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The Effects of Marriage Education for Army Couples with a History of Infidelity

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Abstract

While existing literature has begun to explore risk factors which may predict differential response to marriage education, a history of couple infidelity has not been examined to determine whether infidelity moderates the impacts of marriage education. The current study evaluated self-report marital satisfaction and communication skills in a sample of 662 married Army couples randomly assigned to marriage education (i.e., PREP) or a no-treatment control group and assessed prior to intervention, post intervention and at 1 year after intervention. Of these, 23.4% couples reported a history of infidelity in their marriage. Multilevel modeling analyses indicated that having a history of infidelity significantly moderated the impact of PREP for marital satisfaction, with a trend for a similar effect on communication skills. However, couples with a history of infidelity assigned to PREP did not reach the same levels of marital satisfaction after intervention seen in the group of couples without infidelity assigned to PREP, although they did show comparable scores on communication skills after intervention. Implications of these findings for relationship education with couples with a history of infidelity are discussed.

Keywords

Marriage Education; Infidelity; Couples; Marriage; Extramarital

As the literature on the efficacy and effectiveness of marriage and relationship education grows, researchers have become increasingly interested in the factors that moderate the preventative and therapeutic effects of this type of education. Halford, Markman, and Stanley (2008) note that, while the evidence is mixed, positive effects of relationship education may be larger in couples who initially have higher risks. For example, Halford, Sanders, and Behrens (2001) found that higher risk couples (defined as including women with parental divorce or men whose fathers were aggressive towards their mothers) derived greater benefits from relationship education than couples without these risk factors. The goal of the current study was to evaluate differential effects for a marriage education program provided to a group of married couples based on the risk factor of infidelity. Infidelity may be a potent marker of risk, as it is typically associated with negative relationship outcomes, such as marital distress, conflict, and divorce (see reviews by Allen et al., 2005; Blow &

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Hartnett, 2005; Hall & Fincham, 2006a). In fact, Amato and Previti (2003) found that infidelity was the most commonly cited reason for divorce, and Previti and Amato (2004) showed that infidelity significantly increased the odds of divorce even after controlling for prior happiness and divorce proneness.

Not only is infidelity a potentially important risk factor, but couples therapists have also identified infidelity as one of the most difficult issues to treat in marital therapy (Whisman, Dixon, & Johnson, 1997). However, existing investigations have shown positive effects of couples therapy for couples with reported infidelity (Atkins, Eldridge, Baucom, & Christensen, 2005; Atkins, Marín, Lo, Klann, & Hahlweg, 2010). In Atkins et al.'s studies, infidelity couples started with lower levels of marital satisfaction relative to other couples presenting for couples therapy, but improved over the course of therapy to the point where there were no significant differences between couples with and without infidelity history by the end of treatment (Atkins et al., 2005) or by a 6 month follow up assessment (Atkins et al., 2010). Another study, which included only couples with infidelity, found that couples showed some improvements in individual or marital functioning over the course of therapy (Gordon, Baucom, & Snyder, 2004). Thus, evidence suggests that marital therapy can reduce distress for couples with infidelity.

However, the effects of marriage education for couples with a history of infidelity have not been examined. Marriage education is distinct from marital therapy, generally consisting of group didactic presentation of material such as communication skills and management of common marital issues (Markman & Rhoades, 2011). Thus, marriage education “does not provide intensive, one-on-one work between participants and professionals on specific personal problems, as therapy does” (Hawkins, Blanchard, Baldwin, & Fawcett, 2008, p. 723). Given the prevalence of extramarital sex (around 25% of men and 15% of women; Allen et al., 2005), there is certain to be a good number of couples with a history of infidelity receiving marriage education services, but it is unknown whether couples with infidelity can benefit from an intervention which does not have the “intensive, one-on-one work” represented in prior outcome studies of marital therapy with infidelity couples, or if such an intervention would actually be contraindicated for such couples.

The current paper seeks to examine whether a particular marriage education intervention, the Prevention and Relationship Education Program (PREP; Markman, Stanley, & Blumberg, 2010), shows positive intervention effects for couples who report a history of infidelity in their marriage. The couples in this study are Army couples who enrolled in a longitudinal, randomized clinical trial of PREP delivered by Army chaplains. In general, infidelity has been cited as a concern for military couples, particularly the possibilities of infidelity during deployment (Alt, 2006), with some evidence that infidelity is more prevalent in military or veteran populations than among civilian populations (Gimbel & Booth, 1994). Importantly, the current study's sample was not comprised of couples presenting for marital therapy. Participants enrolled as couples in a study on marriage in which they had a 50/50 chance of being assigned to the educational intervention or to an untreated control group, which can be considered treatment as usual. While recruitment materials noted the potential positive impacts on marriage from being in the study, the study did not expressly recruit for a distressed sample or a sample that identified infidelity as a problem in the marriage; in fact, as in most research on marriage education, the sample on average was generally satisfied with their marriage at the baseline assessment. Thus, the question that can be addressed in this particular study is not necessarily whether PREP is effective for couples who report that infidelity is currently a distressing issue, but whether currently intact couples who report a history of infidelity appear to benefit from marriage education, or if the program seems ineffective or even contraindicated for this group. Notably, the design of the study allows the unprecedented comparison of change over time for infidelity couples randomly assigned

