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ORIGINAL ARTICLE

Brief relationship support as a selective suicide prevention intervention: Piloting the Relationship Checkup in veteran couples with relationship and mental health concerns

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Abstract

Introduction: Close relationship problems play a key role in many contemporary theories of suicide. However, the potential of relationship support in suicide prevention is understudied. This study explores the feasibility, safety, acceptability, and promise of utilizing the 3-session Relationship Checkup (RC) in veterans with mental health and romantic relationship concerns.

Methods: We conducted a single-arm pilot of telehealth RC in veterans with a positive mental health screen and their romantic partners. Couples completed baseline and post-treatment assessments of study outcomes.

Results: Feasibility analyses showed we were able to recruit an elevated-risk sample (30% history of attempts or interrupted attempts), take them through the service (90% treatment completion), and had minimal harm events (no suicidal behavior, no physical harm in arguments). Multimethod acceptability analyses suggested high satisfaction with the program, though some desired more intensive services. Couples reported improvements in relationship functioning, emotional intimacy, thwarted belongingness, depression, and posttraumatic stress. Perceived burdensomeness only improved for identified patients and drinking did not change for either partner.

Conclusion: The RC is a feasible, safe, and acceptable strategy for providing relationship support to couples at elevated risk. Although further randomized trials are needed, RC shows promise to reduce relationship-level and individual-level suicide risk factors.

KEYWORDS

couples, suicide, veteran

INTRODUCTION

Close relationships play an important role in contemporary ideation-to-action theories that account for both the development of suicidal ideation and the transition to suicidal behavior. The Integrated Motivational-Volitional Model (O'Connor & Kirtley, 2018) lists relationship problems among "motivational factors" contributing to a wish to die. Fluid Vulnerability Theory (Rudd, 2006) similarly lists arguments and loss as acute triggers of the "suicidal mode."

The Three-Step Theory (Klonsky & May, 2015) further proposes that the deterioration of social connectedness is a key "step" between passive ideation and stronger urges to act. Relationships play an even more central role in the Interpersonal Theory of Suicide (IPTS; Joiner, 2005), which asserts that the experience of thwarted belongingness—a feeling one lacks meaningful reciprocal relationships—and perceived burdensomeness—a sense that one is a burden on others—are sufficient conditions for developing suicidal desire. The developers of IPTS place a particular emphasis on romantic relationships, linking intimate partner violence (IPV), divorce, and relationship conflict to thwarted belongingness and feeling rejected by loved ones to perceived burdensomeness (Van Orden et al., 2010). Despite the importance of close relationship factors, suicide prevention interventions mainly focus on the individual, highlighting an opportunity to expand prevention efforts by addressing relationship concerns.

One reason romantic relationships may receive less clinical attention is their comorbidity with other mental health concerns that increase suicide risk. Population studies and meta-analyses consistently suggest the severity of relationship problems has bidirectional associations with symptoms of depression (Whisman & Uebelacker, 2009), posttraumatic stress disorder (PTSD; Taft et al., 2011), alcohol use disorders (Whisman et al., 2006), and suicidal ideation (Whisman et al., 2020). However, the great majority of empirically supported treatments target psychiatric diagnoses, without addressing the health of key interpersonal relationships. Nevertheless, systematic reviews consistently link romantic relationship distress, conflict, and separation/breakup to suicidal behavior (Ide et al., 2010; Kazan et al., 2016). Recent studies suggest relationship problems add risk for suicidal behavior even after controlling for the effects of the above mental health conditions in retrospective reports in psychiatrically hospitalized samples (LaCroix et al., 2018) and through prospective prediction at a population level (Nichter et al., 2021). Taken together, intimate relationship dysfunction and mental health problems are suicide risk factors that co-occur and combine to elevate the risk of suicide. The relevance of these combined risk factors may be especially important in U.S. military veterans, as a study of veterans with positive screens for depression, PTSD, and alcohol misuse found that 58% reported past-year intimate partner problems (Sayers et al., 2009). Furthermore, national psychological autopsy studies found romantic relationship problems occurred in the two weeks prior to 24% of veteran suicide deaths and were found for 50% of suicide deaths for veterans below 35 years of age (Kaplan et al., 2012).

Reviews of the literature on family-based treatments for suicide note that work has disproportionately focused on adolescents (Frey et al., 2022; Sullivan et al., 2021). Fortunately, recent years have seen growing attention to adult relationships through "indicated prevention"—treatments designed for families of individuals with recent ideation or attempts. Studies include a 6-session conjoint safety planning protocol (Goodman et al., 2022), a 10-session behavioral couple therapy program (Khalifian et al., 2022), a 15-week intensive outpatient program (Anastasia et al., 2015), and a 6-month post-discharge telephone protocol (Miller et al., 2016). However, it can be difficult to engage supportive family members in times of crisis, with the largest study of a family approach after suicide-related emergency department visits finding only 20% of patients had a family member engage in the treatment (Miller et al., 2017). A potential alternative is to address comorbid mental health and relationship concerns as "selective prevention"—treating groups at elevated risk for suicide even when the risk is not acute. To this end, disorder-specific couple therapies (Baucom et al., 2012) that bring couples together around the mental health concerns of an "identified patient" have shown efficacy for depression (Barbato & D'Avanzo, 2008), PTSD (Monson et al., 2012), and alcohol use disorders (McCrady et al., 2016). Unfortunately, the length of these intensive programs (10–24 sessions) is a barrier to utilization as a majority of patients would prefer to address relationship concerns with couple treatments that are 2–6 sessions (Crasta et al., 2022). As a result, couples allow problems to persist for several years before pursuing couple therapy (Doss et al., 2009; Gottman & Gottman, 1999; Jarnecke et al., 2020) and 19%–36% will drop out in the first 2–3 sessions (Doss et al., 2011; Fischer et al., 2018; Masi et al., 2003). This would suggest briefer treatments may better serve the selective prevention function as they offer a chance to address the dual suicide risk factors with greater rates of utilization and completion.

