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### Examining Strength at Home Couples to Prevent Intimate Partner Violence on a Military Installation: A Randomized Controlled Trial

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Objectives: In this study, the effectiveness of a couples-based group intervention to prevent intimate partner violence (IPV), Strength at Home Couples (SAH-C), was examined on a military installation relative to a comparison intervention, Supportive Prevention (SP). It was expected that greater reductions in use of physical, psychological, and sexual IPV behaviors, as well as reduced suicidality, would be found among service members and their partners in SAH-C relative to SP. Method: Participants included 138 couples randomized to SAH-C and SP through a clinical controlled trial embedded in a hybrid effectiveness implementation study which took place on a military installation. The Revised Conflict Tactics Scales and Multidimensional Measure of Emotional Abuse were used to measure IPV, and 13 Military Suicide Research Consortium common data elements were used to assess suicidality. Results: Service members randomized to SAH-C evidenced greater reductions based on effect sizes across the assessment time points for all IPV variables, including use of overall physical IPV, severe physical IPV, sexual IPV, psychological IPV, and coercive control IPV relative to those randomized to SP. Partners of service members demonstrated a similar general pattern for reductions in use of IPV, but findings were not as robust as for service members. Both service members and partners demonstrated greater reductions in suicidality based on effect sizes when randomized to SAH-C relative to SP. Conclusions: Findings extend prior work demonstrating the promising effects of SAH-C delivered in the military context and highlight the possible benefits of SAH-C in preventing self-harm thoughts and behaviors.

What is the public health significance of this article? This study describes how the SAH-C intervention may serve to prevent aggression toward one's partner and oneself in military couples.

Keywords: intimate partner violence, military couples, sexual violence, suicide

Intimate partner violence (IPV) is prevalent among military samples. Recent meta-analyses estimate that overall rates of pastyear use of physical IPV in military populations range from 22% to 26% (Gierisch et al., 2013; Kwan et al., 2020). IPV leads to

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use, depression, and anxiety (Gierisch et al., 2013; Marshall et al., 2005; Tasso et al., 2016). Unique to the military environment,

increased health care costs, injuries, adverse pregnancy outcomes,

family dissolution, posttraumatic stress disorder (PTSD), substance

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manuscripts have resulted from the current data set.

Casey T. Taft played a lead role in conceptualization and writing-original draft. Emily F. Rothman played a supporting role in conceptualization and an equal role in writing-review and editing. Matthew W. Gallagher played a lead role in formal analysis. Evelyn G. Hamilton played an equal role in data curation and writing-original draft. Anissa Garza played a supporting role in writing-original draft and an equal role in data curation. Suzannah K. Creech played a supporting role in conceptualization and writing-original draft.

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exposure to violence may also alienate service members, cause reduced productivity, and contribute to increased military attrition because of its disruptive impact on the family and satisfaction with the military and effects on absenteeism and use of medical and psychiatric services (Dichter & True, 2015; Merrill et al., 2006). Thus, there is an urgent need to identify effective interventions that prevent IPV in military couples.

The Strength at Home Couples (SAH-C) group program was initially developed to prevent physical and psychological IPV in both service members and their partners who may be at risk for violence. Results from studies in veterans affairs (VA) medical centers and community settings attest to the efficacy of the SAH-C intervention in military veterans and service members and their partners (Hayes et al., 2015; Taft, Creech, et al., 2016; Taft et al., 2014, 2021). However, the effectiveness of SAH-C implemented for the intended participants, active duty service members and their partners, on military installations is unknown. Furthermore, there are other important violence-related outcomes that are particularly important within the military context for which SAH-C may also theoretically exert positive treatment effects, namely, sexual aggression within couples and suicidal ideation and behavior. The present study investigated the efficacy of SAH-C compared to a Supportive Prevention (SP) condition for both members of military couples through a randomized controlled trial embedded in a hybrid effectiveness implementation study which took place on a military installation, examining the outcomes of physical and psychological IPV, intimate partner sexual aggression, and suicidal ideation and behavior.