to intervention and control groups. The specific outcomes focused on for the current study are marital satisfaction and communication skills, which are core constructs in marital functioning (Markman et al., 2010) and prior investigations of relationship education (Blanchard, Hawkins, Baldwin, & Fawcett, 2009).

Overall, based on the general literature on risk moderating effects of marriage education, as well as the positive findings from the literature on couples therapy for couples with infidelity, we hypothesize that couples with a history of infidelity assigned to PREP will show greater gains from before to after intervention (post and one year follow up¹) than couples without infidelity assigned to PREP, as well as greater gains than couples with infidelity assigned to the control group. While programs such as PREP are designed to have both preventative and enhancement effects, this hypothesis of immediate relative gains is based on the assumption that couples with a history of infidelity will have relatively lower satisfaction and communication skills levels prior to receiving marriage education; thus, the focus is on enhancement or intervention effects.

Method

Procedures

We evaluated the intervention in two samples of Army couples, one from Fort Campbell, KY and the other from Fort Benning, GA. We combined these samples for the present analyses to increase power for our subgroup analyses and because, for this specific study, we did not hypothesize differences in findings between sites. A detailed review of procedures and the intervention can be found in Stanley, Allen, Markman, Rhoades and Prentice (2010). In brief, to be eligible for the study, couples had to be married, age 18 or over, fluent in English, with at least one spouse in active duty with the Army. Couples could not have already participated in PREP, and they had to be willing to be randomly assigned to intervention or to an untreated control group, which can be considered treatment as usual. The study was presented as long term research, where couples would be asked to complete multiple assessments (each taking approximately 1 hour) over the course of the next four years, with compensation for the assessments ranging from \$50 to \$90 per person per assessment (compensation increasing over time). Recruitment was conducted via brochures, media stories, posters, and referrals from chaplains; recruitment materials clearly specified eligibility requirements and compensation.

Prior to random assignment or intervention, each spouse separately completed baseline (pre) questionnaires under the supervision of study staff. After the couple completed pre assessment, they were randomly assigned to the intervention group or the control group. In total, 343 couples were assigned to intervention and 319 were assigned to the control group. There were 27 separate iterations of the intervention. That is, there were 27 repetitions of the program to accommodate multiple groups of couples. There were two subgroups of couples associated with each iteration: couples assigned to that iteration of PREP and couples assigned to control. While this design would conceptually have resulted in 54 “cohorts” (27 iterations X 2 subgroups of couples), one iteration only had two couples assigned to PREP, with no control couples, thus the total number of cohorts is 53. After their iteration was complete, each spouse separately completed another set of measures for post-assessment (post), also under the supervision of study staff. Approximately one year after intervention, couples who were still in intact marriages were again given measures, usually by sending each spouse a unique link to an online survey that could be completed from anywhere in the

¹Other more basic prevention questions (e.g., does the intervention group as a whole maintain good levels of relationship functioning over time?) require longer time frames than one year to adequately assess. However, because the focus of the current manuscript is on enhancement of satisfaction and skills for an at risk group, the time frames used here are sufficient.

world, and even during deployment. Individuals could opt for a mailed, hard copy questionnaire if they preferred.

Intervention

The intervention group was assigned to a version of PREP adapted for use by Army Chaplains with Army couples. The workshop consisted of two parts: a one-day training on post followed by a weekend retreat at a hotel off post with a total of 14.4 hours of content. PREP is based upon research regarding factors related to healthy marriage (Wadsworth & Markman, 2011); modules included communication, problem solving, and affect management skills, insights into relationship dynamics, principles of commitment, fun and friendship, forgiveness, sensuality and sexuality, expectations, core beliefs, and deployment/reintegration issues. We obtained adequate audiorecording of 20 out of the 27 iterations of the intervention to code chaplain fidelity to the lesson material from 1 (Very poor) to 5 (Excellent). The inter-rater correlation for coding fidelity was .88, and the average fidelity rating across iterations was 4.10.

