BRIEF REPORT

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Partner outcomes from an uncontrolled trial of Couple HOPES: A guided online couple intervention for posttraumatic stress disorder and relationship enhancement

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Abstract

Posttraumatic stress disorder (PTSD) is associated with significant individual and relationship impairment for people with PTSD and their romantic partners. Conjoint treatments, such as cognitive behavioral conjoint therapy for PTSD (CBCT), are designed to address individual and relationship factors, yet significant barriers impede accessing in-person therapy. Couple HOPES (i.e., Helping Overcome PTSD and Enhance Satisfaction) is a coach-guided, online couple intervention for PTSD based on CBCT that was designed to address these barriers. Previous investigations have found preliminary efficacy of Couple HOPES for improving PTSD symptoms, relationship functioning, and some individual functioning domains for the partner with probable PTSD. However, no study to date has tested individual outcomes for romantic partners, which is needed to fully evaluate the intervention's promise. The current study tested these partner outcomes in a combined, uncontrolled sample of 27 couples. Intent-to-intervene analyses found significant improvements at postintervention in four of eight tested outcomes, including ineffective arguing, $g = 0.74$; anger, $g = 0.32$; perceived health, $g = 0.67$; and quality of life, $g = 0.56$. Depressive symptoms, generalized anxiety, alcohol misuse, and work functioning did not significantly

which Couple HOPES was adapted. The parent study for Couple HOPES, with all measured outcomes and planned sample sizes for individual samples, was preregistered on the Clinical Trials Registry (www.clinicaltrials.gov identifier: NCT04231578).

change, gs = 0.17–0.42. Among participants who completed a 1-month follow-up assessment, generalized anxiety, g = 0.43, and perceived health, g = 0.73, significantly improved over follow-up, whereas anger, g = -0.48, lost gains previously made. Results were largely consistent in the completer sample. These findings show the potential of Couple HOPES to have broad benefits not only for individuals with probable PTSD but also for their romantic partners.

Posttraumatic stress disorder (PTSD) is a pervasive and debilitating condition associated with significant individual and interpersonal impairment (Taft et al., 2011). There are particularly high rates of PTSD (Thompson et al., 2016) and especially strong links between PTSD and relationship problems (Taft et al., 2011) among military members, veterans, and first responders (MMVFR). In addition, PTSD is associated with myriad negative consequences for romantic partners of individuals with PTSD, including lower levels of relationship satisfaction and higher ratings of relationship conflict (Taft et al., 2011); more psychological distress (Lambert et al., 2012); and higher levels of depressive, anxiety, and somatic symptoms (Manguno-Mire et al., 2007).

Given the negative impact of PTSD on relationships and the well-being of romantic partners, conjoint interventions that target all of these domains, such as cognitive behavioral conjoint therapy (CBCT; Monson & Fredman, 2012), may be particularly promising. Research has demonstrated that CBCT is effective in improving PTSD symptoms and relationship satisfaction in individuals with PTSD, as well as their partners' relationship satisfaction, relationship happiness, and depressive and anxiety symptoms (Liebman et al., 2020; Pukay-Martin et al., 2022). However, significant barriers impede access to face-to-face evidence-based treatments, including limited numbers of trained clinicians, geographical distance, scheduling, and perceived stigma (Kazdin & Blase, 2011), all of which have been exacerbated by the COVID-19 pandemic. Couple HOPES (i.e., Helping Overcome PTSD and Enhance Satisfaction), an online, coach-assisted, self-help dyadic intervention, was adapted from CBCT to address these barriers (Monson et al., 2021).

Evidence from a case series of 10 couples (Fitzpatrick et al., 2021) and an uncontrolled trial of 17 couples (Monson et al., 2022) supports the initial safety, acceptability, and efficacy of Couple HOPES in MMVFR samples. The case series demonstrated improvements in PTSD symptoms and perceived health for individuals with probable PTSD (PTSD+) as well as improved relationship satisfaction in romantic partners. The uncontrolled trial showed improvements in the PTSD+ partner's PTSD symptoms, depressive symptoms, and ineffective arguing, and the partners' ratings of relationship satisfaction and symptom accommodation.

