U.S. Army. This adaptation of PREP, entitled Building Strong and Ready Families (BSRF), was implemented in Army brigades by trained Army chaplains. In addition to the full version of PREP, which constituted the bulk of BSRF, Army chaplains and Army community health nurses specializing in prevention chose to add a health promotion and a spiritual growth component as part of their philosophy of a comprehensive prevention focus. Thus, this represents a naturalistic adaptation of PREP to a particular community by leaders in that community. Marriage education programs will likely be most effective if they are delivered by trusted and integrated members of the community who can relate to and adapt the program for their target population (Markman, Whitton, et al., 2004; Stanley, Markman, St. Peters, & Leber, 1995). Assessing the effectiveness of PREP as delivered by Army chaplains extends our recent line of research on dissemination in religious organizations (Laurenceau et al., 2004; Markman, Whitton et al.; Stanley et al., 2001).

BSRF was offered to a volunteer sample of primarily married couples in which one or both partners were active duty Army personnel. In today’s Army, around 60% of soldiers are married (Schumm, Bell, Rice, & Schuman, 1996). These married soldiers and their spouses differ from prior PREP (and most marital education) samples in that they have greater racial and ethnic diversity, have relatively lower incomes, and are mostly married (rather than premarital). Thus, the current study represents an
extension of research on PREP and marriage education in general because it tests the effectiveness of an adaptation of PREP within an entirely new context, with community providers, and with a diverse population.

Stimulating positive change in Army couples is particularly important because military couples may be at generally high levels of risk for marital problems, which are further exacerbated by deployments and exposure to combat (Gimbel & Booth, 1994; McCarroll et al., 2000; Ruger, Wilson, & Waddoups, 2002). These stressors can place considerable demands on the coping and adjustment of military couples. PREP can theoretically help couples facing these stressors by increasing their ability to manage conflict and maintain positive connections, and by enhancing external support for the couple (e.g., through stronger relationships with chaplains, nurses, and other Army couples).

BSRF was evaluated in two samples of Army couples, Study 1 and Study 2. Participants reported their satisfaction with BSRF and the subjective impact of the program. We also evaluated a range of relationship variables, including overall satisfaction, interaction patterns, spillover from work to home, and confidence in the future of the relationship. In the absence of any empirical evidence to the contrary, we hypothesize that diverse couples (in terms of race/ethnicity and income) will report satisfaction with BSRF and significant gains in relationship functioning subsequent to the program.

STUDY 1

METHOD

Procedure

The current study was commissioned by the U.S. Army through the Chief of Chaplains office to learn more about the impact of BSRF on Army couples. Three workshops were provided by the senior authors (SMS, HJM) to train representative Army chaplains in PREP, who then went on to teach the program to other Army chaplains. The training started with an overview of research on the dynamic risk and protective factors that form the basis of the 14 modules of PREP. The chaplains were guided through each of the PREP modules, practiced the PREP skills, were provided with manuals, videotapes, and so on to guide implementation of the program, and were trained in how to present material, teach the skills, and contextualize the program for their own audiences with examples and language. A workshop format for training is representative of the types of experiences that practitioners have in learning empirically based approaches to prevention, and is similar to what we have done with civilian clergy and lay leaders (Markman, Whitton et al., 2004).

BSRF was offered to couples across 11 brigades (a subunit of an Army division, typically comprising 1,800 to 3,000 soldiers). Brigade Unit Ministry Team members were responsible for recruitment, and were encouraged to focus recruitment on young, newly enlisted couples who may be more vulnerable to Army-related stressors. The program was offered free of charge, and incentives to participate included 3 days off duty and an overnight retreat with the spouse, promotion points, and child care. Specific recruitment strategies were left up to team members, who did not provide information to investigators regarding their methods of recruitment, the number of couples invited, and so on. The small scope of the study did not permit assessment of a representative sample of military couples as a comparison group. Although this raises

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questions about the nature of this sample, it does reflect the naturalistic aspect of this applied study to test “real-world” effectiveness, which inherently lacks the control in studies of efficacy.