The SAH-C program and the trauma-informed social information processing model from which it derives (McFall, 1982) hold that trauma may negatively impact one's ability to interpret and respond to social situations and social cues effectively (see Taft, Murphy, & Creech, 2016). According to the model, in the first stage of social information processing, decoding, incoming information is received, perceived, and interpreted in relation to meaning structures available to the individual. In SAH-C, decoding skills are developed through increased insight into how trauma-related problems and core themes underlying negative life events (e.g., power and control, self-esteem, trust, intimacy) impact how we receive, perceive, and interpret social information from intimate partners. The second stage of social information processing, decision making, involves generating possible nonviolent responses and evaluating response options. In SAH-C, couples are taught to generate more assertive responses to deal with relationship situations and group leaders use the group process to assist in enhancing self-efficacy. The third stage of social information processing, enactment, involves carrying out the selected response and monitoring and evaluating its impact. SAH-C helps clients to more effectively manage relationship situations by providing skills in communication, stress, and anger management.

To the best of our knowledge, *SAH-C* is the only couples-based physical and psychological IPV prevention intervention shown to be effective with military/veteran couples through an RCT (Taft, Creech, et al., 2016). In a prior study of 69 service members/veterans in VA settings who had recently served in the U.S. conflicts in Iraq and Afghanistan and their partners, differences in IPV across time by intervention condition were examined. For both members of the couple, those who received *SAH-C* engaged in less physical and psychological IPV at postintervention and at 6-month and 12-month

follow-ups than did those who received *SP*, which is an intervention more commonly used for military/veteran couples that focuses on enhancing a positive group process and supportive atmosphere but not active psychoeducation or skills training by providers. *SAH-C* also evidenced relatively better outcomes than did *SP* when examining the proportion of service members and partners who were classified as physically violent or nonviolent.

Sexual aggression appears to be increasing among service members over time and is highly prioritized for intervention (Department of Defense, 2023). Five studies have measured pastyear sexual IPV use among military personnel and have yielded estimates ranging from 12.1% to 40.2% (see Kwan et al., 2020). The Department of Defense has called these numbers "tragic and extremely disappointing," stating "these events not only have an impact at an individual level, but they also degrade our readiness and ability for the department to conduct our mission." There are currently 82 recommendations that the defense secretary has approved in order to prevent sexual violence, including developing and testing new interventions (Mongilio, 2022). Biases in social information processing have not only been shown to be associated with physical and psychological IPV; research indicates that those who engage in sexual aggression also tend to exhibit such biases (Masilla & Jacquin, 2020; Ó Ciardha, 2017). Most of the research in this area has focused on the decoding stage in men who engage in sexual aggression, particularly how they tend to perceive women as more sexually and emotionally interested than they truly are (Abbey, 1982; Abbey & Harnish, 1995; Ambrose & Gross, 2016) and how they exhibit deficits and insensitivity in recognizing women's affective and sexual cues (Lipton et al., 1987; McDonel & McFall, 1991). Therefore, the focus of SAH-C on identifying and correcting social information processing biases may also be effective in preventing and ending use of intimate partner sexual aggression, and thus, a follow-up was conducted of the parent clinical trial to focus on examining sexual aggression outcomes (Taft et al., 2022). In this study, 57% of all couples endorsed the presence of some form of intimate partner sexual aggression. Consistent with findings from the parent study, overall for each member of the dyad (veterans/service members and partners), couples randomized to SAH-C evidenced greater reductions in sexual aggression behaviors than those randomized to SP, with particularly strong reductions from baseline to the postintervention assessment point.

The suicide rate among U.S. Army personnel nearly doubled between 2001 and 2010, and thus, the reduction of suicide and related outcomes, such as self-harm, is a priority for the U.S. military (Bachynski et al., 2012; Castro & Kintzle, 2014; Schoenbaum et al., 2014; White House, 2013). Intimate partner problems precipitate suicide in more than half of military suicides (Logan et al., 2016), and thus, achieving reductions in IPV is important not only because of its direct consequences but also because of its potential influence on suicide risk (Skopp et al., 2012, 2016). Sexual aggression experiences, in particular, appear to be strongly associated with increased risk for suicidal ideation, plans, and attempts during military service (Monteith et al., 2015, 2019). Although relationship problems appear to be a consistent and strong risk marker for suicide, and resolving relationship conflict appears to reduce risk of suicide (Till et al., 2016), IPV receives too little attention as a possible intervention target for suicide prevention. Strengthening intimate relationships and preventing violence that may include sexual aggression may offer an opportunity to buffer suicide risk. Further, consistent with findings of social information processing deficits with various forms of aggression, the evidence also links social information processing difficulties with heightened risk for suicidality (Beard et al., 2017; Venta et al., 2014). For example, Beard et al. (2017) found that interpretation bias, an important component of the "decoding" stage of social information processing, was associated with risk for suicide cross-sectionally and prospectively, such that fewer positive interpretations of others was associated with greater suicidal ideation. Thus, given its social information processing focus, *SAH-C* may be particularly well suited to prevent suicidality.