However, no research has yet examined the impact of Couple HOPES on partners' mental health and well-being outcomes. Given that partners of people with PTSD experience significant distress and mental health problems (Lambert et al., 2012; Manguno-Mire et al., 2007), identifying whether these domains improve with Couple HOPES is important to fully identify the intervention's promise and help this often-overlooked group. The current study, therefore, tested the preliminary efficacy of Couple HOPES for improving the mental health and well-being of romantic partners of PTSD+ individuals. We hypothesized that partners would demonstrate improvements across all measured mental health and well-being domains and that gains would be maintained at 1-month follow-up.

METHOD

Participants

This study included two samples with identical recruitment procedures and inclusion and exclusion criteria: a case series of 10 intimate dyads (Sample 1; Fitzpatrick et al., 2021) and an uncontrolled trial of 17 intimate dyads (Sample 2; Monson et al., 2022). The trial registration planned 10 couples for Sample 1 and 20 couples for Sample 2, the latter based on an a priori power analysis for the primary outcome of PTSD symptoms. Due to the end of the funding period and project timeline, Sample 2 data collection stopped after 18 couples enrolled. One enrolled couple did not start the program and requested their data be withdrawn, resulting in 17 dyads.

Participants were recruited from social media advertisements and community outreach. Inclusion criteria were that the PTSD+ partner was a Canadian MMVFR who had experienced a PTSD Criterion A traumatic event per the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM-5*; American Psychiatric Association [APA], 2013) and met the score cutoff for probable PTSD (i.e., 33 or higher) on the Posttraumatic Stress Disorder Checklist for *DSM-5* (PCL-5; Bovin et al., 2016; Weathers et al., 2013). Exclusion criteria were elevated suicide risk, severe intimate partner violence within the past year, dual probable PTSD (i.e., both partners), an unwillingness to have coaching sessions audio-recorded, no access to high-speed internet, and an inability for partners to watch the modules together.

Of the 27 included romantic partners, most were female ($n = 19$), self-identified as White/Caucasian/European ($n = 24$), and were in mixed gender relationships ($n = 25$). The mean participant age was 48.3 years ($SD = 9.8$), and the median participant had a college diploma. All partners were married or common-law married. Full descriptions of participant characteristics are reported in Fitzpatrick et al. (2021) and Monson et al. (2022). Samples were tested for differences and did not significantly differ with regard to age, relationship length, gender, ethnicity, the presence of children, or educational attainment. On average, Sample 2 participants reported a higher household income than those in Sample 1, $OR = 6.8$, 95% confidence interval (CI) [1.06, 60.62].

Procedure

Open Research Statement

The parent study for Couple HOPES, with all measured outcomes and planned sample sizes, was preregistered on the Clinical Trials Registry (www.clinicaltrials.gov identifier: NCT04231578). This manuscript focuses on partner mental health and well-being outcomes from the first two trials: a case series and an uncontrolled trial. For transparency, we report herein how we determined the sample size and all data exclusions, manipulations, and administered measures (Simmons et al., 2012). The data analysis code can be found at https://osf.io/exfzw/.

Screening and enrollment

After signing up on the program website (www.couplehopes.com), partners were emailed individual screening surveys. Eligible couples were provided online consent forms and were invited to ask any questions via e-mail or phone. Participants completed online self-report assessment measures for all outcomes at baseline, mid-intervention, and postintervention. Sample 2 participants also completed a 1-month follow-up assessment. The program was free, and participants were compensated with gift cards for completing study assessments. All procedures were approved by Research Ethics Boards at Toronto Metropolitan University and York University, and participants provided informed consent.

Intervention

Couple HOPES is an 8-week program consisting of seven interactive modules that include web-streamed psychoeducational videos, within-module exercises, and out-of-module assignments (see Monson et al., 2021 for details on module content). Each individual in the present sample completed questionnaires on PTSD symptoms (self- and collateral-report) and relationship satisfaction prior to each module, with the results viewable on the platform. Partners had separate, linked accounts they used to enter practice assignments and view each other's responses; however, the video and module exercises had to be done conjointly.