The Relationship Checkup

The Relationship Checkup (RC) is a brief intervention designed to promote both immediate improvements in relationship quality as well as long-term relationship maintenance behaviors (Cordova, 2014). The original Marriage Checkup (Cordova et al., 2001) consisted of two 2-h sessions offered in a couple therapy clinic but has since been adapted to fit within a variety of settings including simplifying skills for use by therapists without prior couple therapy training (Trillingsgaard et al., 2016) and shortening sessions for use in medical settings (Cigrang et al., 2016). All versions of the RC begin with an assessment where therapists use abbreviated integrative couple therapy skills (Jacobson & Christensen, 1996) to increase emotional intimacy—comfort in sharing emotions and core challenges with one another—a key

component of mutual support (Cordova, 2014). The RC follows the assessment process with a feedback session where therapists use motivational interviewing techniques (Miller & Rollnick, 2013) to help couples commit to immediate concrete steps to improve their relationship. Across two decades of trials, the RC has consistently demonstrated small to moderate benefits to emotional intimacy and relationship quality maintained up to 12 months after treatment in married couples (Cordova et al., 2001, 2005, 2014), low-income unmarried couples (Coop Gordon et al., 2019; Trillingsgaard et al., 2016), military couples (Cigrang et al., 2022; Cordova et al., 2017), expecting parents (Darling et al., 2022), and LGBTQ+ couples (Gray et al., 2022). The RC emphasis on mutual support and collaboration towards goals may also address core interpersonal needs, as individuals will feel more connected to a mutually supportive relationship (potentially increasing belongingness) and like they are contributors to their partners' goals (potentially reducing burdensomeness).

More recently, studies have suggested RC may have secondary mental health benefits such as depression reductions up to 6 months after treatment (Cigrang et al., 2022; Gray et al., 2020; Mitchell et al., 2023). This reflects the benefits of longer-form generic couple therapies seen for PTSD (Monson et al., 2012). Despite this promise, there are no published studies of the RC model in a sample explicitly recruited for mental health concerns. Feasibility cannot be assumed given depression, adjustment disorder, and substance disorders decrease family service utilization and increase already-high dropout rates (Fischer et al., 2018; McKee et al., 2022). There is also potential that the RC will be less acceptable to couples where one partner has more severe mental health symptoms than the other partner (Isakson et al., 2006) If RC can demonstrate feasibility and acceptability in couples who screen positive for mental health problems, it would highlight an opportunity to address multiple interpersonal and intrapersonal suicide risk factors at once.

The present study is a nonrandomized pilot trial of RC delivered as a selective prevention program for couples experiencing the dual suicide risk factors of relationship distress and mental health problems. For this trial, we use the brief RC version consisting of three 30-min sessions designed for use in integrated primary care settings (Cigrang et al., 2016, 2022; Cordova et al., 2017). This trial extends prior work by recruiting distressed couples where a veteran has a positive VA mental health screen. The goal of the study was to examine suitability for this elevated-risk group by (1) determining the feasibility of attracting elevated-risk couples, (2) examining the safety of the RC in this group, (3) evaluating the acceptability of the couple-based approach for couples with complex concerns, and (4) obtaining preliminary change estimates for relationship-level and individual-level suicide risk factors.

MATERIALS AND METHODS

Participants

We recruited our sample of 20 couples ($N = 40$ participants) from a VA hospital and outpatient clinic located in the Northeastern United States. Inclusion criteria included all participants being ≥18 years old, demonstrating cognitive capacity to participate, and being in a committed relationship for at least 6 months. The Identified Patient (hereafter, "Patient") needed to score in the positive range on the 2-item Patient Health Questionnaire (PHQ-2) depression screen (Kroenke & Spitzer, 2002), 5-item Primary Care PTSD Screen for DSM 5 (Prins et al., 2016), Alcohol Use Disorders Identification Test Consumption Questions for hazardous drinking (Bush et al., 1998), or the PHQ thoughts of self-harm or suicide item (Louzon et al., 2016). Finally, either the Patient or the Second Partner (hereafter, the "Partner") needed to fall below the "distressed" cut-off on the 4-item screener version of the Couples Satisfaction Index (CSI-4; Funk & Rogge, 2007), to identify those at risk for deterioration or breakup. Couples were excluded if either partner reported: participation in concurrent couple/family therapy, prior month suicidal intent on the Columbia Suicide Severity Rating Scale (C-SSRS; Posner et al., 2011), active psychosis/mania, or prior year severe IPV (i.e., sexual IPV, physical IPV with injury, behaviors with high risk of injury, or fear of one's partner).

Procedures

All procedures were approved by the Syracuse VA Medical Center Institutional Review Board (IRBNet# 1469686).

Recruitment, screening, and intake

Patients were identified from two sources. First, we conducted monthly chart reviews of the regional primary care clinics to compile a list of veterans with at least one positive mental health screen. Primary care providers reviewed lists to identify patients for further outreach via a letter and a follow-up phone call. Secondly, we accepted direct referrals from behavioral health providers. We began outreach to the Patients to begin eligibility screening by phone. If the Patient was found to be potentially eligible for the study, we conducted a second screen

with Partners. After both members completed the initial phone screen, they were invited to participate in separate baseline research assessments. During the baseline, participants completed safety interviews and self-report assessments (see "Measures" section). If both partners were confirmed as eligible, they were transitioned to the intervention phase. After they completed their last treatment session, we mailed participants a follow-up survey packet and recontacted partners 2–3 weeks after the session to complete follow-up assessments (safety interview and open-ended treatment experience interview). The baseline assessments for the first three participants were completed in person. However, due to the COVID-19 crisis, we transitioned to remote assessments with all remaining participants completing their interviews by phone and questionnaires by mail or phone depending on preference.