It is important to determine the efficacy of *SAH-C* on a military installation, and compare the program to a *SP* group that is more commonly used in this setting, because the intention of the program is to intervene as early as possible with military couples prior to escalation to abusive relationship patterns. In that regard, working with couples while still on active duty prior to them discharging from the service is more optimal than only receiving IPV prevention intervention following such service. Further, there may be different barriers and facilitators of delivery of *SAH-C* on an installation versus the VA medical center setting, such as different levels of training and experience of providers, different attitudes toward help seeking and receiving couples intervention, different stressors experienced, as well as different background factors such as age, relationship length, and availability of social support.

The overarching hypothesis of the present study was that relative to *SP*, *SAH-C* would be associated with greater decreases in violence directed towards partners and selves at postintervention and 3month follow-up. Given that *SAH-C* is designed to target social information processing deficits that are a robust and modifiable risk factor for physical/psychological IPV, sexual aggression, and suicidality, it was expected that the intervention would effectively prevent all of these forms of violence in military couples on an installation.

#### Method

#### Participants

Participants were 138 male (n = 112; 81.2%) and female (n = 22; 15.9%) service members (four participants chose not to report their gender) and their partners seen on the Garrison (prevention) side of the installation at Joint Base Lewis-McChord in Tacoma, Washington. The target sample size was based on the maximum number that was feasible to recruit at this site during the study duration. This installation is the largest Army-led joint base in the United States, home to the Army's I Corps and the Air Force's 62nd Airlift wing as well as a number of reserve components. Participants were recruited through use of paid advertising and social media, flyers posted on the installation, briefings with key stakeholders on and around the installation such as chaplains and family readiness groups, and through various other events for military families. Potential service member and partner participants were screened separately by a master's level clinician to determine eligibility and ensure confidentiality and safety. If a partner reported severe physical IPV during the screening or either partner reported significant fear of the other, the trained psychoeducational facilitator would separately

inform them that they were not eligible for the study. Written consent was obtained from both members of the couple prior to beginning study procedures. This study received institutional review board approval at VA Boston Health Care System and the Department of Defense Human Research Protection Office.

The inclusion criteria were: (a) couples were in an intimate relationship; (b) participants and their partners were over the age of 18; (c) at least one member of the couple reported at or below a score of 100 on the Dyadic Adjustment Scale (DAS; Spanier, 1976), a cutoff score used to distinguish relationship distress, or they reported the presence of psychological IPV in the past 3 months on the Revised Conflict Tactics Scales (CTS2; Straus et al., 1996) or Multidimensional Measure of Emotional Abuse (Murphy & Hoover, 1999); and (d) both members of the couple provided research consent, and there was no evidence of coercion to participate or the presence of fear.

Regarding demographics, racial background of service members were as follows: White (67.6%), African American (22.3%), Asian (3.7%), Native Hawaiian or Pacific Islander (5.8%), Hispanic or Latino (17.3%), American Indian or Alaskan Native (4.4%), and Other (12.6%). Participants were given the option to select more than one race. The average age of active duty or service member participants was 30.8 (SD = 7.15), and 80.6% identified as male. The racial background of partners was White (67.6%), African American (22.3%), Asian (3.6%), Native Hawaiian or Pacific Islander (5.8%), Hispanic or Latino (24.1%), American Indian or Alaskan Native (4.3%), and Other (12.2%). Partners were also given the opportunity to select more than one race. The average age of partners was 31.39 (SD = 7.70), and 98.6% identified as female. A majority (93.3%) of participants were married or partnered, 3% of participants were engaged, 2.2% of participants were dating, and 0.7% were married and separated. Active duty or service member personnel represented the following military branches: army (84.4%), marines (0.7%), navy (3.7%), and air force (9.6%). Couples were primarily heterosexual (95.0%). Approximately 25% (25.2%, n = 33) of couples were dual military. Dual military couples did not significantly differ from other couples on demographic factors other than race and gender such that the former group were more likely to self-report as Black or African American and female. The CONSORT diagram (Figure 1) displays detailed information about couple recruitment, enrollment, and randomization.