Couples were asked to complete 20-to-30-minute self-report assessments immediately prior to BSRF, immediately after completion of BSRF, and 1 month after completion of BSRF. Participants were assured of complete confidentiality via informed consent procedures; in particular, they were assured that their forms, which they themselves immediately sealed in envelopes and placed in a shipping box, would be sent directly to the primary investigators and would never be in the possession of anyone in the Army, including the chaplains working with them.

BSRF consisted of two daylong workshops and an overnight retreat, each spaced 1 week apart. Army chaplains implemented the PREP and spiritual components; Army community health nurses delivered the health component.

**Participants**

Participants were couples in which at least one member of the couple was on active duty in the U.S. Army, typically the male. Complete pre-BSRF data were collected from 380 couples, 230 couples provided complete post-BSRF data, and 60 couples provided complete data at the 1-month follow-up. The significant attrition at each assessment point was primarily due to the increased operational tempo following the terrorist strikes of 9/11. The timing of these strikes corresponded with the initial phases of the implementation and follow-up assessment of BSRF; the increased deployments, training, chaplain obligations, and other operational requirements subsequent to the strikes seriously curtailed data collection. To assess if attrition from the study was random, couples who provided data at all three time points were compared with those who provided data at only one or two time points. We found no differences between these couples on their pre-BSRF scores; thus, there was no evidence that factors associated with the characteristics of the couples themselves made it more or less likely that they would provide data at all time points. Although there is no evidence that bias was introduced by the attrition pattern, the attrition does reduce power for the follow-up analyses. Thus, the primary focus here is comparison of pre- and post-BSRF data.

In the sample that provided both pre- and post-BSRF data, males were 44% Caucasian, 20% African American, 11% Hispanic, 1% Asian, 1% Native American, 11% Other, and 12% “missing.” For females, 40% endorsed Caucasian, 19% African American, 18% Hispanic, 2% Asian, 10% Other, and 21% “missing.” (High levels of missing data for ethnicity was attributable to the fact that Study 1 ethnicity was asked in an open-ended format; many individuals left the field blank, filled in “American,” or provided other uncodable responses. This format was changed in Study 2.) Males’ average age was 25 (SD = 4.9). Females’ average age was 24 (SD = 5.01). Ninety-nine percent of the sample were married. Males’ modal income was $20,000 to $30,000, and females’ modal income was below $5,000 per year. Military ranks represented ranged from privates to field grade officers (i.e., majors, lieutenant colonels, and colonels).

**Measures**

Internal consistency of measures in the current sample was estimated for males and females separately based on individuals’ pre-BSRF data from the sample
that provided data at both pre- and post-BSRF. All scores reflect higher levels of the construct.

**Satisfaction with BSRF.** Individuals reported their global satisfaction with the three components of BSRF: PREP, Health, and Spirituality. Responses were on a Likert scale from 1 (very dissatisfied) to 5 (very satisfied). In addition, individuals were asked about whether they would recommend BSRF to a friend and whether they felt an increase in relationship confidence as a result of taking BSRF. Responses were on a scale from 1 (less true) to 7 (more true).

**Relationship satisfaction.** The Kansas Marital Satisfaction Index (KMSI; Schumm, 1983) consists of three items assessing global satisfaction with the relationship and the partner, with ratings for each item on a scale from 1 (extremely dissatisfied) to 7 (extremely satisfied). Scores are the average of the three items. The KMSI has excellent psychometric characteristics as a generalized measure of marital satisfaction (e.g., Schumm, Nichols, Schectman, & Grigsby, 1983). In the current sample, alpha was .94 for males and .96 for females.

**Interaction patterns.** An 11-item form of the Relationship Dynamics Scale (RDS; Stanley & Markman, 1997) was used to assess “danger signs” (i.e., patterns of negative interaction and cognition indicative of concurrent and future marital problems) such as escalation, invalidation, withdrawal, loneliness, negative perceptions, and any insults, swearing, shouting, and yelling. Responses are on a Likert scale from 1 (almost never or never) to 3 (frequently). Results are reported as total scores, which can range from 11 (low levels of all danger signs) to 33 (high levels of all danger signs). Forms of this measure have demonstrated excellent reliability and validity (Johnson et al., 2002; Stanley et al., 2001; Stanley, Whitton, & Markman, 2004). In the current sample, alpha was .89 for males and .91 for females.