Each couple was assigned a coach to encourage treatment engagement and adherence, facilitate the use of Couple HOPES skills, and troubleshoot barriers to progress. All coaches had at least a bachelor's degree, completed training in working with couples and crisis management, and attended biweekly consultation meetings with program creators (for more information on coaching, see Monson et al., 2021). Couples interacted with coaches through a secure messaging system on the platform and secure video coaching calls. Coaching sessions lasted 15–20 min and were scheduled after Modules 1, 3, 5, and 7, with an optional fifth call for troubleshooting. Coaching sessions

were manualized and focused on symptom review, content comprehension, practice assignment progress, and troubleshooting barriers to program engagement.

Measures

Relationship functioning

Relationship functioning was assessed using the eight-item Ineffective Arguing Inventory (IAI; Kurdek, 1994), which is used to assess one's perception of destructive conflict communication. Items are rated on a scale of 1 (*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating a more ineffective arguing style (range: 8–40). In the present sample, Cronbach's alpha was .93.

Mental health outcomes

Four mental health outcomes were assessed: depressive symptoms, anxiety symptoms, anger, and substance misuse.

Depressive symptoms. The nine-item Patient Health Questionnaire (PHQ-9; Kroenke et al., 2001) was used to assess the severity and frequency of depressive symptoms. Items are rated on a 4-point scale ranging from 0 (*not at all*) to 3 (*nearly every day*), with higher scores indicating higher levels of depressive symptoms (range: 0–27). In the present sample, Cronbach's alpha was .78.

Anxiety symptoms. The Generalized Anxiety Disorder–7 (GAD-7; Spitzer et al., 2006) was used to assess generalized anxiety symptoms. Seven items are rated on a scale of 0 (*not at all*) to 3 (*nearly every day*), with higher scores indicating more severe anxiety symptoms (range: 0–21). In the present sample, Cronbach's alpha was .90.

Anger. The Trait Anger Subscale of the State–Trait Anger Expression Inventory–2, (Spielberger, 2010) was used to assess trait anger. Total possible scores range from 10 to 40, with higher scores indicating higher levels of state anger. In the present sample, Cronbach's alpha was .79.

Substance misuse. The Addiction Severity Index (ASI; McLellan et al., 1980) was used to assess alcohol misuse using six items. Four items assess past-week drinking behavior (e.g., "How many days did you drink alcohol to intoxication?") and two assess one's perception of their drinking, with responses rated on a 5-point Likert scale. Total scores were computed from these using a weighted formula (McLellan et al., 1980) and represent a continuous range of alcohol misuse ranging from 0 to 1. In the present sample, Cronbach's alpha was .61. Drug use measured by the ASI was an additional planned outcome

but was dropped due to unacceptable internal reliability, Cronbach's α = .22, consistent with past studies from these samples (see Monson et al., 2022, for a discussion of possible causes).

Well-being outcomes

Three single-item questions were used to assess well-being indicators: perceived health, work functioning, and quality of life. Scores for each ranged from 1 to 5, with higher scores indicating perceptions of better health, work functioning, and quality of life, respectively (WHOQOL Group, 1998).

Other partner outcomes

Data regarding three additionally assessed partner outcomes (i.e., relationship satisfaction, collateral report of PTSD symptoms, and symptom accommodation) are reported elsewhere (Fitzpatrick et al., 2021; Monson et al., 2022).

Data analysis

Analyses followed intent-to-intervene principles; thus, all available data were included in the statistical models. Change was tested using multilevel growth models estimated with restricted maximum likelihood and a Kenward–Roger correction for small samples (McNeish & Stapleton, 2016) in the R (R Core Team, 2018) package *lme4* (Bates et al., 2015). Multilevel models account for dependency in repeated measures and enable the use of all available data even in the presence of missing data. To test change over the intervention phase, a two-level model was used, with assessment points nested within individuals, in which each outcome was regressed onto time (0 = preintervention, 0.5 = midintervention, 1.0 = postintervention). Random intercepts, random slopes for time, and slope–intercept correlations were included in all models where possible. Due to convergence problems, intervention models for anger and perceived health, as well as follow-up models for anger, perceived health, and work functioning, did not include slope–intercept correlations. Follow-up models for ineffective arguing did not include random slopes or slope–intercept correlations. Neither a visual inspection of plots nor the results of likelihood ratio tests assessing a quadratic model, ps = .261–.677, showed evidence of a curvilinear trajectory for any outcome; thus, only linear effects of time were included.