#### Interventions

Couples were randomized into either *SAH-C* or *SP* after completing their intake. *SAH-C* derives from a unique fusion of interventions for trauma and IPV, integrating elements of cognitive processing therapy for PTSD (Resick et al., 2017), couples therapy for PTSD (Monson et al., 2012), and a cognitive behavioral intervention for IPV (Morrel et al., 2003). *SAH-C* consists of 10 2-hr weekly sessions. This was the minimum length deemed necessary to incorporate components addressing the proposed IPV mechanisms. *SAH-C* sessions include interactive exercises to both recognize potentially problematic relationship patterns and strengthen positive relationship behaviors. During each session, didactic material is presented and couples are provided assignments to practice skills together to assist with the consolidation of material. A group couples





format is used because group cohesion among clients appears to be associated with IPV prevention (Taft et al., 2003). Session topics cover impacts of trauma on relationships, assertive anger management, time outs, active listening, giving assertive messages, expressing feelings, avoiding common communication traps, and reviewing treatment gains and planning for the future. Throughout the program, increased insight into the role of trauma and underlying core themes is developed. and group members work to replace negatively biased thoughts and increase positive, assertive relationship behaviors.

The SP intervention, used in Taft, Creech, et al. (2016), is based on the work of Jennings (1987) and on Yalom (1995) primary therapeutic factors for group intervention. The SP intervention involves minimal facilitator-directed intervention beyond encouragement of a mutually supportive environment and focus on relationship issues. In SP, the provider allows group members to set the session agenda and address themes and topics that spontaneously emerge in the group interaction. The provider emphasizes a collaborative group norm and refrains from using active skills-training interventions. The provider is instructed to address the group as a whole rather than individuals and use brief verbalizations and nonverbal gestures to stimulate vigorous and helpful group interactions. This intervention was chosen because supportive couples-based interventions are commonly used in military settings and to examine the relative benefits of the cognitive and behavioral interventions used in *SAH-C*.

All interventions were led by a masters-level provider who had no prior experience delivering therapeutic interventions but was trained in both *SAH-C* and *SP* for the purposes of this study. The provider was given a fidelity manual to ensure protocol adherence and competence. This provided a detailed description of the essential elements of each session and the required handouts to review during group. It also detailed the therapeutic behaviors to demonstrate in each session as well a description of the appropriate therapeutic atmosphere. This included, "Leaders are attuned to group members' concerns and questions, and respond flexibly and appropriately," and "Leaders convey an optimistic attitude about the possibilities for change and the benefits of change." STRENGTH AT HOME COUPLES

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Measures of physical, psychological, and sexual IPV were obtained using the Physical Assault (12 items), Sexual Coercion (seven items), and Psychological Aggression (eight items) subscales of the CTS2 (Straus et al., 1996). In addition, the Severe Physical Assault subscale was examined, which consists of seven items from the Physical Assault scale. The CTS2 is the most widely used measure of IPV, with excellent internal consistency reliability, content validity, and construct validity (Newton et al., 2001; Straus et al., 1996). Straus et al. (1996) reported internal consistency estimates ranging from .79 to .95, good evidence of discriminant validity, and strong evidence of construct validity for the measure (Vega & O'Leary, 2007). Consistent with common scoring recommendations and to guard against underreporting of IPV (Taft et al., 2010), both couple member's items were compared, and the greater of the two responses was used in the calculation of CTS2 subscale scores. At each time point, participants reported the frequency with which they and their partners had engaged in the IPV behaviors during the assessment window. From these ratings, Physical Assault, Severe Physical Assault, and Sexual Coercion subscale scores were computed by summing the number of positively endorsed items for each couple member. Scores derived from this computation method, known as "variety scores," have desirable psychometric properties (Moffitt et al., 1997). This approach reduces skewness caused by a small number of high-rate offenders, gives equal weight to each IPV behavior, and is least affected by memory bias in retrospective recall. For the Psychological Aggression scale, each item was recoded to represent the estimated frequency of the behavior, with midpoints used for responses containing a range of scores (e.g., three to five times received a score of 4). Items were then summed to represent a total frequency score. The CTS's internal consistency for this sample was .91.