Participants

At the baseline (pre) assessment, husbands averaged 28.5 years of age ($SD = 5.9$); wives 27.7 ($SD = 6.2$). Seventy-one percent of wives were white non-Hispanic, 11% were Hispanic, 10% African American, 1.8% Native American/Alaska Native, 0.9% Hawaiian or Pacific Islander, 0.8% Asian, and 4.1% endorsed mixed race/ethnicity. Sixty-nine percent of husbands were white non-Hispanic, 12% were Hispanic, 11% African American, 1.4% Native American/Alaska Native, 1.1% Asian, 0.6% Hawaiian or Pacific Islander, and 4.6% endorsed mixed race/ethnicity. Almost all husbands (97.3%) were Active Duty Army (2.4% were in the study due to the wife being Active Duty Army), whereas almost all wives (91.6%) were civilian spouses of Active Duty Army males (8.1% of wives were Active Duty Army or Reserves). Husbands' modal income (endorsed by 31.2% of men) was between \$30,000 and \$39,999 a year, while wives' modal income (endorsed by 67.6% of women) was under \$10,000 a year. High school or an equivalency degree was the modal highest degree (67% of the husbands and 53% of wives). Couples had been married an average of 7.2 years, and 73% reported at least one child living with them at least part time.

Measures

Infidelity—At the baseline assessment, each participant answered the question: “Since I've been married, I have been unfaithful to my spouse.” One hundred (15.1%) husbands and 88 wives (13.3%) reported “true” to this item; this represented 67 couples where only the husband reported true, 55 couples where only the wife reported true, and 33 couples where both the husband and wife reported true. Couples were coded as having a history of infidelity if either the husband or wife (or both) answered true to this item. Thus, 155 (23.4%) of the couples were coded as having a history of infidelity and 507 (76.6%) were coded as not having a history of infidelity. The rates of infidelity were not different for the two sites: 23% of Fort Campbell couples and 24.5% of Fort Benning couples were classified as having a history of infidelity. We cross checked our single item with another item assessed at pre: “Since I've been married, I have had sexual contact with someone other than my spouse.” For husbands, there was a 96% convergence rate between the two items (“unfaithful” and “sexual contact”); for wives, there was a 98% convergence rate.

Marital satisfaction—The Kansas Marital Satisfaction Scale (KMS; Schumm, Paff-Bergen, Hatch, & Obiorah, 1986) is a brief (3-item) scale assessing satisfaction with the marriage, the partner as a spouse, and the relationship with spouse. This scale has strong reliability and validity (Schumm et al., 1986) and provides a pure global satisfaction rating

without including other aspects of relationship functioning. Internal consistency in the current sample was excellent ($\alpha = .94$ for husbands and $.95$ for wives at pre). Each item is answered on a scale of 1 to 7; scores here are an average of the 3 items. Crane, Middleton, and Bean (2000) suggest that an average score of 5.67 is an optimal cutoff score for the KMS wherein couples higher than this would be considered satisfied and couples lower than this would be considered dissatisfied. The current sample, on average, were very close to this cutoff (husband mean = 5.75, SD = 1.19; wife mean = 5.60, SD = 1.35) with more than 50% of the sample exceeding it (median for husbands and wives = 6).

Communication skills—From the larger Communication Skills Test (Saiz & Jenkins, 1995), ten items were used to measure the type of communication skills taught in PREP (and other similar relationship education programs), while avoiding the specific jargon of PREP (e.g., “speaker-listener skills”). Example statements include “When discussing issues, I allow my spouse to finish talking before I respond,” “When our discussions begin to get out of hand, we agree to stop them and talk later.” Studies support the general reliability and validity of this measure (Stanley et al., 2001; Stanley et al., 2005), and internal consistency in the current sample was $.86$ for husbands and $.85$ for wives at pre. Items are scored from 1 to 7, with higher scores indicating higher use of the skills; scores presented here are an average of the 10 items.

Patterns of Participation

Figure 1 presents the flow chart for this study using the Consolidated Standards of Reporting Trials (CONSORT) guidelines for presentation of randomized trials (Moher, Schulz, & Altman, 2001), with the one year follow up designated as the follow up period. Although additional couples contacted study personnel to inquire about the study, the figure begins with the number of couples who were able to be fully assessed for eligibility. As noted in the figure, 127 couples were deemed ineligible while another 31 overtly declined participation after hearing more about the study. There are a large number (698) couples in the “other” category for non-participation. The reason for most couples to be in this category is reported scheduling problems. Before enrollment, we attempted to confirm that the couple would be able to attend the intervention if so assigned, and 361 couples told us that they would be unable to fit the available intervention to their schedules. Before enrollment at Fort Benning, couples were asked to get an approval sheet from the unit staff sergeant confirming the release of the soldier to attend intervention on a given date if assigned. An additional 241 couples from Benning simply did not follow up with study staff or did not return this approval sheet; reasons for this lack of follow up may include scheduling difficulties, disinterest, or other reasons. We also had an additional 29 couples who did not show up for their pre assessment, 32 couples who would not have been able to attend a given iteration because it was full, and the remainder of couples coded by study staff as “miscellaneous” reasons for nonparticipation.