Intervention

The intervention protocol used in this study was identical to the brief RC process derived for the Air Force (Cigrang et al., 2016). Interventionists—a psychology postdoc (D.C.) and two masters-level psychology trainees—attended an 8-h training with the brief RC developers (J.V.C and T.G.) and completed at least one training case through partner VA clinics. This protocol consists of three 30-min joint sessions. Treatment is guided by the RC Questionnaire, a checklist of common Relationship Strengths and Concerns that have appeared over the decades of RC development (Cordova et al., 2014). The first session begins with the couple sharing the story of how they began the relationship followed by a discussion of each partner's "top strength" from the Strengths list of the RC Questionnaire. Throughout this discussion, the therapist reinforces positive affect and emphasizes the couples' efficacy to address emerging concerns. The second session is entirely devoted to exploring each partner's "top concern" and allowing couples to share their perspectives of one another's concerns. Although our recruitment criteria distinguish identified Patients and their Partners, RC treats both members equally, allotting equal time to share their perspectives.

After the second session, the therapist uses a computer program to create an automated feedback report populated based on RC Questionnaire responses. The generated responses provided couples with psychoeducation about the top strengths/concerns and gave the couple a menu of options for addressing their top concerns. Interventionists then edit the automated feedback to customize psychoeducation to the couple's needs (e.g., information about a clinical diagnosis) or add VA-specific resources to the menu of options (e.g., VA online resources, phone apps, referrals), including phone numbers for relevant clinics. The third session is structured to help partners select options for relationship improvement from the menu, generate their own ideas for change, and identify concrete first steps. At the end of the session, the couple's suggestions are added to the report and a final copy is mailed to them.

Measures

Safety interviews (aim 2)

The C-SSRS (Posner et al., 2011) is a comprehensive semi-structured interview of suicide risk and behavior that is considered the standard assessment in Food and Drug Administration (FDA) clinical trials assessing suicide risk. At baseline, we assessed both ideation and past-month and lifetime. During the follow-up assessment, we assessed ideation at "last month" and suicidal behavior "since last visit." The Extended Hurt-Insult-Threaten-Scream (Iverson et al., 2015) assesses the experience of psychological, physical, and sexual IPV. Any non-zero response on the screen was followed by a more thorough assessment via the Abuse Classification Interview (Heyman et al., 2001) that asked about specific IPV behaviors (e.g., throwing objects; attacking with a weapon) and whether incidents over the last year resulted in injury. At baseline, we assessed IPV over the last year. At follow-up, we assessed IPV over the "last month."

Intervention acceptability (aim 3)

During the post-treatment assessment, we assessed participants' attitude toward the service with the widely used Client Satisfaction Questionnaire (Larsen et al., 1979). Items are averaged to create a score ranging from 1 to 4, with scores ≥3 representing satisfaction. The Client Satisfaction Questionnaire demonstrated excellent internal consistency at baseline ($\alpha = 0.90$). Attitudes toward the therapist were assessed with the short revision of the Working Alliance Inventory (WAI-SR; Hatcher & Gillaspy, 2006). Items were averaged to create a 1–5 score representing participants' overall working relationship with the therapist and demonstrated excellent internal consistency ($\alpha = 0.93$). Participants also completed an open-ended interview that included four acceptability questions: "What did you find most beneficial about the program," "What did you find unhelpful or uncomfortable about the program" "Would you consider doing this

program again if you had future relationship concerns? Why or why not?" and "What would you say to others who were considering this program to discuss their relationship?"

Preliminary outcome measures of interpersonal factors and individual mental health functioning (aim 4)

We assessed relationship satisfaction with the full CSI (Funk & Rogge, 2007), which is routinely used in VA couple therapies. Scores ranged from 0 to 161 with scores below 104.5 serving as a cut-off for clinical distress and increases ≥17 are considered reliable improvement. The CSI demonstrated excellent internal consistency ($\alpha = 0.95$) We assessed emotional intimacy with the Perceived Responsiveness and Insensitivity scale (PRI; Crasta et al., 2021). PRI was summed for scores ranging from 0 to 80 and demonstrated excellent internal consistency ($\alpha = 0.97$). The Interpersonal Needs Questionnaire (Van Orden et al., 2012) assessed both Thwarted Belongingness and Perceived Burdensomeness. Thwarted belongingness scores range from 9 to 63 with scores ≥36 predicting suicide ideation in outpatient samples while perceived burdensomeness scores range from 6 to 42 with scores ≥12 predicting suicide ideation (Silva et al., 2023). Both scales demonstrated good internal consistency ($\alpha_{Belonging} = 0.88$; $\alpha_{Burden} = 0.86$).

We used measures routinely used in VA care for mental health functioning. Depressive symptoms were assessed with the Patient Health Questionnaire (PHQ-9; Kroenke & Spitzer, 2002). PHQ-9 scores range from 0 to 27 with 10 serving as a cut-off for moderate depression and reductions greater than five points are considered reliable improvement (McMillan et al., 2010). PHQ-9 demonstrated acceptable internal consistency ($\alpha = 0.79$). PTSD symptoms were assessed with the PTSD Checklist for the DSM-5 (PCL-5; Blevins et al., 2015). PCL-5 scores range from 0 to 80 with scores ≥31 suggested as an outpatient cut-off for probable PTSD and reductions greater than five points considered reliable change (Blevins et al., 2015). The PCL-5 demonstrated excellent internal consistency ($\alpha = 0.93$). Overall drinking levels over the previous month were assessed using the quantity and frequency items from the Alcohol Use Disorders and Associated Disabilities Interview Schedule (Grant et al., 2003). The items ask how often the respondent drank and how much they drank on a typical day in the previous 30-day period. Multiplying these items estimates "volume," which was rescaled to a 7-day period for comparison with the United States National Institute for Alcohol Abuse and Alcoholism recommended limits of 14 drinks/week (7 drinks/week for women).