#### Multidimensional Measure of Emotional Abuse (Murphy & Hoover, 1999)

The Multidimensional Measure of Emotional Abuse (MMEA) contains 28 items and coercive control was measured using a sevenitem Restrictive Engulfment scale. Respondents reported on the frequency of their and their partners' aggression on an 8-point scale ranging from 0 (*never*) to 7 (*more than 20 times*), and the combined partner scores were recoded as frequencies and scored in the same manner as CTS2 psychological IPV frequency scores. The subscales of the MMEA have demonstrated good internal reliability and validity in prior studies (Murphy & Hoover, 1999; Murphy et al., 1999). The Restrictive Engulfment scale's internal consistency for this sample was .80.

#### Suicidal Ideation and Behavior (Stanley et al., 2019)

A suicidality measure assessing 13 Military Suicide Research Consortium common data elements captured various degrees of suicidal ideation, suicidal behavior, and intent to die. Recent and current suicidal thoughts and behaviors were measured by computing a mean score for the Depressive Symptom Inventory– Suicidality Subscale (DSI-SS). The DSI-SS contains four self-report items measuring the presence and severity of suicidal thoughts, plans, and urges within the past 2 weeks. Options about recent suicidal thoughts range from (0) "I do not have thoughts of killing myself" to (3) "I always have thoughts of killing myself" and options about recent suicidal plans made range from (0) "I am not having thoughts about suicide" to (3) "I am having thoughts about suicide and have formulated a definite plan." The DSI-SS has demonstrated strong psychometric properties (Batterham et al., 2015; Joiner et al., 2002). The Military Suicide Research Consortium CDEs utilize all four DSI-SS items. Higher mean scores indicated greater suicidality. The internal consistency for the DSI-SS subscale in this sample was .90.

#### DAS (Spanier, 1976)

The 32-item DAS was used to assess relationship distress for inclusion criteria for the study. Several studies have provided evidence for this measure's strong psychometric properties (Hendrick, 1988; Heyman et al., 1994; Kurdek, 1992). Almost all items on the DAS are rated on a 6-point Likert scale with varied anchor points depending on the item. For example, items querying about dyadic agreement on finances, religious and philosophical beliefs, and making major life decisions ranged from 0 (always *disagree*) to 5 (*always agree*), whereas others querying frequency of thoughts about ending the partnership and other relationship disagreements ranged from 0 (never) to 5 (all the time). The couple was also asked to rate the degree of happiness in their relationship with response options ranging from "extremely unhappy" to "perfectly happy" as well as assessing how partners felt about the future of their relationship, with responses ranging from "I want desperately for my relationship to succeed, and would go to almost any length to see that it does" to "My relationship can never succeed, and there is no more that I can do to keep the relationship going." Items are summed, with higher scores reflecting greater satisfaction. The internal consistency for the DAS in this sample was .79.

#### **Data Analysis**

Analyses were conducted using Mplus 8.0 (Muthen & Muthen, 1998/2017). Consistent with the Taft, Creech, et al. (2016) clinical trial, analyses focused on the intent to treat sample and consisted of calculating means within each condition using multiple imputation to account for missing data (approximately 15% at Time 2 and 22% at Time 3) and so that outcomes are calculated for all randomized participants. Within- (standardized mean gain; ESsg) and betweencondition (Hedges g) effect sizes with 95% confidence intervals were then calculated to quantify the magnitude of changes within each condition from Time 1 to Time 2 and Time 1 to Time 3 and the magnitude of differences in outcomes between the two conditions at each time point. Effect size analyses were calculated for all IPV outcomes and suicidality. Consistent with past clinical trials of SAH-C (Taft, Creech, et al., 2016) and recommendations by the American Statistical Association (Wasserstein & Lazar, 2016) and others (e.g., Cumming, 2014), our a priori analytic strategy and conclusions regarding the impact of the intervention were primarily based on the effect sizes rather than focusing on p values. The width of the reported confidence intervals provides information about the precision of the estimates for each outcome and the associated 95% confidence intervals that are presented for all comparisons can be used for evaluating the statistical significance of findings. Specifically, confidence intervals that do not include 0 can be interpreted as statistically significant at p < .05. To aid in interpretation, we italicize effect sizes in tables that do not overlap with 0 and can therefore be considered statistically significant. Given the focus on IPV and suicidality as outcomes, we anticipated that some effects may be obtained that would be small to moderate in magnitude per Cohen's *d* standards but still represent clinically significant effects given the treatment focus and past work suggesting that effect sizes for IPV prevention interventions are often small (Babcock et al., 2004).