Our analyses use rigorous intent to treat procedures (i.e., analyzing based on randomly assigned group regardless of whether the couples actually attended the intervention). As shown in Figure 1, 52 couples who were assigned to PREP did not attend any portion of it (with the remainder of assigned couples receiving at least some of the intervention). Of these couples, 42 husbands and 41 wives provided data at the post assessment regarding barriers to participation. The most common cited reasons were difficulty with childcare (36% of husbands and 37% of wives endorsed this) and difficulty getting time off from job or unit responsibilities (e.g., 33% of husbands endorsed unit responsibility conflicts). Other, infrequently endorsed, reasons included illness of self or family member, difficulties with travel to the intervention site, or disinterest in the intervention.

For post analyses, we had complete data from both partners on the relevant variables for 640 out of the 662 couples (19 missing both spouses, 2 missing the wife's data, and 1 missing the husband's data). For the one year follow up, 105 couples did not complete the current marital satisfaction and communication measures (55 neither spouse completed, 19 wife only did not complete, and 31 husband only did not complete). Compared to couples where at least one spouse provided such data at one year follow up, those couples not providing such data at follow up were not significantly different on group of random assignment, reports of infidelity at pre, or amount of change from pre to post intervention on marital satisfaction; however, they were significantly younger, less educated, and more maritally distressed at the baseline (pre) measurement (detailed results for these analyses available from first author). About 22 of the 105 couples did not complete the marital measures at follow up due to filing for or obtaining a divorce at the one year follow up assessment point. Divorce percentages at one year follow up were 4.1% of control couples without infidelity, 1.5% of PREP couples without infidelity, 6.7% of control couples with infidelity, and 5.1% of PREP couples with infidelity.

Results

Marital Satisfaction

Figure 2 presents the average of husband and wife satisfaction at pre, post, and one year follow up for couples with data at all three time points, broken down by the four groups: couples assigned to PREP without a reported history of infidelity, couples assigned to PREP with a reported history of infidelity, couples assigned to control with a reported history of infidelity, and couples assigned to control without a reported history of infidelity. In terms of intervention effects, we predicted that couples with a history of infidelity assigned to PREP would gain the most in marital satisfaction compared to other groups. Because our focus was on relative amount of change for couples with and without infidelity history, we are interested in interaction effects which include couple infidelity status, rather than main effects for the intervention as a whole². To test whether a history of infidelity moderated the impact of PREP, we used multilevel modeling. We used a four-level design (in HLM 7.0) with time (pre, post, follow-up) nested within individuals nested within couples nested within cohort. The primary model's equations follow. Time was measured in months since pre and was grand-mean centered. History of infidelity was coded 0 for no, 1 for yes. Group was coded 0 for control, 1 for PREP.

Level-1 (Time):	Marital Satisfaction_{ijk} = $\pi_{0jk} + \pi_{1jk}(\text{Time}_{ijk}) + e_{ijk}$
Level-2 (Individual):	$\pi_{0jk} = \beta_{00jk} + r_{0jk}$ $\pi_{1jk} = \beta_{10jk}$
Level-3 (Couple):	$\beta_{00jk} = \gamma_{000k} + \gamma_{001k}(\text{Infidelity}_{jk}) + u_{00j}$ $\beta_{10jk} = \gamma_{100k} + \gamma_{101k}(\text{Infidelity}_{jk})$
Level-4 (Cohort):	$\gamma_{000k} = \delta_{0000} + \delta_{0001}(\text{Group}_k) + v_{000k}$ $\gamma_{001k} = \delta_{0010} + \delta_{0011}(\text{Group}_k)$ $\gamma_{100k} = \delta_{1000} + \delta_{1001}(\text{Group}_k) + v_{100k}$ $\gamma_{101k} = \delta_{1010} + \delta_{1011}(\text{Group}_k)$

As assumed, the average marital satisfaction score (averaged across all three waves of data) was lower for couples with a history of infidelity than those without (see Table 1, γ_{001}). As hypothesized, there was a significant Time X History of Infidelity X Group (δ_{1011})

²Main effects for the intervention as a whole are presented in Allen, Stanley, Rhoades, Markman, & Loew, 2011, and Stanley et al., 2010). These publications examine multiple outcomes over time. As suggested by Figure 2, there were not significant overall main effects for the outcome of marital satisfaction (possibly affected by issues such as ceiling effects, differential divorce rates at follow up, and results only to one year thus far), but a number of other outcomes show the predicted main effects of the intervention.