Separate from the RDS, specific items regarding invalidation, withdrawal, and the use of “Time Out” were assessed using questions from the Communication Skills Test (Saiz & Jenkins, 1995). Responses are on a Likert scale from 1 (almost never) to 7 (almost always), and scores are the average of scale items. Three items assessed invalidation (e.g., “I feel my partner puts down my ideas”). Internal consistency was good for males (.79) and females (.82). Three items assessed withdrawal (e.g., “I find myself pulling back when my partner wants to discuss an issue or concern”). Internal consistency was adequate for males (.64) and females (.67). Time Out (i.e., a way to help couples exit negative interaction patterns) was assessed with two questions (e.g., “When our discussions begin to get out of hand, we agree to stop them and talk later”). Internal consistency on these two items was .58 for males and .63 for females.

Theoretically, being able to communicate well about the stresses of Army life should help couples cope. We assessed this type of communication with three items, such as “My spouse and I are able to talk about our concerns about Army life.” Responses are on a Likert scale from 1 (almost never) to 7 (almost always), and scores are presented as an average of the three items. Internal consistency was good for males (.75) and females (.74).

**Spillover.** Active duty personnel were asked to assess the spillover of work stress to home with one item: “At home, I am so tired or preoccupied with my work that I don’t
have much time or energy left for my marriage or family.” Responses are on a Likert scale from 1 (almost never) to 7 (almost always).

Relationship confidence. The Confidence Scale (Stanley, Hoyer, & Trathen, 1994) is an eight-item scale that measures a person’s level of confidence that he or she (i.e., the couple) can handle what’s in their future and stay together (e.g., “I believe that we can handle whatever conflicts will arise in the future”). Responses are on a Likert scale from 1 (strongly disagree) to 7 (strongly agree), and results are presented as an average of all items. It has demonstrated reliability and validity (e.g., Kline et al., 2004; Stanley et al., 2001). In the current sample, internal consistency was .92 for males and .88 for females.

RESULTS

The analyses examining changes from pre-BSRF to post-BSRF involve 2 (gender) × 2 (time) repeated measures analysis of variance (ANOVA), with both time and gender treated as within-subjects factors (hence, couple is the unit of analysis with dependency among partners accounted for by treating gender as a repeated measurement). The time factor represents pre-BSRF and post-BSRF data. Detailed results are presented only for the comparisons between pre- and post-BSRF; we briefly describe 1-month follow-up data. Analyses based on all three time points are not the primary focus of these results because of the attrition and resultant low power for the follow-up analyses. For the pre/post comparisons, we include only those couples who provided data at both time points (similarly, follow-up results are based only on couples who provided data at all three time points).

To examine ethnic/racial differences, we compared couples in which both partners were Caucasian with all other couples (labeled here as “diverse” couples); these comparisons are referred to as “group” comparisons. Dividing the sample in other ways based on ethnicity yielded the same pattern of results. For example, results were examined for males and females within each separate racial designation, and for couples in which both partners were of a minority versus those in which neither was. Division into some of these subgroups undermined power, but the effect size similarities we note below were robust across all comparisons. We chose the presented comparison groups in order to retain the most power for analyses, with the findings representative of other analytic breakdowns. A total of 190 couples could be classified based on race and ethnicity and provided data at both pre- and post-BSRF; 73 of these couples were Caucasian, and 117 were diverse.