Analytic strategy

Feasibility, tolerability, and acceptability were evaluated using descriptive statistics (percentages). Feasibility was defined as <18% of couples dropping out of treatment (i.e., less than the 2–3 session dropout rate in couple therapy effectiveness studies; Doss et al., 2011). Safety was defined as <10% of respondents reporting physical/sexual violence or self-harm/suicide attempts during the treatment period (i.e., less than the threshold for describing a reaction to a procedure as "commonly occurring;" FDA, 2006). Treatment acceptability was defined as average Client Satisfaction Questionnaire scores ≥3.0. Preliminary outcome analysis was conducted using multilevel-mixed linear models with participant role (Patient vs. Partner) and time (pre-test vs. post-test) as within-dyad factors. These were calculated using the MIXED command on Stata, which uses maximum likelihood estimation to use all available data even when only one member of the dyad provides follow-up. Following reporting guidelines for pilot trials (Eldridge et al., 2016; Lancaster & Thabane, 2019), we do not report hypothesis tests of changes but instead, report effect sizes and 95% confidence intervals. Specifically, we obtained the mixed model CI estimates for each role and then used the model-estimated intraclass correlations for the effect of time to convert these measures into Cohen's *d*. As Cohen's *d* values differed between partners, we also report the *Z*-test for the role-by-time interaction effect to guide interpretation. Given the range of screens used for study entry (i.e., depression, PTSD, alcohol misuse, and suicidal ideation), variation in baseline scores was expected and we did not exclude outliers for extremely high or low baseline values on any measure. However, as large reductions can be strongly influential in the small sample, we excluded post-treatment scores that represented improvements greater than 1.5 times the interquartile range from the median improvement (i.e., excluding extreme improvers) while retaining outliers that represented extreme worsening (i.e., retaining iatrogenic cases), thereby presenting a conservative estimate of effect size. To improve interpretability in our heterogenous sample, we plotted individual-level clinically significant change for the smaller subsets of individuals that were above published clinical thresholds on a given measure. For measures with reliable change indices, we classified whether individuals reliably improved, recovered (i.e., reliably improved and ended in the non-clinical range), reliably worsened, or did not change (Jacobson & Truax, 1992). For scales without published

TABLE 1 Participant demographics at the individual and couple level.

Individual demographics	Identified patient ($n=20$)		Second partner ($n=20$)	
Level	**M/n**	**(SD/%)**	**M/n**	**(SD/%)**
Gender				
Male	17	(85%)	3	(15%)
Female	3	(15%)	17	(85%)
Hispanic/Latine	4	(20%)	0	(0%)
Race				
White	14	(70%)	14	(70%)
Black	3	(15%)	5	(25%)
Other	3	(15%)	1	(5%)
Age	42.60	(13.68)	41.45	(13.95)
Years of education	14.30	(1.87)	15.25	(2.36)
Employment status				
Employed	11	(55%)	12	(60%)
Retirement/Disability	6	(30%)	3	(15%)
Unemployed	3	(15%)	5	(25%)
Veteran	20	(100%)	2	(10%)
Lifetime suicide risk history				
1+ completed suicide attempts	4	(20%)	4	(20%)
1+ interrupted attempts, none completed	4	(20%)	0	(0%)
Non-suicidal self-injury without attempts	2	(10%)	3	(15%)
Denied all suicidal/self-harm behavior	10	(50%)	13	(65%)
Positive initial screens				
Relationship distress	17	(85%)	19	(95%)
Recent depressed mood	11	(55%)	–	–
Potential PTSD	12	(60%)	–	–
Hazardous drinking	11	(55%)	–	–
Recent thoughts of suicide or self-harm	4	(20%)	–	–

Relationship characteristics	Couples ($N=20$)	
Level	***M/n***	**(SD/%)**
Years together	10.01	(10.10)
Relationship status		
Committed relationship	5	(25%)
Engaged	5	(25%)
Married	10	(50%)
Cohabiting	18	(90%)
Previously attended couple therapy	5	(25%)
Patient in concurrent individual therapy	10	(50%)
Last year physical violence		
1+ incidents of Slap/Kick/Bit/Hit	4	(20%)
Pushing/Shoving, but no striking	4	(20%)
Thrown objects, but no direct contact	2	(10%)
No physical IPV Reported	10	(50%)

Note: Screens do not add to 100% as some participants were positive on more than one mental health screen.

change thresholds, we simply classified whether individuals remained in the clinical range post-treatment.

RESULTS

Sample characteristics

Full sample demographics can be found in Table 1. All couples were heterosexual, most couples being a male Patient in a relationship with a female, non-veteran Partner. Race and ethnicity approximated veteran demographics in the recruitment region. Eight participants (20%) reported a history of suicide attempts and four (10%) reported self/other-interrupted suicide attempts. As only one pair was in the same couple, this meant 11 couples (55%) had at least one member with a history of suicidal behavior. Furthermore, 10 separate couples (50%) reported past-year minor physical IPV without injury (i.e., hitting/slapping, shoving, or throwing objects).

Feasibility (aim 1)

We recruited 20 couples from January 2020 to May 2021 (i.e., 1.18 couples/month) with 13 (65%) coming from direct provider referrals. All participants who were excluded due to patient lacking a positive MH screen received RC from one of our interventionists in the partner training clinic. Participant flow through the study is detailed in Figure 1. Of note, only two couples (10%) dropped out before treatment, with all participants who began the intervention completing the full program. The treatment length reflected a flexible scheduling approach where the first and second sessions were 7–14 days apart (M (SD) = 8.94 (2.88)) while the second and third sessions were 7–35 days apart (M (SD) = 17.44 (10.17)). Allowing extended gaps between the second and third session was responsive to life events (e.g., couple quarantining separately due to COVID) and used the feedback report to help couples refresh their memories for earlier discussions even after relatively long gaps.