interaction; Figure 2 suggests that this is attributable to the couples with a history of infidelity who received PREP evidencing the greatest change in marital satisfaction over time as predicted. Statistical probes were conducted with a series of repeated measures ANOVAs, in which time and gender were entered as within factors, and randomly assigned group (PREP or control) or infidelity status of the couple (history of infidelity or not) were entered as between factors. In the group assigned to PREP, couples with infidelity showed greater gains on marital satisfaction relative to couples without infidelity (pre-to-post Time X Infidelity $F(1,327) = 21.00, p < .001, d = .403$; pre-to-follow up Time X Infidelity $F(1,288) = 9.28, p < .01, d = .38$). In contrast, within the control group, infidelity couples did not significantly improve more than couples without infidelity, although this was a strong trend from pre to post (pre-to-post Time X Infidelity $F(1,309) = 3.81, p = .052, d = .16$; pre-to-follow up Time X Infidelity $F(1,262) = .07; p = .80, d = .04$).

Relevant to the issue of whether infidelity couples “catch up” to non-infidelity couples after intervention (a primary question in the Atkins et al. (2005, 2010) investigations), we compared differences for couples in the PREP group with and without infidelity at the three time points. At the base line assessment, couples with infidelity are significantly less satisfied relative to couples without infidelity ($F(1,339) = 31.82, p < .001; d = .73$). At the post and follow up assessments, this difference remains significant ($F(1,328) = 6.79, p < .05$ at post, $F(1,289) = 3.98, p < .05$ at follow up), but the difference narrows by just over half ($d = .34$ at post, $d = .29$ at follow up). This indicates that, while couples with a history of infidelity assigned to PREP make significant gains in satisfaction, and relatively larger gains than PREP couples without a history of infidelity, the changes do not bring them to the same level of satisfaction as PREP couples without a history of infidelity. As evident in Figure 2, on average, couples in the intervention group with prior history of infidelity remain in the “distressed” range, although more of these couples were in the satisfied range than before: 38% of infidelity couples assigned to PREP were in the satisfied range at pre intervention and 50% were in the satisfied range at both post and the one year follow up.

The next major set of comparisons involves only those couples with infidelity. While the probe analyses show that infidelity couples assigned to PREP made relatively greater gains in marital satisfaction compared to infidelity couples assigned to control (pre to post time by group $F(1,149) = 5.46, p < .05, d = .26$; pre to follow up time by group $F(1,122) = 4.06, p < .05, d = .31$), Figure 2 suggests that couples with a history of infidelity assigned to PREP started with a lower level of satisfaction than couples with a history of infidelity assigned to control, and this must be taken into consideration. Although this baseline difference is not statistically significant ($p = .11$), it is a concern that the steeper rate of change from pre to post for the infidelity couples assigned to PREP compared to infidelity couples assigned to control could simply be an artifact of this lower starting point which allows more room for improvement.

To address this concern, we used multilevel modeling to assess whether couples with a history of infidelity who received PREP had higher marital satisfaction scores after the intervention compared to infidelity couples who did not receive PREP, controlling for pre-intervention levels. Specifically, we used a four-level model in which Time was included at Level 1, pre-intervention marital satisfaction was controlled for at Level 2, and intervention group was entered as a predictor at Level 4. The results indicated a significant main effect of group on marital satisfaction after the intervention, controlling for pre-intervention marital

³Cohen's d calculated based on relative change, not on absolute change. For example, in this case, this is the amount of change for couples with infidelity assigned to PREP subtracting amount of change for couples without infidelity assigned to PREP, using the average standard deviation of the four measurements (pre and post couple satisfaction for couples with and without infidelity in the group assigned to PREP).

satisfaction, $b = 0.24$, $SE = 0.12$, $t(90) = 2.07$, $p < .05$. That is, after controlling for pre satisfaction, couples with infidelity assigned to PREP showed higher satisfaction after intervention compared to couples with infidelity assigned to control. Probing this separately for post and one-year follow up, a regression with couple level baseline satisfaction and group (PREP versus control) as predictors showed a trend for post couple satisfaction in which infidelity couples assigned to PREP tended to have higher satisfaction than infidelity couples assigned to control at post ($\beta = .10$, $t(148) = 1.85$, $p = .07$); however, this difference was not significant at the one year follow up ($\beta = .09$, $t(121) = 1.24$, ns)⁴.

Finally, it should be noted that, as evident in Figure 2, there are declines from post to follow up (time effect $F(1,541) = 5.13$, $p < .05$), but these declines are uniform across groups (i.e., there were no significant interaction effects with time based on group or couple infidelity). Thus, infidelity couples assigned to the intervention did not show steeper declines from post to follow up than any other group.