For relationship outcomes, mean gender or ethnic differences in relationship variables (e.g., if males report higher relationship satisfaction at pre-BSRF; if Caucasian couples report more withdrawal) are not a focus; rather, the outcome of interest is whether changes over time (pre- to post-BSRF) are significantly different for males and females, and for Caucasian and diverse couples. Gender differences in the impact of BSRF on the relationship were assessed by including a gender by time (pre, post) term in the analyses. Similarly, group differences in the impact of BSRF on the relationship were assessed by including a group by time term in the analyses. Group by gender by time effects were also evaluated. There are slight variations in the total number of participants per analysis because of variations in missing data.
Table 1 displays results for post-BSRF satisfaction with the three aspects of BSRF, for the sample overall, and for Caucasian and diverse couples separately. In the overall sample, there were no significant gender or group differences in ratings of BSRF components. Although the ratings for all of the components were high, couples gave the highest ratings to the PREP component and the lowest to the spiritual component, $F(2, 218) = 15.78, p < .001$. Overall, participants strongly endorsed the idea that they would recommend BSRF (males $M = 6.45, SD = 1.01$; females $M = 6.47, SD = 1.06$). There were no significant gender or gender by group effects, but diverse couples did score significantly higher on this item relative to Caucasian couples, $F(1, 190) = 4.76, p < .05$. Participants also felt more confident that they would not divorce as a result of participating in BSRF (males $M = 6.16, SD = 1.08$; females $M = 5.91, SD = 1.41$). Males endorsed this more highly than females, $F(1, 191) = 4.30, p < .05$, but there were no significant effects for group, nor was there a gender by group interaction.

Table 2 provides mean scores, pre- and post-BSRF, on the relationship constructs for the sample overall, and for Caucasian and diverse couples separately. For global relationship satisfaction, there was a significant effect for time, demonstrating that couples taking BSRF showed gains in relationship satisfaction from pre-BSRF to post-BSRF, $F(1, 192) = 15.27, p < .001$, $d = .23$. Couples showed significant reductions in danger signs, $F(1, 196) = 21.13, p < .001$, $d = .22$, and invalidation, $F(1, 193) = 4.29, p < .05$, but $d$ only .10, from pre to post. The decrease in withdrawal from pre- to post-BSRF was not significant, $F(1, 190) = 2.93, p = .09, d = .09$. Couples manifested a significant increase in the use of Time Out, $F(1, 192) = 25.68, p < .001, d = .31$, and in their ability to discuss stresses related to the Army, $F(1, 176) = 9.94, p < .01, d = .18$. To assess changes in spillover, analyses were run separately for males and females because only the active duty member of the couple completed this measure. Overall, there was a significant reduction in spillover for active duty males from pre- to post-BSRF, $F(1, 207) = 5.32, p < .05, d = .16$. For active duty females, the reduction was nonsignificant. Couples reported significant gains in relationship confidence from pre-to post-BSRF, $F(1, 195) = 57.55, p < .001, d = .41$.

**Interaction Effects**

There were no significant interactions of gender or group with time, indicating that the positive impact of BSRF did not differ across gender or group.

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## Table 2

Relationship Satisfaction, Interaction Patterns, Spillover, and Confidence: Study 1

<table>
<thead>
<tr>
<th></th>
<th>Overall</th>
<th></th>
<th>Caucasian Couples</th>
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<th>Diverse Couples</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td></td>
<td>Pre</td>
<td>Post</td>
<td>Pre</td>
<td>Post</td>
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<td>Relationship</td>
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<td>Satisfaction</td>
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<td>(.88)</td>
<td>(1.21)</td>
<td>(1.06)</td>
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<td>Danger Signs</td>
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<td>18.01</td>
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<td>(5.03)</td>
<td>(4.71)</td>
<td>(6.01)</td>
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<td>2.89</td>
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<td>2.76</td>
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<td>(1.36)</td>
<td>(1.40)</td>
<td>(1.71)</td>
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<td>3.44</td>
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<td>(1.14)</td>
<td>(1.30)</td>
<td>(1.14)</td>
</tr>
<tr>
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<td>4.22</td>
<td>3.99</td>
<td>4.08</td>
<td>3.23</td>
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<td>(2.04)</td>
<td>(1.97)</td>
<td>(2.06)</td>
<td>(1.88)</td>
</tr>
<tr>
<td>Confidence</td>
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<td>6.17</td>
<td>6.43</td>
<td>5.86</td>
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<td>(.83)</td>
<td>(.92)</td>
<td>(.66)</td>
<td>(1.26)</td>
<td>(.99)</td>
</tr>
</tbody>
</table>

*Note. Numbers are means with standard deviations in parentheses.*
One Month Follow-Up