Safety (aim 2)

The 33 participants completing follow-up interviews meant every couple that completed treatment had at least one partner provide safety data. No participants reported suicidal behavior or self-harm over the treatment period. Among the 18 couples represented, only one (6%) reported IPV, an incident of a plastic cup thrown during

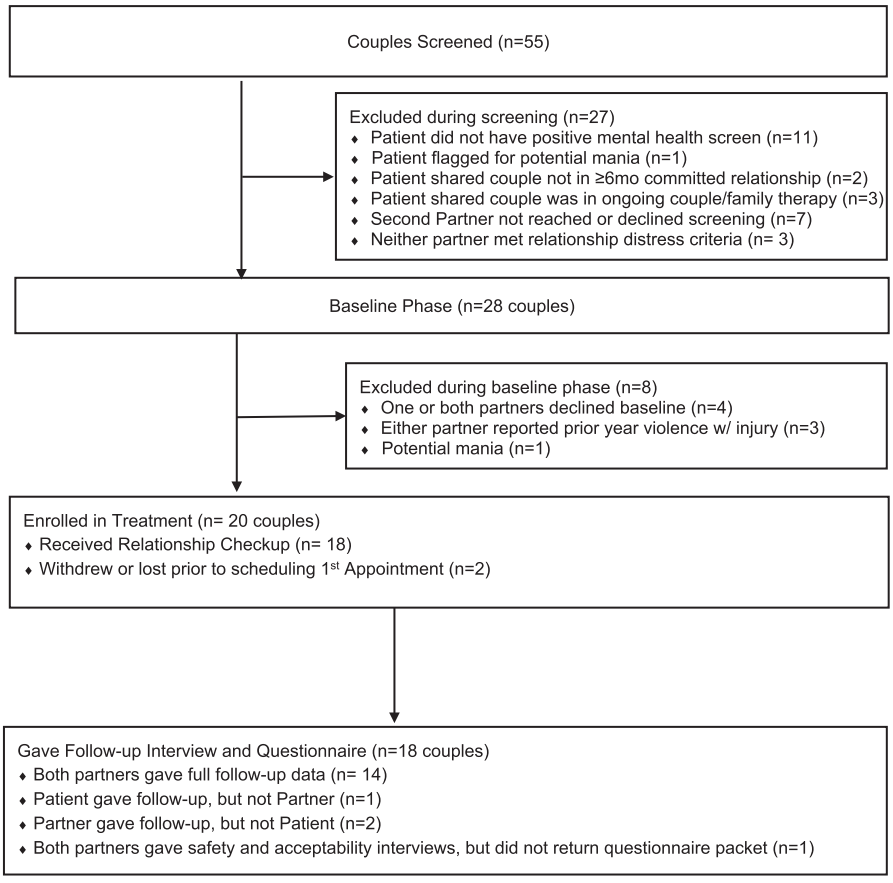

FIGURE 1 Participant flow through the study. *Note*: *Patient = Identified VA engaged veteran Patient initially contacted; Partner = second partner contacted after Patient appeared potentially eligible.*

an argument with no indication of harm. This behavior was consistent with the baseline conflict the couple hoped to address in the RC process, and both partners accepted IPV-related individual referrals during their RC feedback session. Taken together, participants did not experience physical harm over the treatment period.

Acceptability (aim 3)

Average program satisfaction was high among the 31 participants returning follow-up packets, with the overall sample average (M (SD) = 3.46 (0.50)) and 24 participants (77%) meeting the treatment acceptability threshold on the Client Satisfaction Questionnaire (Scores ≥3 on a 1–4 scale). These scores did not differ between Patients and Partners (t (29) = 0.36; p = 0.72). Participants also reported strong alliances with their therapist on the WAI-SR (M (SD) = 4.26(0.74) on a 1–5 scale), and these did not significantly differ between Patients and Partners (t (29) = −0.76; p = 0.45).

The 33 interviews yielded 28 usable transcriptions. Every participant identified at least one beneficial element of RC, with the most common themes being the opportunity to talk through their relationship in a conscientious way, the help developing mutual understanding, and the guiding role of the facilitator (Table 2). One Patient without lived experience but who supported other veterans highlighted mutual understanding as key to reducing the isolation that increases suicide risk. When asked about uncomfortable elements, 14 (50%) denied any negative experiences. Themes emerging among remaining participants were discomfort sharing emotions in session, a desire for more sessions, and dissatisfaction with telehealth (Table 2).

We also asked participants questions about their future use of the program and suggestions for other couples. Their responses were classified into one of four domains. Consistent with our Client Satisfaction Questionnaire results, 79% of participants expressed a desire to use the program again. Three participants (11%) shared whether they would seek the RC depended on the concern or whether they were still engaged in couple therapy. The final 11% shared they would prefer more intensive services in the future. When asked what they would share with others considering the program, all endorsed the program to some extent. A majority (57%) gave unqualified recommendations, with one Patient with a past aborted attempt sharing he would specifically recommend it to reduce suicide risk (Table 2). The remaining participants all saw the RC as helpful but noted that couples would need to put effort to obtain results or do additional work afterward, both of which are consistent with the RC's "checkup" framing.

Preliminary change estimates (aim 4)

Group-level improvements

Table 3 reports the linear mixed model estimates separated by partner role. There were significant role-by-time interactions for both relationship satisfaction (B = −16.75; p = 0.012), emotional intimacy (B = −11.37; p = 0.001) suggesting that Patients experienced significantly larger gains in relationship functioning ($d_{\text{Satisfaction}}$ = 0.98; 95% CI [0.69, 1.26]; d_{Intimacy} = 0.75[0.54, 0.95]) than Partners ($d_{\text{Satisfaction}}$ = 0.49[0.21, 0.47]; d_{Intimacy} = 0.26 [0.06, 0.47]). In contrast, reductions in interpersonal needs were similar across couples for thwarted belongingness (d_{Patient} = −0.60 [−0.87, −0.32]; d_{Partner} = −0.40 [−0.68, −0.12]) and perceived burdensomeness, though they were only above significance for Patients (d = −0.23 [−0.42–0.04]).

Although selection criteria meant that Patients had higher levels of individual risk than their Partners, all individual risk Role-by-Time interactions (bottom half of Table 3) were non-significant (p's > 0.05). Participants reported reductions in depression symptoms (d_{Patient} = −0.58; 95% CI [−0.98, −0.18]; d_{Partner} = −0.68 [−1.08, −0.28]) and PTSD symptoms (d_{Patient} = −0.65; [−1.02, −0.28]; d_{Partner} = −0.68 [−1.05, −0.31]), but did not report changes in drinking.