Communication Skills

The pattern of change over time for communication skills appeared very similar to that seen in satisfaction. We analyzed communication in exactly the same manner as satisfaction (see Table 2, Figure 3). Communication skills score (averaged across all three waves of data) tended to be lower for couples with a history of infidelity than those without ($p = .08$). In line with our hypothesis, there was a trend toward significance for the Time X History of Infidelity X Group (δ_{1011}) interaction ($p = .08$), again with infidelity couples assigned to PREP appearing to show the greatest change over time. In the probes using repeated measures ANOVAs, for PREP couples, the time by couple infidelity term revealed a trend ($F(1,323) = 2.95$, $p = .09$, $d = .19$) from pre to post, and was significant from pre to follow up ($F(1,285) = 5.50$, $p < .05$, $d = .29$), both due to relatively steeper gains for the infidelity couples. In the group assigned to PREP, couples with infidelity report significantly lower communication skills relative to couples without infidelity at the baseline assessment ($F(1,335) = 9.54$, $p < .01$, $d = .43$) but not at post ($F(1,328) = 2.29$, ns , $d = .17$) or follow up ($F(1,289) = 1.46$, ns , $d = .17$). Thus, while a small (but non significant) difference remains after intervention, PREP couples with infidelity “catch up” to PREP couples without infidelity in terms of the absence of significantly different levels of communication skills after intervention. Within the control group, infidelity couples significantly improved more than couples without infidelity from pre to post (time by infidelity $F(1,309) = 4.64$, $p = .03$, $d = .19$), but this effect was not evident at follow up (pre to follow up time by infidelity $F(1,262) = .00$; $p = .97$, $d = .00$).

The probe analyses show that infidelity couples assigned to PREP made relatively greater gains in communication skills compared to infidelity couples assigned to control (pre to post $F(1,148) = 4.91$, $p = .03$, $d = .29$; pre to follow up $F(1,122) = 8.73$, $p = .00$, $d = .41$); however, as with satisfaction, within the group of couples with a history of infidelity, those couples assigned to PREP appear to start with lower levels of communication skills compared to couples assigned to control (also not significant, $p = .12$). Thus, we again conducted controlled analyses using multilevel modeling to account for the apparent differences at pre. In the multilevel model, we found a significant main effect of intervention group, $b = 0.22$, $SE = 0.10$, $t(90) = 2.18$, $p < .05$, indicating that, controlling for pre communication skills, couples with infidelity assigned to PREP showed higher communication skills after intervention compared to couples with infidelity assigned to control. Probing this separately for post and one-year follow up, a regression with couple level baseline communication and group (PREP versus control) as predictors showed a trend

⁴Parallel ANCOVA analyses indicate the post effect size is $d = .3$ and the follow up effect size is $d = .23$.

for post couple communication in which infidelity couples assigned to PREP tended to have better skills than infidelity couples assigned to control at post ($\beta = .11$, $t(149) = 1.81$, $p = .07$) and significantly better skills at follow up ($\beta = .15$, $t(133) = 2.43$, $p < .05$).

Finally, as with satisfaction, there were declines from post to follow up (time effect $F(1,541) = 6.19$, $p < .05$), but these declines are uniform across groups.

Discussion

In this sample of couples in the US Army, we found that 15.1% of husbands and 13.3% of wives reported a history of infidelity in the current marriage. These numbers do not exceed rates of reported extramarital sex found in large representative US samples (Wiederman, 1997), but still resulted in a significant proportion (23.4%) of couples in the current sample with at least one partner reporting infidelity. These numbers should not be considered representative of rates of infidelity in the Army, as these were a select group of couples (e.g., those who were interested in participating in a study of marriage education).

Couples with a history of infidelity who were randomly assigned to a marriage education program showed the lowest levels of satisfaction and communication skills prior to the intervention. Among couples assigned to PREP, we expected a lower level of couple functioning for those with a history of infidelity compared to couples without such a history. Results confirmed that couples with a history of infidelity assigned to PREP showed significantly greater improvement in their marital satisfaction after intervention relative to couples without infidelity assigned to the intervention. When evaluating communication skills, there was a trend for overall greater gains after intervention for couples with a history of infidelity assigned to the intervention; specific probes found that this relative change was a trend when comparing PREP/infidelity couples to PREP/no infidelity couples from pre to post, but was significant comparing pre to follow up. Thus, overall, couples with infidelity assigned to the intervention showed significantly greater improvements in satisfaction after intervention compared to couples without infidelity assigned to the intervention, and tended to also show relatively greater improvements in communication skills.