For testing change over the intervention phase, both samples were combined into a single analytic sample

($N = 27$) to maximize statistical power and minimize Type I error compared with analyzing samples separately. Sample was added as a main effect and interaction with time for all outcomes to test for differences in change across the samples. No outcome showed evidence of differential change across samples, ps = .207–.939. Given this finding and the minimal differences in the intervention between samples, sample was included as a covariate only in the final models. Power analyses for the intervention phase conducted via simulation of the multilevel model, given the observed sample size and missing data and assuming a pre–post correlation of $r = .5$, estimated the current study had .8 power to detect Hedges' g population effect sizes of .65.

Only Sample 2 completed a follow-up assessment, so the maintenance of gains at 1-month follow-up was tested separately. Follow-up analyses used a piecewise model in which we added a separate variable representing change from postintervention to follow-up (0 = postintervention or earlier, 1 = follow-up) to the model described previously for Sample 2 only. For all models, the standardized effect sizes presented were computed by dividing model-estimated change by the standard deviation of the baseline outcome variable (Feingold, 2009), with a Hedges' g correction for small samples (Hedges, 1981).

RESULTS

As reported, 18 of 27 couples (66.7%) completed the program, and the mean partner satisfaction with the program was 3.7 out of 4.0 ($SD = 0.4$). No adverse events occurred. Missing data analyses demonstrated significant associations between missing data and assessment wave, consistent with a missing data pattern due to program dropout; however, shown in Supplementary Table S1, neither covariate-dependent dropout analyses nor pattern-mixture models (Graham, 2009) found evidence of bias in model estimates attributable to missing data patterns, lending confidence that the presented results are not biased by missing data (see the Supplementary Material for details of these analyses).

Table 1 presents estimated marginal means, estimates of raw change and standardized effect sizes, and confidence intervals from multilevel models for all outcomes for the intent-to-intervene sample. For the relationship outcome, there was improvement in ineffective arguing, $g = 0.74$. For mental health outcomes, there was improvement in anger, $g = 0.32$, but not depressive symptoms, $g = 0.42$; generalized anxiety, $g = 0.17$; or alcohol misuse, $g = 0.27$. For well-being outcomes, there were improvements in perceived health, $g = 0.67$, and quality of life,

$g = 0.56$, but not work functioning, $g = 0.28$. As shown in Supplementary Table S2, the results for program completers were similar, with two exceptions: change in quality of life was slightly smaller for completers and no longer significant ($g = 0.50$ vs. $g = 0.56$), whereas change in depressive symptoms was larger and was significant for completers ($g = 0.61$ vs. $g = 0.42$).

Supplementary Tables S3 and S4 present follow-up results, which were consistent for the intent-to-intervene and completer samples. Over the follow-up period, one outcome, generalized anxiety, improved, $g = 0.43$, 95% CI [0.02, 0.82], after not improving during the intervention; one outcome, perceived health, showed additional improvement during follow-up, $g = 0.73$, 95% CI [0.11, 1.31], after improving during the intervention phase; and one outcome, anger, showed worsening, $g = -0.48$, 95% CI [-0.79, -0.13], that reverted gains during the intervention. Other outcomes did not significantly change at follow-up. When testing total change from baseline through follow-up in Sample 2, there was evidence of improvement for ineffective arguing and perceived health, whereas improvements in anger and quality of life from baseline to postintervention were not reflected at follow-up in this subsample.