For the subsample that provided data at all three time points, repeated measures analyses were again conducted. Because of the low number of participants who provided data at all three assessment points, the sample was not subdivided into racial/ethnic couple group. For each relationship variable, gains were maintained or strengthened at 1-month follow-up. Specifically, when comparing post-BSRF scores with the 1-month follow-up scores, improvements were maintained (i.e., no significant change) for overall relationship satisfaction, confidence in the future of the relationship, invalidation, use of Time Out, ability to talk about Army issues, and spillover from work to home. Significant improvements were found for danger signs, \( F(1, 47) = 6.76, p < .05 \), and withdrawal, \( F(1, 46) = 14.49, p < .001 \), from post-BSRF to the 1-month follow-up. Thus, although withdrawal showed nonsignificant reductions from pre- to post-BSRF, the continued reductions in this behavior evident at 1 month suggest more gradual—but substantial—overall change. For relationship variables that did not show significant improvement from post-BSRF to the 1-month follow-up, an examination of means indicated that any changes were in the positive direction, with the exception of male spillover from work to home. Hence, effect sizes from pre to follow-up were larger than those reported for pre to post, with the exception of male spillover from work to home. For example, the effect size for withdrawal from pre to follow-up was .33, .53 for danger signs, .50 for confidence, and .45 for being able to talk about Army issues effectively. The slight increase for male spillover from work to home may be attributable to the increased operational tempo occurring at that time.

Income Differences

As noted earlier, the current sample contains many individuals who would be classified as lower income. When dividing the sample into lower (total family income less than $25,000 a year) versus higher (total family income greater than $25,000 a year) income, no income group differences were found on the changes on any outcome measure across time. That is, a time by income level interaction term was nonsignificant for all outcome measures. Thus, BSRF appears to have the same positive effects for lower income as for higher income couples in this sample.

STUDY 2

This first implementation of BSRF in the Army context appeared to have overall positive effects on relationship functioning, and couples seemed highly satisfied with the experience. However, it was important to evaluate whether these findings were replicable; hence, a second sample was recruited to participate in an evaluation of BSRF.

METHOD

Procedure

The procedure for Study 2 was identical to that for Study 1.

Participants

At pretest, 123 couples provided complete data, 105 couples provided data post-BSRF, and 47 couples provided data at the 1-month follow-up. Reports from chaplains
suggested that the key reason for the attrition at follow-up was logistical difficulties in coordinating a follow-up “event” in which to gather data. As before, we analyzed the data to assess any couple characteristics related to attrition. For most variables, there were no differences at pre-BSRF between the couples who completed later assessments and the couples who did not. However, couples in which females reported lower levels of relationship commitment at pre-BSRF were less likely to complete the program, and therefore less likely to complete later assessments.

Demographics were evaluated for the couples who provided data at both pre- and post-BSRF. Of the males, 66% were Caucasian, 8% were African American, 15% were Hispanic, 8% were Other, 1% were multiracial, and 2% did not disclose. Of the females, 65% were Caucasian, 7% were African American, 14% were Hispanic, 4% were Asian, 1% were Native American, 4% were Other, 5% were multiracial, and 1% did not disclose. Males averaged 27.5 years old ($SD = 7.03$), and females averaged 27 years old ($SD = 7.47$). Ninety-nine percent of the sample were married (1% engaged). Males’ modal personal income was $20,000 to $29,999 per year, whereas the modal personal income for females was $0 to $4,999. Military ranks ranged from privates to field grade officers.

Measures

In this second evaluation, we streamlined many of the measures to reduce participant burden and to have a viable option for chaplains to administer questionnaires to BSRF participants on an ongoing basis; thus, some items were revised or eliminated. Details are provided in the results section below.

RESULTS

In Study 2, an aggregate rating of three items regarding the positive impact of BSRF on relationship confidence and functioning was obtained at post-BSRF (male alpha = .91; female alpha = .87). On a 5-point scale, males averaged 4.62 ($SD = .59$), and females averaged 4.64 ($SD = 4.64$); thus, couples rated the impact of BSRF on their relationships very positively. Another goal of the program was to strengthen external support for the couple (i.e., social support from other Army families and support from Army agencies such as chaplains, health-care workers, and mental health professionals). At post-BSRF, couples were asked if they had stronger relationships with other Army families as a result of attending BSRF. On a 5-point scale, ratings were not as high on this item but were still in the positive direction (males $M = 3.91$, $SD = .94$; females $M = 3.88$, $SD = 1.03$). Before and after BSRF, couples were also asked if they knew how to get help or support from Army agencies if needed. From pre- to post-BSRF, there was a significant increase in this variable, $F(1, 96) = 13.61, p < .001$.