When examining communication skills, couples with a history of infidelity assigned to the intervention did “catch up” to couples without infidelity assigned to intervention in terms of the lack of statistical significance between the groups at post and follow up. However, this was not found for marital satisfaction. That is, while couples with infidelity assigned to intervention showed the greatest gains in marital satisfaction, they remained significantly lower in their satisfaction after intervention relative to couples without infidelity assigned to PREP. Thus, these findings in some way mirror the Atkins et al. (2005, 2010) findings which suggest greater gains in marital satisfaction from couples therapy for infidelity couples, but do not replicate the Atkins et al. finding that infidelity couples show no significant differences in marital satisfaction from non-infidelity couples by the end of intervention or at follow up assessment. In the Atkins et al. studies, the infidelity couples were generally catching up to other distressed couples in a marital therapy sample; in contrast, the couples without infidelity in the current sample were typically quite satisfied, presenting a higher range of satisfaction for the couples with infidelity to “catch up” to. And, of course, the marriage education approach studied here was less intensive in terms of individualized attention compared to the traditional couples’ therapy evaluated in the Atkins et al. studies. The current study cannot address (a) whether infidelity couples would catch up to non-infidelity couples in satisfaction if they had a larger dose of marriage education, (b) whether such couples would require some individualized therapeutic intervention to reach

⁵Parallel ANCOVA analyses indicate the post effect size is $d = .3$ and the follow up effect size is $d = .42$.

the levels of satisfaction seen for the non-infidelity couples, or (c) whether, as a group, couples with a history of infidelity are likely to ever reach the high levels of satisfaction that, on average, characterized the non-infidelity group.

Overall, these findings are consistent with speculation made by Halford et al. (2008), that the effects of marriage education may be larger in couples that initially have higher risk. Of course, higher risk couples who start with lower levels of marital adjustment have more room to improve, while low risk couples may have ceiling effects impeding the ability of researchers to measure (or couples to attain) positive immediate change from participation in marriage education. Infidelity couples assigned to PREP started lower than other groups, and thus also had the most room for improvement.

This issue was also relevant in the analyses in which infidelity couples assigned to PREP were compared to infidelity couples assigned to the control group. Couples with infidelity assigned to PREP did start off with (non-significantly) lower levels of satisfaction and communication skills compared to couples with infidelity assigned to control. This was unexpected, and there is a concern that the significantly greater improvements seen in infidelity couples assigned to PREP compared to infidelity couples assigned to control could be due to this lower starting point which could simply allow more room for improvement or regression to the mean effects, rather than only treatment effects. Multilevel modeling controlling for pre-intervention functioning continued to show significant group effects wherein couples with infidelity assigned to PREP had higher levels of satisfaction and communication skills relative to couples with infidelity assigned to control after the intervention; however, specific probes of this showed only trends for post on communication and satisfaction, a non-significant effect for satisfaction at follow up, and a significant effect for communication at follow up. It should be noted that, in both controlled and uncontrolled probe analyses, effect sizes were small, and comparable. Effect sizes of relative change (the uncontrolled analyses) ranged from .26 to .41, where as effect sizes based on the differences between adjusted marginal means (the controlled analyses) ranged from .23 to .42. While effect sizes and patterns were similar, less power in the controlled analyses may explain why some effects are nonsignificant in these analyses; nevertheless, regression to the mean may also explain some portion of the findings.

Interesting effects were also seen in the control group. While the infidelity couples in the control group also tended to improve more than couples without infidelity in the control group from pre to post (this was a trend for satisfaction, significant for communication skills), this relative difference was not found at the one year follow up. In fact, effect sizes comparing relative magnitude of pre to follow up change were zero or close to it. Thus, while it initially appeared that some regression to the mean (or response to measurement, natural healing, or similar processes) were in place even for control couples with infidelity, these relative improvements did not seem sustained at the one year point.

Overall, being assigned to PREP did not seem contraindicated for couples with a reported history of infidelity and, in fact, appeared to be related to increases in satisfaction and communication skills after intervention, relative to pre intervention levels. The magnitude of this improvement for couples with infidelity assigned to PREP compared to other groups was generally small, but often significant. However, the percentages of couples who had filed for or obtained divorces at one year follow up suggest that, at that assessment point, there did not seem to be significant divorce prevention effects for PREP couples with a history of infidelity⁶. For some couples with a history of infidelity, PREP may strengthen the marriage and reduce chances of divorce, but for other couples, PREP's focus on

⁶Divorce prevention effects of PREP have been shown overall for Fort Campbell one year after the program (Stanley et al., 2010).

characteristics of healthy and unhealthy marriage may clarify an awareness of ongoing marital issues, resulting in the decision to end the marriage.