DISCUSSION

The present study tested the preliminary efficacy of Couple HOPES in improving relationship functioning, mental health, and well-being for romantic partners of individuals with probable PTSD. The results supported our hypotheses for four of eight outcomes. Partners demonstrated improvements in ineffective arguing, anger, perceived health, and quality of life at postintervention. In contrast, we did not observe changes in generalized anxiety, alcohol, work functioning, or depressive symptoms at postintervention. From postintervention to 1-month follow-up, generalized anxiety improved, perceived health continued to improve, and anger worsened such that intervention gains were nullified by follow-up.

Reductions in ineffective arguing are consistent with the goal of Couple HOPES to improve relationship functioning through a variety of relationship-focused interventions, including "time-out" to interrupt conflict escalation, and communication skills, such as channel checking, paraphrasing, and sharing thoughts and feelings. Combined with previously reported increases in relationship satisfaction and symptom accommodation in partners (Fitzpatrick et al., 2021; Monson et al., 2022), this finding suggests that Couple HOPES results in broad improvements in relationship functioning for partners.

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TABLE 1 Intent-to-intervene sample: Estimated marginal means and model-estimated effect sizes during the intervention

Variable	Range	Estimated marginal means[a]						LRT[b] $\chi^2(4)$	Pre–post			
		Preintervention		Midintervention		Postintervention			Δ	95% CI[c]	Hedges' g[d]	95% CI
		M	95% CI	M	95% CI	M	95% CI					
Ineffective arguing	8–40	25.1	[22.6, 27.7]	22.6	[20.1, 25.1]	20.1	[16.9, 23.3]	19.5***	5.09**	[2.56, 7.64]	0.74**	[0.37, 1.12]
Depression	0–27	6.4	[4.7, 8.1]	5.4	[4.2, 6.7]	4.5	[2.8, 6.1]	18.9***	1.92	[-0.07, 3.96]	0.42	[-0.02, 0.87]
Generalized anxiety	0–21	4.9	[2.9, 6.8]	4.4	[2.9, 6.0]	4.0	[2.3, 5.7]	7.3	0.84	[-0.98, 2.55]	0.17	[-0.19, 0.51]
Anger	10–40	22.1	[20.0, 24.2]	21.1	[19.0, 23.2]	20.1	[17.9, 22.3]	19.2***,e	2.01**	[0.88, 3.18]	0.32**	[0.14, 0.50]
Alcohol	0–1	0.2	[0.1, 0.2]	0.1	[0.1, 0.2]	0.1	[0.0, 0.2]	6.6	0.06	[-0.03, 0.15]	0.27	[-0.16, 0.70]
Perceived health	1–5	2.5	[2.2, 2.9]	2.9	[2.6, 3.2]	3.2	[2.8, 3.7]	12.9**,e	0.70**	[0.24, 1.23]	0.67**	[0.23, 1.18]
Work functioning	1–5	3.7	[3.3, 4.1]	3.8	[3.4, 4.2]	4.0	[3.5, 4.4]	2.3	0.30	[-0.12, 0.69]	0.28	[-0.11, 0.64]
Quality of life	1–5	3.6	[3.2, 3.9]	3.8	[3.50, 4.1]	4.0	[3.7, 4.4]	18.2**	0.48*	[0.09, 0.88]	0.56*	[0.10, 1.02]

Note: Positive values for change and effect sizes represent improvement. CI = confidence interval; LRT = likelihood ratio test.

[a]Means are estimated marginal means from multilevel models; confidence intervals were computed from standard errors of the mean, with a Kenward–Roger correction for small samples.

[b]LRT comparing the full model with a null model that has no predictors and a random intercept only.

[c]Confidence intervals were obtained using parametric bootstrapping with 1,000 resamples.

[d]Estimated change from multilevel models divided by the standard deviation of the outcome variable at baseline, with a Hedge's g correction due to effect size inflation at small samples (Hedges, 1981).

[e]Chi-square test has 3 degrees of freedom instead of 4.

*$p < .05$; **$p < .01$; ***$p < .001$.