Clinically significant change

Figure 2 focuses on individual change scores for all participants falling into the clinical range at baseline regardless of their role (i.e., Patients and Partners together). Fourteen of 21 relationally distressed participants (67%) reported reliable improvements (Figure 2a). Similarly, five of nine individuals (56%) with high initial levels of thwarted belongingness and four of 7 (57%) individuals with high initial levels of perceived burdensomeness fell below the high-risk threshold at follow-up (Figure 2b,c).

Although Patients were more likely than Partners to fall into a high risk for each clinical concern, results were largely consistent with the group-level changes. Specifically, of the 13 participants (nine Patients; four Partners) who met the criteria for moderate depression, 69% experienced reliable improvements (Figure 2d). Similarly, 100% of the eight participants (five Patients; three Partners) flagged for probable PTSD at baseline experienced reliable improvements (Figure 2e). Finally,

TABLE 2 Most common themes from transcripts ($n = 28$) of open-ended acceptability questions.

Question	Theme	*N* (%)	Example quotation
What did you find most beneficial?[a]	Talking about Key Issues in Calm Reflective Environment	9 (32%)	"It just brought out things that we never talked about, except during an argument. [...] things about me that bother her, things about her that bother me, in a talking session. Not an argument."
	Increased Mutual Understanding	8 (29%)	"A lot of Vets don't know how to communicate[...] And a lot of those spouses they don't want to hear some of the stories [...] So, the service member usually starts keeping it to themselves and they clam up. And usually they start drinking or having a substance abuse problem or whatever, and it just kind of like snowballs from there. And that's usually when the military spouse leaves that person, and then in my opinion, that's why so many Vets commit suicide [...] So, this program enables both people to kind of understand each other better. It's like a bridge between two people that kind of needs to be there"
	Role of Validating Third Party	8 (29%)	"Having a third party in the room. Not necessarily an impartial party, but maybe a prodding party [...] another person in the room who A, gets it, right? And B, makes sure that we don't stay on the surface"
What did you find unhelpful or uncomfortable?[a]	Common Therapeutic Discomfort	5 (21%)	"Having to admit [issue], was hard for me to accept. But I think I was able to learn from that" "Just anticipating, talking about issues. But then when it actually came to it, it wasn't even bad"
	More Sessions/Expand focus on X	5 (14%)	"If anything, I would like it to be longer, so you know, I could break down maybe every single thing that's happened in my life, too, that built me into this person in the relationship"
	Desire for In-Person	2 (7%)	"You can't do anything about the face-to-face because of COVID, but having that physical, going and sitting with someone. That would have been nice, but you couldn't do it."
Would you consider doing this program again if you had future relationship concerns? Why or why not?[b]	YES- Without Qualifications	16 (57%)	"Yes, absolutely. [...] We have looked at different things over the years, this seems to be, like I said, the most un-invasive, but yet centered program that we've had."
	YES- For Changes/New Issues	6 (21%)	People are always changing, so sometimes you got to reassess where they're at as a person [...] I wouldn't do it every 6 months or a year. But I'd say every couple years, absolutely
	MAYBE- Depending on Situation	3 (11%)	"It would depend on the concern. Because if it's a big concern, like I don't think three sessions is gonna help [...] If we weren't in a place to feel positive [...] [therapist's] positivity wouldn't have helped us"
	NO- Would Want More Intensive in the Future	3 (11%)	"if it would be a different type of program, [...] maybe there would be more group stuff, or maybe there would be more individual therapy sessions added to it, maybe we would."
What would you share with others considering the program?[b]	RECOMMEND-Confident Others Would Benefit	9 (32%)	"To take advantage of the program. Because this type of program can also help to be able to minimize a lot of the suicide rates. Because a lot of relationships that can go bad, it affects everything. Even families, children, those same children will grow up miserable. And we don't want that. So I recommend it for anybody that's struggling like the way we were struggling"
	RECOMMEND-Might Help/ Worth a Shot	7 (25%)	"Maybe this will help. I think it's worth trying it. I think in general, there's probably not enough stuff out there. For Vets in general, but especially relationships get affected a lot by people in service".
	RECOMMEND FOR SOME- Need to Put in Effort to Benefit	6 (21%)	"It works if you allow it to work. It's just like going to the gym. [...] If you go and you listen and you apply those things to your relationship, then you'll see results"
	LIMITED RECOMMENDATION- Useful as a First Step	6 (21%)	"At the very minimum, that [the program] does open the door to starting to work through your—any problems that you might be having maritally, before it's kind of past the point of no return"

Note: Filler phrases (e.g., "You know," "I mean") removed for readability. Larger removals of content are marked by ellipses [...].

[a]Responses allowed to have multiple themes. The three most prevalent themes are shown.

[b]Responses were classified into one of four categories. All categories are shown.

TABLE 3 Estimated marginal means and group-level change in identified patients ($N = 20$) and their partners ($N = 20$).