Table 3 presents means and standard deviations for the relationship outcome variables reviewed below. A one-item measure of global relationship satisfaction was used with ratings on a 7-point scale; on this item, there were significant changes from pre-BSRF to post-BSRF, $F(1, 91) = 17.34, p < .001, d = .28$, for the overall sample. The measure of danger signs was reduced to 10 items, thus, scores ranged from 10 to 30. There was a significant effect of time, $F(1, 96) = 33.65, p < .001, d = .30$, indicating that danger signs were reduced post-BSRF relative to pre-BSRF. The remaining constructs were rated on a 7-point scale; scores represent an average of scale items. The use of Time Out significantly increased from pre-BSRF to post-BSRF, $F(1, 99) = 38.12, p < .001, d = .48$. Couples also showed improvements in their ability to talk about Army


<table>
<thead>
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<th></th>
<th>Overall Caucasian Couples</th>
<th>Diverse Couples</th>
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<tr>
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<td>Females</td>
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<td>(4.92)</td>
</tr>
<tr>
<td>Time Out</td>
<td>3.34</td>
<td>4.36</td>
</tr>
<tr>
<td></td>
<td>(1.66)</td>
<td>(1.76)</td>
</tr>
<tr>
<td>Talk About Army</td>
<td>5.70</td>
<td>6.10</td>
</tr>
<tr>
<td></td>
<td>(1.33)</td>
<td>(.98)</td>
</tr>
<tr>
<td>Spillover</td>
<td>4.39</td>
<td>3.88</td>
</tr>
<tr>
<td></td>
<td>(1.54)</td>
<td>(1.53)</td>
</tr>
<tr>
<td>Confidence</td>
<td>4.38</td>
<td>4.55</td>
</tr>
<tr>
<td></td>
<td>(.70)</td>
<td>(.87)</td>
</tr>
</tbody>
</table>

*Note.* Numbers are means with standard deviations in parentheses.
issues as a couple, $F(1, 100) = 23.83, p < .001, d = .31$. Spillover items were phrased more generally (e.g., “Stress at work sometimes makes it harder to get along with my spouse”) and were not restricted to active duty personnel. Couples reported significantly less spillover post-BSRF relative to pre-BSRF, $F(1, 93) = 9.76, p < .01, d = .21$. Confidence items were identical to those in Study 1. Couples reported significant gains in confidence about the relationship, $F(1, 101) = 29.80, p < .001, d = .32$.

**Interaction Effects**

Time was again included in an interaction term with gender and group. There were no significant interactions of gender or group with time, with one exception: In evaluating changes in relationship confidence over time, a significant interaction effect of gender by time, $F(1, 101) = 5.89, p < .05$, emerged, which indicated that increases in confidence were higher for women than for men. Otherwise, the impact of BSRF on relationship outcomes did not differ for men or women, or for couples in which there were two Caucasian partners compared with couples in which at least one partner was not Caucasian.

**One-Month Follow-Up**

As in Study 1, repeated measures analyses were again conducted for the subsample that provided data at all three time points, without subdividing the sample into racial/ethnic couple groups. When comparing post-BSRF scores with the 1-month follow-up scores, improvements were maintained (i.e., no significant change) for awareness of Army support resources, global relationship satisfaction, danger signs, ability to talk about Army issues as a couple, work-to-home spillover, and relationship confidence. Continued significant improvements were found for the use of Time Out, $F(1, 34) = 6.37, p < .05$, from post-BSRF to the 1-month follow-up. There were no significant time by gender interaction effects, indicating that effects over time were not significantly different for males and females.