Results for partner mental health outcomes were less positive. Anger improved over the intervention phase but worsened over follow-up. It is possible that improvements in anger were temporary. Alternatively, partner anger may be influenced by opposing factors; for example, increased compassion and understanding for the PTSD+ partner may reduce anger, whereas a partner's increased willingness and ability to express their own, previously censored, negative feelings may increase ratings of anger (Shnaider et al., 2014). The other tested mental health outcomes (i.e., depressive symptoms, generalized anxiety, and alcohol misuse) did not significantly improve for partners by postintervention, although generalized anxiety improved over follow-up. These outcomes may be less likely or slower to change, particularly as the intervention does not target partner mental health directly. In particular, anxiety may improve after the program if couples continue to live a "lifestyle of approach" as encouraged in the intervention, in which trauma-focused approaching during the program may generalize to more approaching and less avoidance in daily life, improving generalized anxiety. It is also possible that floor effects limited the ability to observe changes in mental health outcomes. Partners started the program with average scores in the "mild" range of depressive and anxiety symptoms (Kroenke et al., 2001; Spitzer et al., 2006), which was substantially lower than their PTSD+ partners (Monson et al., 2022). However, studies of CBCT have tended to find improvements in partner depression and anxiety, particularly for those with higher initial symptoms (Shnaider et al., 2014), whereas improvement in partner anger has not been observed (see Liebman et al., 2020 for a review). Moreover, a recent open trial of CBCT in the U.S. Department of Veterans Affairs health care system found significant improvement in partner depression despite partners starting in the mild range (Pukay-Martin et al., 2022). More research is needed with larger samples to estimate the effect of Couple HOPES on partner mental health more precisely.

Finally, the results for well-being outcomes generally supported our hypotheses, with perceived health and quality of life both showing improvements by postintervention. Perceived health continued to improve over follow-up, resulting in considerably larger improvement in this outcome compared with others. Perhaps learning about, attending to, and taking steps to improve the relationship and the mental health of both partners helped individuals perceive their mental health to be improving in multiple domains, leading to large and sustained gains. However, this pattern could have simply resulted from chance, particularly given the small sample, or from crude (i.e., 1–5) scaling of the measure. In contrast to the other two well-being outcomes, work functioning did not significantly improve. This discrepancy may be due to elements of perceived health and quality of life being more integral to and targeted by the intervention relative to work functioning. Nonetheless, these results suggest that Couple HOPES may have diffuse, far-reaching effects on partners' well-being beyond just those related to PTSD and coping with a partner with PTSD.

Several limitations should be considered. First, these samples lacked a control group, so we cannot make causal conclusions at this time about the effect of the intervention. Second, as the current sample comprised mostly married, white partners in mixed-gender couples, the generalizability of these results to other populations and trauma types remains unknown. Some evidence suggests Black and Hispanic or Latino/a individuals are more likely to terminate individual PTSD treatment than White individuals, but they may not differ in symptom improvement (McClendon et al., 2020). However, studies have not tested differences in partner outcomes, necessitating more research on whether these outcomes generalize across populations. Third, partners endorsed low levels of mental health problems at baseline, limiting the ability to observe changes in these outcomes. Finally, the current sample size was modest, limiting the statistical power. Future research should test Couple HOPES in a randomized controlled trial using a more diverse and larger sample.

Overall, this study lends preliminary evidence that partners reap similar benefits from Couple HOPES as those reported for empirically supported CBCT (Liebman et al., 2020). Partners showed improvement across multiple outcomes, with improvements in two of three well-being outcomes and consistent improvements across relationship domains. As PTSD has broad negative impacts on interpersonal functioning, romantic partners of individuals with PTSD are an often-overlooked population with the potential to benefit from interventions that involve them. This preliminary evidence, combined with its flexibility and accessibility, suggests Couple HOPES has the potential to make mental health benefits more widely available than traditional psychotherapy.

OPEN PRACTICES STATEMENT

Data analysis code can be found at https://osf.io/exfzw/. Outcome measures used in this study are widely available. Data cannot be shared as consent for sharing was not obtained from participants at this phase, but requests for data can be emailed to the lead author at acrenshaw@ryerson.ca.