#### Results

Initial analyses compared the two conditions on session attendance, with a small effect favoring SAH-C (M = 4.17, SD = 3.49) to SP (M = 3.45, SD = 3.40), d = .21 (95% CI [-.13, .54]). We next examined differences in the outcome variables of interest for both service members and partners across time by intervention condition. Imputed means, standard deviations, and betweencondition effect sizes (with 95% CI) for the IPV outcomes for service members are presented in Table 1 and for partners are presented in Table 2. By chance, levels of IPV for both service members and partners were generally higher in the SAH-C condition at baseline than in SP. These baseline differences were generally small to moderate in effect size magnitude and were statistically significant for psychological IPV and restrictive engulfment. However, the magnitude of the between-condition effect size differences in IPV outcomes generally decreased more from Time 1 to Time 3, particularly in service members. When examining suicidality (Table 3), by chance, service member scores were lower at baseline than in *SP* and the differences between conditions increased across time. There appeared to be minimal changes in partner suicidal ideation from Time 1 to Time 3.

We next examined within-condition effect sizes (ESsg with 95% CI) to quantify treatment effects within each condition. Change scores from Time 1 to Time 2 and from Time 1 to Time 3 and ESsg effect sizes with 95% CI are presented in Tables 4 (service member) and 5 (partner) for the IPV variables and Table 6 for both partners for the suicidality outcome. These effect sizes include a correction for the correlation between assessments across time. SAH-C resulted in moderate to large decreases in service member use of psychological IPV and small effect size decreases in service member use of physical IPV, severe physical IPV, and sexual IPV. The reductions in these service member IPV outcomes were generally larger in SAH-C than the reductions in SP. SAH-C was also associated with greater reductions in suicidality from Time 1 to Time 2 and Time 1 to Time 3 for both service members and partners. The pattern of findings for partner IPV outcomes was less consistent, but SAH-C was generally associated with a greater reduction in use of IPV.

#### Discussion

Consistent with expectations and a prior randomized controlled trial with male veterans and their partners (Taft, Creech, et al., 2016), obtained effect sizes appeared to show that service members randomized to receive *SAH-C* evidenced greater reductions across the assessment time points in use of physical IPV including severe

Table 1

Service Member Means (and Standard Deviations) and Between-Conditions Effect Sizes for Use of Physical, Psychological, and Sexual Intimate Partner Violence (IPV)

	SAH-C	SP		
Outcome by time point	(n = 71)	(n = 67)	Hedges g	95% CI
CTS2 physical IPV				
T1	.59 (1.59)	.23 (.65)	.29	[04, .63]
T2	.43 (1.22)	.38 (1.59)	.03	[30, .36]
T3	.31 (1.01)	.18 (.46)	.16	[17, .49]
CTS2 severe physical IPV				
T1	.17 (.68)	.02 (.12)	.32	[02, .65]
T2	.16 (.56)	.17 (.91)	01	[34, .32]
T3	.09 (.32)	.02 (.14)	.27	[07, .60]
CTS2 sexual coercion	· · /			. / .
T1	.39 (.68)	.27 (.56)	.19	[15, .52]
T2	.33 (.59)	.37 (.91)	06	[39, .28]
T3	.31(.70)	.22 (.64)	.12	[21, .46]
CTS2 psychological IPV	· · /			. / .
T1	29.06 (30.63)	18.57 (19.54)	.40	[.07, .74]
T2	12.43 (15.07)	8.11 (10.24)	.33	[.00, .67]
T3	9.58 (16.33)	6.57 (10.03)	.22	[12, .55]
MMEA restrictive engulfment		× ,		
T1	16.51 (29.33)	8.48 (13.17)	.35	[.01 .68]
T2	6.37 (15.20)	4.28 (9.38)	.16	[17, .50]
T3	3.23 (23.38)	3.89 (7.99)	04	[37, .30]