When considering whether this intervention was helpful, or at the least not contraindicated for couples with infidelity, we are mindful that improving marital satisfaction or communication are limited conceptualizations of a “positive” impact. To consider this to be a positive outcome, we would ideally want to know whether these couples are genuinely better off in the long run if their satisfaction or communication is given a boost. While we do not see a “crash” for infidelity couples assigned to PREP in terms of relatively greater declines in satisfaction or communication from post to one year follow up compared to other groups of couples, these couples continue to average in the maritally distressed range at one year. Longer term outcome data from the Atkins et al. (2005) study indicates that infidelity couples, who were indistinguishable from non-infidelity couples at the end of treatment, nevertheless had double the divorce rates five years after treatment (Marín, 2010). Thus, these increases in marital satisfaction found here do not necessarily indicate that these couples are no longer at risk (see Hall and Fincham (2006a) for a review of moderators of relationship dissolution after infidelity).

The current study had a number of methodological strengths, such as a large sample randomly assigned to intervention, but there were also limitations. By simply assessing whether either partner reported being “unfaithful” to their spouse, we do not have specificity on a number of issues likely to be important in conceptualizing this transgression, such as partner knowledge, the recency and intensity of the event, and the degree to which the couple is currently distressed regarding this event. It may be that couples who are in a “Stage 1” impact phase of an affair, where emotional and cognitive reactions are relatively intense (Gordon et al., 2004), may be poor candidates for marriage education and require more intensive and individualized attention, while couples who are not so negatively impacted by the event or who are in later stages of the process are better suited to the marriage education format. We also have some limits to generalizability due to our Army sample. For example, while infidelity is cited as a common concern for military couples, factors such as deployment may facilitate external, specific, and less stable attributions regarding infidelity; these types of attributions have been shown to predict greater forgiveness and lower rates of break up subsequent to infidelity (Hall & Fincham, 2006b).

Overall, the current findings are an intriguing addition to the literature on risk factors moderating marriage education outcomes and on marital interventions for couples with infidelity. Yet the results of our study also raise additional questions as to whether more specific assessments of current volatility regarding an infidelity event, different populations, other education programs, or longer time frames would yield different results. In terms of marital satisfaction and communication skills, the current results overall suggest that providing marriage education for couples with a history of infidelity may not be contraindicated and in fact may be beneficial, at least in the short run.

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Figure 1.
CONSORT 2010 Flow Diagram. Note numbers refer to couples, not individuals.

Figure 2.
Couple Marital Satisfaction by Group Assignment and Infidelity.

Figure 3.
Couple Communication Skills by Group Assignment and Infidelity.

Table 1

Summary of Multilevel Modeling Analyses for Marital Satisfaction

Fixed Effects	b	S.E.	t-ratio	df
Intercept (π_0)	5.89***	0.06	92.76	104
Group(δ_{0001})	-0.07	0.09	-0.84	104
History of Infidelity (γ_{001})	-0.46***	0.13	-3.60	553
History of Infidelity X Group (δ_{0011})	-0.05	0.18	-0.28	553
Time (π_1)	0.00	0.01	0.27	104
Time X Group (δ_{1001})	-0.01	0.01	-0.99	104
Time X History of Infidelity (γ_{101})	0.00	0.01	0.02	1662
Time X History of Infidelity X Group (δ_{1011})	0.02*	0.01	2.25	1662
Random Effects	SD	Variance Component	df	χ^2
Level 1: e	0.82	0.67		
Level 2: r_0	0.55	0.30***	606	1500.22
Level 3: u_{00}	0.82	0.67***	606	2123.99
Level 4: v_{000}	0.06	<0.01	51	43.84
Level 4: v_{100}	0.02	<0.01***	51	115.41

*Notes.****
 $p < 0.001$,*
 $p < 0.05$.

Table 2

Summary of Multilevel Modeling Analyses for Communication

Fixed Effects	b	S.E.	t-ratio	df
Intercept (π_0)	4.28***	0.06	76.64	104
Group(δ_{0001})	0.00	0.08	0.02	104
History of Infidelity (γ_{001})	-0.21 ⁺	0.11	-1.80	553
History of Infidelity X Group (δ_{0011})	-0.04	0.16	-0.27	553
Time (π_1)	0.01 ⁺	<0.01	1.75	104
Time X Group (δ_{1001})	0.00	<0.01	-0.38	104
Time X History of Infidelity (γ_{101})	0.00	0.01	-0.63	1662
Time X History of Infidelity X Group (δ_{1011})	0.02 ⁺	0.01	1.76	1662
Random Effects	SD	Variance Component	df	χ^2
Level 1: e	0.74	0.54		
Level 2: r_0	0.58	0.34***	606	1845.11
Level 3: u_{00}	0.70	0.49***	606	1728.94
Level 4: v_{000}	0.02	<0.01	51	46.74
Level 4: v_{100}	<0.01	<0.01	51	51.79

*Notes.****
 $p < 0.001$,*
 $p < 0.05$,+
< .10.