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REFERENCES

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Author. https://doi.org/10.1176/appi.books.9780890425596

Bates, D., Mächler, M., Bolker, B., & Walker, S. (2015). Fitting linear mixed-effects models using lme4. *Journal of Statistical Software*, *67*(1), 1–48. https://doi.org/10.18637/jss.v067.i01

Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD Checklist for *Diagnostic and Statistical Manual Of Mental Disorders*–Fifth Edition (PCL-5) in veterans. *Psychological Assessment*, *28*(11), 1379–1391. https://doi.org/10.1037/pas0000254

Feingold, A. (2009). Effect sizes for growth-modeling analysis for controlled clinical trials in the same metric as for classical analysis. *Psychological Methods*, *14*(1), 43–53. https://doi.org/10.1037/a0014699

Fitzpatrick, S., Wagner, A. C., Crenshaw, A. O., Varma, S., Whitfield, K. M., Valela, R., Di Bartolomeo, A. A., Fulham, L., Martin-Newnham, C., Mensah, D. H., Collins, A., Landy, M. S. H., Morland, L., Doss, B. D., & Monson, C. M. (2021). Initial outcomes of Couple HOPES: A guided online couple intervention for PTSD and relationship enhancement. *Internet Interventions*, *25*, 100423. https://doi.org/10.1016/j.invent.2021.100423

Graham, J. W. (2009). Missing data analysis: making it work in the real world. *Annual Review of Psychology*, *60*(1), 549–576. https://doi.org/10.1146/annurev.psych.58.110405.085530

Hedges, L. V. (1981). Distribution theory for Glass's estimator of effect size and related estimators. *Journal of Educational Statistics*, *6*(2), 107–128. https://doi.org/10.2307/1164588

Kazdin, A. E., & Blase, S. L. (2011). Rebooting psychotherapy research and practice to reduce the burden of mental illness. *Perspectives on Psychological Science*, *6*(1), 21–37. https://doi.org/10.1177/1745691610393527

Kroenke, K., Spitzer, R. L., & Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*(9), 606–613. https://doi.org/10.1046/j.1525-1497.2001.016009606.x

Kurdek, L. A. (1994). Conflict resolution styles in gay, lesbian, heterosexual nonparent, and heterosexual parent couples. *Journal of Marriage and the Family*, *56*(3), 705–722. https://doi.org/10.2307/352880

Lambert, J. E., Engh, R., Hasbun, A., & Holzer, J. (2012). Impact of posttraumatic stress disorder on the relationship quality and psychological distress of intimate partners: A meta-analytic review. *Journal of Family Psychology*, *26*(5), 729–737. https://doi.org/10.1037/a0029341

Liebman, R. E., Whitfield, K. M., Sijercic, I., Ennis, N., & Monson, C. M. (2020). Harnessing the healing power of relationships in trauma recovery: A systematic review of cognitive-behavioral conjoint therapy for PTSD. *Current Treatment Options in Psychiatry*, *7*, 203–220. https://doi.org/10.1007/s40501-020-00211-1

Manguno-Mire, G., Sautter, F., Lyons, J., Myers, L., Perry, D., Sherman, M., Glynn, S., & Sullivan, G. (2007). Psychological distress and burden among female partners of combat veterans with PTSD. *Journal of Nervous and Mental Disease*, *195*(2), 144–151. https://doi.org/10.1097/01.nmd.0000254755.53549.69

McClendon, J., Dean, K. E., & Galovski, T. (2020). Addressing diversity in PTSD treatment: Disparities in treatment engagement and outcome among patients of color. *Current Treatment Options in Psychiatry*, *7*(3), 275–290. https://doi.org/10.1007/s40501-020-00212-0

McLellan, A. T., Luborsky, L., Woody, G. E., & O'Brien, C. P. (1980). An improved diagnostic evaluation instrument for substance abuse patients. *Journal of Nervous and Mental Disease*, *168*(1), 26–33. https://doi.org/10.1097/00005053-198001000-00006

McNeish, D., & Stapleton, L. M. (2016). Modeling clustered data with very few clusters. *Multivariate Behavioral Research*, *51*(4), 495–518. https://doi.org/10.1080/00273171.2016.1167008