Outcome (measure)	Estimated means (std. error)			Role*time interaction		
Role	**Pre-treatment**	**Post-treatment**	**Cohen's *d* [95% CI]**	***B***	**z-score**	***p***
Relationship satisfaction (Couples Satisfaction Index)				**-16.75**	**−2.51**	**0.012**
Patient ($N_{Post} = 15$)	84.99 (6.60)	117.66 (6.97)	**0.98 [0.69, 1.26]**			
Partner ($N_{Post} = 16$)	90.90 (6.60)	106.81 (6.88)	**0.49 [0.21, 0.77]**			
Emotional intimacy (Perceived Responsiveness & Insensitivity)				**−11.37**	**−3.37**	**0.001**
Patient ($N_{Post} = 15$)	41.64 (4.49)	58.87 (4.65)	**0.75 [0.54, 0.95]**			
Partner ($N_{Post} = 16$)	44.80 (4.49)	50.67 (4.61)	**0.26 [0.06, 0.47]**			
Thwarted belonging (Interpersonal Needs Questionnaire)				2.68	1.09	0.277
Patient ($N_{Post} = 15$)	31.26 (2.43)	23.75 (2.55)	**−0.60 [−0.87, −0.32]**			
Partner ($N_{Post} = 16$)	28.32 (2.47)	23.50 (2.55)	**−0.40 [−0.68, −0.12]**			
Perceived burden (Interpersonal Needs Questionnaire)				0.59	0.77	0.441
Patient ($N_{Post} = 13$)[a]	11.14 (1.05)	9.76 (1.09)	**−0.23 [−0.42, −0.04]**			
Partner ($N_{Post} = 16$)	7.84 (1.07)	7.06 (1.09)	−0.15 [−0.34, 0.04]			
Depressive symptoms (Patient Health Questionnaire 9)				−0.42	−0.30	0.761
Patient ($N_{Post} = 15$)	11.00 (0.98)	8.17 (1.08)	**−0.58 [−0.98, −0.18]**			
Partner ($N_{Post} = 16$)	7.50 (0.98)	4.24 (1.06)	**−0.68 [−1.08, −0.28]**			
Posttraumatic stress symptoms (PTSD Checklist for DSM 5)				0.17	0.04	0.968
Patient ($N_{Post} = 14$)[b]	32.55 (3.09)	22.07 (3.46)	**−0.65 [−1.02, −0.28]**			
Partner ($N_{Post} = 16$)	19.15 (3.09)	8.84 (3.31)	**−0.68 [−1.05, −0.31]**			
Estimated # drinks/week (quantity * frequency)				−0.09	0.08	0.936
Patient ($N_{Post} = 15$)	10.01 (3.07)	10.72 (3.09)	0.04 [−0.05, 0.14]			
Partner ($N_{Post} = 16$)	2.78 (3.07)	3.40 (3.09)	0.04 [−0.06, 0.14]			

Note: Estimated marginal means, group differences, and associated standard errors were estimated from linear mixed models. Estimates were then converted into repeated measures Cohen's *d* using intraclass correlations of different waves after accounting for partner correlations.

Role-by-time interaction compares predicted pre-post change scores between Patients and Partners. Effects significant at $p < 0.05$ bolded for ease of interpretation.

[a]Post-treatment scores of two patients reporting 10-point reductions in Burdensomeness removed from analysis to create a conservative estimate of reduction.

[b]Post-treatment score of one patient reporting a 59-point reduction in PTSD symptoms removed from analysis to create a conservative estimate of reduction.

0% of the five participants (three Patients, two Partners) above the NIAAA limits reported changing their drinking to a safe level at follow-up (Figure 2f). Of the two Patients reporting past month SI at baseline, one reduced severity from ideation with the method but no intent (3) to a wish for death (1) while the other reported a wish for death at both waves (i.e., score unchanged at 1).

DISCUSSION

Major theories of suicide devote considerable attention to the role of romantic relationship problems as a suicide risk factor but there has been limited exploration of whether directly targeting relationship concerns can play a role in suicide prevention. The current study explores the suitability of the RC for a selective prevention role by examining its feasibility, safety, acceptability, and initial promise among veterans with a combination of mental health and relationship functioning concerns, a subpopulation at elevated risk for suicide that can be easily identified in VA and other health settings. Results indicate the RC is feasible, safe, and acceptable to couples at elevated risk. Furthermore, preliminary single-group analyses detected comparable gains in relationship satisfaction, emotional intimacy, and depressive symptoms