*Note.* Mean scores for physical IPV, severe physical IPV, and sexual coercion are presented as variety scores, representing the number of types of physical IPV used during the respondent period. Mean scores for psychological IPV and the MMEA are presented as frequency scores, representing how often psychological IPV was used in the respondent period. SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; CTS2 = Revised Conflict Tactics Scales; T1–T3 = Time 1 to Time 3; MMEA = Multidimensional Measure of Emotional Abuse. Negative effect sizes indicate lower levels of IPV for individuals in the SAH-C condition. Italicized effect sizes denote effects that are statistically significant at p < .05.

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Partner Means (and Standard Deviations) and Between-Conditions Effect Sizes for Physical, Psychological, and Sexual Intimate Partner Violence (IPV)

Outcome by time point	SAH-C ( <i>n</i> = 71)	SP     (n = 67)	Hedges g	95% CI
CTS2 physical IPV				
T1	81 (1.80)	34 (93)	32	[- 01 66]
T2	46 (1.28)	34 (1.61)	.52	[-25, 42]
12 T2	20(84)	12(51)	.09	[25, .42]
CTS2 severe physical IPV	.50 (.84)	.15 (.51)	.25	[10, .57]
T1	16 ( 67)	01(12)	29	[-04, 63]
T2	14(48)	10(92)	.25	[-27, 40]
T3	07(32)	02(13)	19	[-15, 52]
CTS2 sexual coercion	.07 (.32)	.02 (.15)	.17	[ .15, .52]
T1	17 (45)	19 (43)	- 05	[_ 39 28]
T2	10(30)	19 (87)	.05 - 14	[18, .20]
T2 T3	10(.30)	11 (36)	.14	[-10, 17]
CTS2 psychological IPV	.17 (.71)	.11 (.50)	.14	[17, .47]
T1	29.31 (31.0)	20.80 (20.0)	32	[- 01 66]
T2	13 71 (19 61)	10.58(12.28)	19	[-15, 52]
T2 T3	11 30 (15 34)	6.98 (11.08)	33	[-01, 66]
MMEA restrictive engulfment	11.57 (15.54)	0.96 (11.08)	.55	[01, .00]
T1	30.61 (38.52)	18 97 (23 47)	36	[ 02 70]
T1 T2	10.07 (14.38)	8.37(23.47) 8.21(12.5)	.50	[ 14 52]
12 T2	10.97 (14.36) 10.04 (22.46)	9.21(15.5)	.20	[14, .55]
13	10.94 (23.40)	0.00 (13.7)	.10	[25, .44]

*Note.* Mean scores for physical IPV, severe physical IPV, and sexual coercion are presented as variety scores, representing the number of types of physical IPV used during the respondent period. Mean scores for psychological IPV and the MMEA are presented as frequency scores, representing how often psychological IPV was used in the respondent period. SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; CTS2 = Revised Conflict Tactics Scales; T1–T3 = Time 1 to Time 3; MMEA = Multidimensional Measure of Emotional Abuse. Negative effect sizes indicate lower levels of IPV for individuals in the SAH-C condition. Italicized effect sizes denote effects that are statistically significant at p < .05.

violence, psychological IPV including coercive control IPV, and sexual IPV relative to service members who were randomized to receive the comparison *SP* intervention. Service members randomized to *SAH-C* also appeared to evidence relatively greater reductions in suicidality, extending the literature to suggest that *SAH-C* may not only assist in preventing and reducing violence toward others but also violence toward oneself. The partners of service members assigned to *SAH-C* similarly demonstrated greater reductions in suicidality compared to partners assigned to the *SP* intervention. Differences between the conditions on the partners' use of IPV were not as robust as for service members, though the pattern of findings suggested greater reductions in IPV use for partners participating in *SAH-C*.