Monson, C. M., Fitzpatrick, S., Wagner, A. C., Valela, R., Whitfield, K. M., Varma, S., Landy, M. S. H., Di Bartolomeo, A., Crenshaw, A. O., Fulham, L., Morland, L., Knopp, K., Proctor, D. W., Toller, A., Webster, K., & Doss, B. D. (2021). The development of Couple HOPES: A guided online intervention for PTSD and relationship satisfaction enhancement. *European Journal of Psychotraumatology*, *12*(1), 1917879. https://doi.org/10.1080/20008198.2021.1917879

Monson, C. M., & Fredman, S. J. (2012). *Cognitive-behavioral conjoint therapy for PTSD: Harnessing the healing power of relationships*. Guilford Press.

Monson, C. M., Wagner, A. C., Crenshaw, A. O., Whitfield, K. M., Newnham, C. M., Valela, R., Varma, S., Di Bartolomeo, A. A., Fulham, L., Collins, A., Donkin, V., Mensah, D. H., Landy, M. S. H., Samonas, C., Morland, L., Doss, B. D., & Fitzpatrick, S. (2022). An uncontrolled trial of Couple HOPES: A guided online couple intervention for PTSD and relationship enhancement. *Journal of Family Psychology*, Advance online publication. https://doi.org/10.1037/fam0000976

Pukay-Martin, N. D., Fredman, S. J., Martin, C. E., Le, Y., Haney, A., Sullivan, C., Monson, C. M., & Chard, K. M. (2022). Effectiveness of cognitive behavioral conjoint therapy for posttraumatic stress disorder (PTSD) in a U.S. Veterans Affairs PTSD clinic. *Journal of Traumatic Stress*, *35*(2), 644–658. https://doi.org/10.1002/jts.22781

R Core Team. (2018). *R: A language and environment for statistical computing* [Computer software]. R Foundation for Statistical Computing. https://www.R-project.org/

Shnaider, P., Pukay-Martin, N. D., Fredman, S. J., Macdonald, A., & Monson, C. M. (2014). Effects of cognitive-behavioral conjoint therapy for PTSD on partners' psychological functioning. *Journal of Traumatic Stress*, *27*(2), 129–136. https://doi.org/10.1002/jts.21893

Simmons, J. P., Nelson, L. D., & Simonsohn, U. (2012). *A 21-word solution*. SSRN. http://doi.org/10.2139/ssrn.2160588

Spielberger, C. D. (2010). State–Trait Anger Expression Inventory. In I. B. Wiener & W. E. Craighead (Eds.), *The Corsini encyclopedia of psychology*. John Wiley & Sons. https://doi.org/10.1002/9780470479216.corpsy0942

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Löwe, B. (2006). A brief measure for assessing generalized anxiety disorder: The GAD-7. *Archives of Internal Medicine*, *166*(10), 1092–1097. https://doi.org/10.1001/archinte.166.10.1092

Taft, C. T., Watkins, L. E., Stafford, J., Street, A. E., & Monson, C. M. (2011). Posttraumatic stress disorder and intimate relationship problems: A meta-analysis. *Journal of Consulting and Clinical Psychology*, *79*(1), 22–23. https://doi.org/10.1037/a0022196

Thompson, J. M., VanTil, L. D., Zamorski, M. A., Garber, B., Dursun, S., Fikretoglu, D., Ross, D., Richardson, D. J., Sareen, J., Sudom, K., Courchesne, C., & Pedlar, D. J. (2016). Mental health of Canadian Armed Forces Veterans: Review of population studies. *Journal of Military, Veteran and Family Health*, *2*(1), 70–86. https://doi.org/10.3138/jmvfh.3258

Weathers, F. W., Litz, B. T., Keane, T. M., Palmier, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD checklist for DSM-5 (PCL-5)*. https://www.ptsd.va.gov/professional/assessment/adult-sr/ptsd-checklist.asp

WHOQOL Group. (1998). The World Health Organization Quality of Life assessment (WHOQOL): Development and general psychometric properties. *Social Science & Medicine*, *46*(12), 1569–1585. https://doi.org/10.1016/S0277-9536(98)00009-4

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.