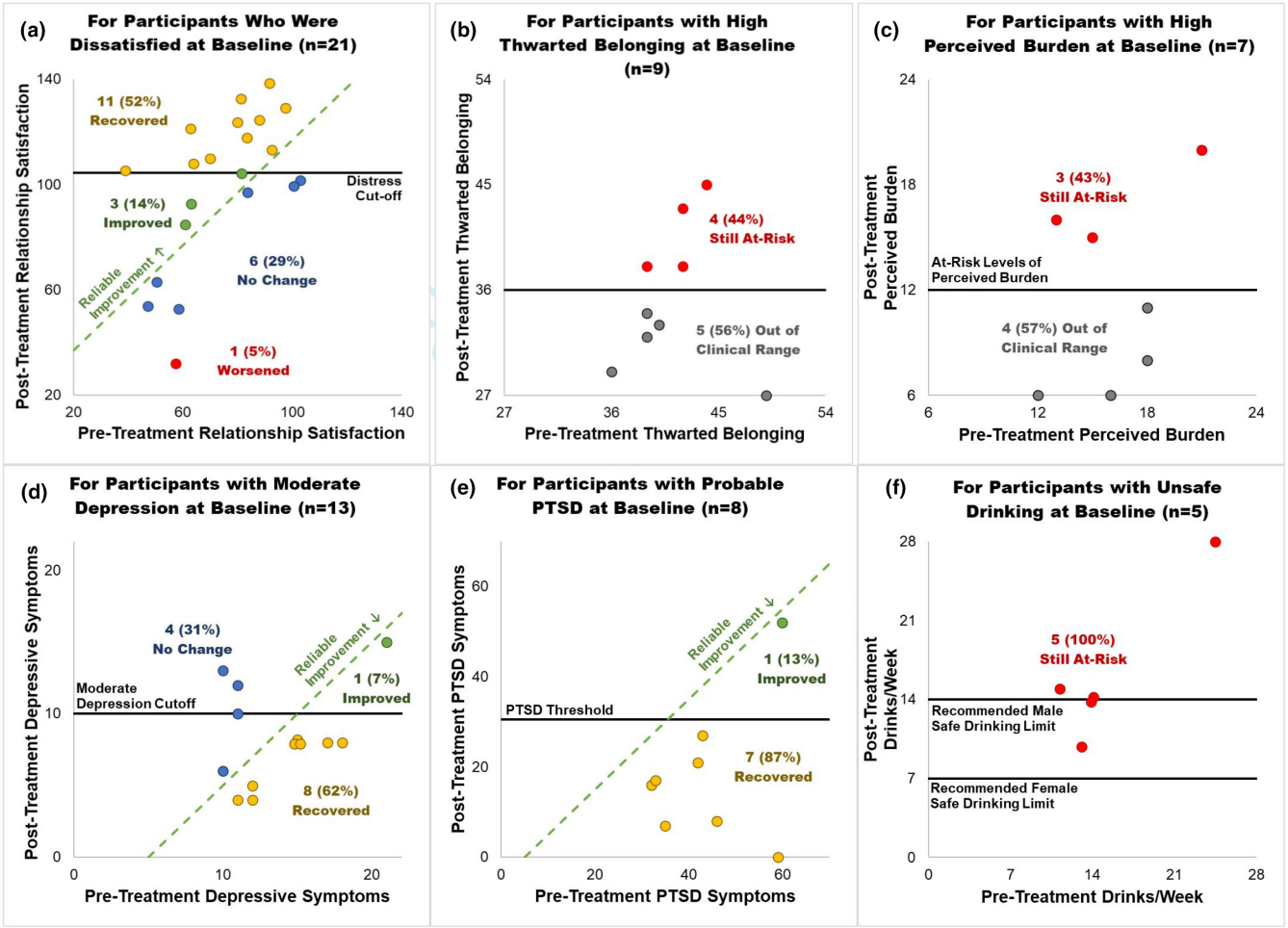

FIGURE 2 Individual improvement for participants who began the study above clinical cut-offs on a given measure. (a) Individual improvement for participants below the relationship satisfaction distress cut-off, (b) Individual improvement for participants with thwarted belonging in the "at-risk" range, (c) Individual improvement for participants with perceived burden in the "at-risk" range, (d) Individual improvement for participants above the moderate depression cutoff, (e) individual improvement for individuals above the threshold for likely PTSD, (f) individual improvement for participants with drinking above the recommended safe drinking limits. *Note*: *Participants were classified as reliably "Worsened," "Unchanged," reliably "Improved," or "Recovered" (Improved + out of clinical range) for measures with published reliable change indices and simply whether they were in clinical range post-treatment for measures without.*

seen in previous trials of the brief RC model (Cigrang et al., 2022; Cordova et al., 2017) and highlighted potential PTSD and IPTS reductions that were not assessed in previous studies.

Relationship support can feasibly serve as a selective suicide prevention

While a growing range of conjoint approaches have been developed to include family members in the treatment of mental health concerns, relationship distress may prevent partners from making a multi-session commitment. RC's short length and "checkup" framing were specifically designed to attract couples at elevated risk for divorce without explicitly targeting that risk factor, reaching the couples in a non-stigmatizing way (Cordova et al., 2001). Similarly, the present study's strategy of targeting the intersection of relationship distress and mental health resulted in a sample in which over half of couples had at least one partner with a history of suicidal behavior. Analyses suggested this service was feasible and safe, with adequate recruitment of an elevated-risk sample, high completion rates, and no physical harm. It also found similar gains in relationship satisfaction and emotional intimacy as observed in previous RC trials with non-clinical couples (Coop Gordon et al., 2019; Cordova et al., 2017). We also identified promising improvements in thwarted belongingness, consistent with the prominent role of romantic relationship factors in belongingness (Van Orden et al., 2010) and the importance of emotional intimacy to reciprocal support (Reis & Shaver, 1988). While IPTS-derived clinical guidance typically focuses on individual-level cognitions and behaviors that impede the formation

of close relationships (Stellrecht et al., 2006), the current findings suggest it is feasible to directly address couples' connectedness and reciprocal support.

The RC might serve as a "first step" for individual concerns of each partner

Identifying patients using mental health screens can create an imbalance between their treatment experience and their partners' experiences, who may feel their needs are not prioritized by the larger healthcare system. However, many partners also met clinical cutoffs for depression, PTSD, and unsafe drinking. RC flexibly addresses couples' unique combinations of individual and relationship problems by allowing each member to prioritize concerns through the RC Checklist. Using this strategy, both members reported similar levels of satisfaction with RC and experienced similar reductions in depression and PTSD symptoms. However, reductions in perceived burdensomeness were smaller than other changes, and no improvements were observed for drinking. This suggests greater attention may be needed for certain concerns, reflecting the feedback of a sizeable minority of couples desiring more treatment after the program. Future research may need to explore the RC as a "first step" in a stepped-care approach to treatment (Bower & Gilbody, 2005).

Limitations and future directions

The findings are tempered by the following limitations. First and foremost, the current study is a small pilot using a single group design and focuses on within-person change that may reflect regression to the mean. Although the within-person improvements in relationship functioning and depression replicate those observed in larger non-clinical populations (Cigrang et al., 2022; Cordova et al., 2014; Gray et al., 2020), studies using RCT designs in elevated-risk populations are needed. Secondly, the current study excluded the most acute participants and did not include extended follow-up, which may limit conclusions drawn about rare events like suicidal behavior. Further research is needed to understand whether gains in individual mental health factors and IPTS factors will persist and offer protection to acute-risk couples. Finally, half of Patients attended concurrent mental health treatment. While exploratory examination of changes suggested depression and PTSD reductions were larger for participants without concurrent treatment, further research is needed to understand the RC's role as an adjunctive treatment in integrated healthcare systems.

CONCLUSION

Notwithstanding the above limitations, the present study provides a first insight into the selective prevention potential of directly addressing romantic relationship dysfunction through a brief relationship program. The RC is feasible, safe, and acceptable in an elevated-risk group and holds promise for addressing interpersonal challenges that are seen as proximal antecedents of suicide ideation across multiple theoretical frameworks.

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CONFLICT OF INTEREST STATEMENT

James V. Cordova is the founder and co-owner of Arammu, LLC, a company whose mission is the dissemination of the RC. Dr. Gray is an equity holder in Arammu, LLC. All other authors do not have any conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the quantitative findings of this study are available from the corresponding author upon reasonable request. The data supporting qualitative findings are not publicly available due to privacy restrictions.

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