Thus, Study 2 replicated the positive relationship effects demonstrated in Study 1 in terms of positive ratings of the program, improvements in relationship functioning at post-BSRF, and maintenance or increased gain on relationship outcomes at 1-month follow-up. These positive changes held for both men and women, and for couples with different racial/ethnic makeup. Further, as in Study 1, effect sizes were generally greater in follow-up than from merely pre- to posttraining (not reported for space conservation).

**DISCUSSION**

The current study evaluated the generalizability of the effects of PREP when delivered by non-university-based providers in a unique community context to a diverse group of couples. In both samples, couples reported positive impact from the intervention and significant improvements on a range of indices of relationship functioning. These positive effects held for men and women, couples of diverse ethnic and racial backgrounds, and for couples of lower income compared with those with higher incomes. Helping Army couples, who are coping with significant stress on their relationships because of the demands of military life, is particularly important. For example, increasing confidence in the future of the relationship is likely critical during extended and uncertain deployments; such confidence can help the couple withstand
this stress and help each individual function more effectively during the separation. It is possible that these and other improvements in couple functioning can ameliorate some of the risks associated with deployment and exposure to combat.

These findings indicate that training service providers who work with couples in their communities is a viable model for disseminating research marriage education programs like PREP to new populations. A strength of this approach is that the service providers are known to and trusted by couples, and can adapt the intervention to their audience (e.g., by using culturally specific examples and stories; Stanley et al., 1995). Clergy, including Army chaplains, are particularly appropriate for disseminating marriage education programs like PREP (Markman, Whitton et al., 2004; Stanley et al., 1995). More couples seek out the help of clergy than mental health professionals for relationship preparation and counseling (Johnson et al., 2002). Religious organizations in and out of the military are already committed to delivering relationship counseling services to couples and are generally receptive to learning empirically validated approaches such as PREP (Markman, Whitton et al., 2004).

Limitations and Future Directions

Focusing on a sample of Army couples has benefits in terms of learning about the effectiveness of PREP in a particular context, evaluating the effects of PREP in a racially and ethnically diverse sample, and addressing a significant clinical need. However, focusing on Army couples can also be considered a limitation in that findings from this sample may not generalize to other important groups. Another limitation, due to budget and logistics constraints in this naturalistic application, is the lack of assessment of chaplains’ competence or adherence in program delivery. However, prior experience suggests reasonable levels of adherence in similar dissemination models (Stanley et al., 2001).

Although we were able to evaluate the effects of BSRF from pre to post with Caucasian as compared with diverse couples, future studies with larger sample sizes would be useful in comparing changes subsequent to marriage education in specific subgroups with adequate power. In addition, measuring ethnic identification, not just race/ethnicity, would likely yield more sensitive measurement of possible differences associated with diverse cultures. Moreover, although the current sample was of lower income than typical participants in marriage education research, none of the couples in the current studies would be classified as very low income because least one member of the couple was employed by the U.S. military. Thus, further research with very low income populations would be helpful to our field.

The current studies are also limited by a reliance on self-report measures that assessed a fairly circumscribed set of outcomes. Although keeping assessment limited to brief self-report questionnaires was necessary to implement the study in the Army context, a wider range of measures would be optimal, including objective measures of couple behavior, such as with behavioral coding of couple interaction. A potential weakness of reliance on self-report is that common method variance may produce some lack of specificity in understanding the effects. On the other hand, the findings presented here are unusually strong for self-report-based findings in our experience of conducting evaluations of this nature. That is, the effect sizes obtained here for pre to post differences, while generally small, are stronger than self-report changes typically seen when PREP is evaluated in premarital populations, who generally score very

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high at pre on these types of measures. The current population was primarily married and had variability in marital duration, likely allowing for greater variability in distress at pre, and thus greater opportunity for improvement.

It would also be ideal to have a longer follow-up period to assess long-term outcomes such as divorce. This would allow us to see what gains are maintained, eroded, or only evident after a delayed period, and to assess the impact of stressors, such as separation due to deployment, on these outcomes. Such information would be useful in the development of strategies to reinforce and augment positive changes over time. Current plans for follow-up research on BSRF in the military context incorporate longer follow-up periods, a control group, and a broader range of outcomes to assess whether changes in relationship functioning are linked to improvements in other areas, such as parenting, mental health, and domestic violence.

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