Present study findings suggesting that *SAH-C* prevents and reduces various forms of IPV in the context of an implementation of the intervention on a military installation are important for demonstrating that this intervention is not only effective for military veterans and their partners seen within the VA health care system under highly controlled conditions (Taft, Creech, et al., 2016) but also active duty service members on a military installation receiving care in the course of their service. The interventions were delivered in a manner more closely resembling

Table	3
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Means	(and Standard	Deviations) an	d Between-Conditions	Effect	Sizes for S	uicidality

Perpetrator and outcome by time point	SAH-C ( <i>n</i> = 71)	SP  (n = 67)	Hedges g	95% CI
Service member				
Suicidality				
T1	.23 (.83)	.43 (1.1)	20	[53, .14]
T2	.02 (.16)	.34 (.94)	48	[82,14]
T3	.00 (.05)	.34 (.94)	52	[86,18]
Partner				
Suicidality				
T1	.44 (1.36)	.35 (1.08)	.07	[26, .41]
T2	.26 (.86)	.34 (1.38)	08	[41, .26]
Т3	.46 (1.41)	.35 (1.12)	.08	[25, .42]

*Note.* Service member and partner suicidality is represented by mean scores. SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; T1–T3 = Time 1 to Time 3. Italicized effect sizes denote effects that are statistically significant at p < .05.

Table 4	1
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Service Member Within-Condition Change Scores and Effect Sizes for Physical, Psychological, and Sexual Intimate Partner Violence (IPV)

		SAH-C $(n =$	= 71)		SP $(n = 67)$			
Outcome by time point	Change scores	95% CI	Effect sizes	95% CI	Change scores	95% CI	Effect sizes	95% CI
CTS2 physical IPV								
T2-T1	22	[54, .09]	15	[37, .06]	.13	[28, .54]	.11	[23, .45]
T3-T1	36	[78, .06]	27	[59, .05]	05	[23, .12]	09	[43, .25]
CTS2 severe physical IP	v			. , ,		. / .		
T2-T1	04	[17, .09]	06	[26, .14]	.14	[08, .36]	.22	[13, .56]
T3-T1	12	[30, .05]	23	[57, .11]	.01	[04, .06]	.07	[27, .41]
CTS2 sexual coercion								
T2-T1	05	[19, .10]	07	[30, .16]	.06	[16, .27]	.07	[20, .34]
T3-T1	09	[28, .10]	13	[41, .14]	03	[21, .15]	05	[39, .28]
CTS2 psychological IPV	T							
T2-T1	-15.77	[-21.37, -10.16]	56	[79,34]	-10.20	[-14.52, -5.88]	63	[92,34]
T3-T1	-18.03	[-24.56, -11.50]	70	[98,42]	-11.93	[-15.94, -7.93]	72	[-1.08,36]
MMEA restrictive								
engulfment								
T2-T1	-10.74	[-16.82, -4.66]	43	[68,18]	-4.33	[-6.83, -1.82]	36	[58,14]
T3-T1	-13.96	[-22, -5.92]	51	[81, .20]	-4.48	[-7.27, -1.68]	39	[73,04]

*Note.* SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; CTS2 = Revised Conflict Tactics Scales; T1–T3 = Time 1 to Time 3; MMEA = multidimensional measure of emotional abuse. Negative effect sizes indicate lower levels of IPV for individuals in the SAH-C condition. Italicized effect sizes denote effects that are statistically significant at p < .05.

how the program would be implemented in this real world setting on the Garrison (prevention) side of a military installation, for example, delivered by providers without prior experience delivering manualized therapeutic interventions. Therefore, we can say with greater confidence that *SAH-C* is a program that can be implemented flexibly in a variety of contexts for service members and veterans and their partners.

It is important to note that *SAH-C* was initially developed with a focus on preventing forms of physical and psychological IPV, and this was the focus of the first controlled trial of the program for veterans and their partners (Taft, Creech, et al., 2016). Sexual IPV was examined in a follow-up study since this form of aggression

represents a significant concern in military populations, with little data on the best prevention interventions in military couples. In our prior study, it was found that 57% of couples reported the presence of sexual aggression during at least one assessment point, and this rate was 47% in the present study. Findings indicate that *SAH-C* appears to be a promising intervention for preventing this form of IPV for both members of the couple, service members and their relationship partners.

The relatively strong reductions in suicidality shown by both service members and their partners in *SAH-C* are potentially important and deserve additional study in future work. Suicide is a major concern in the military (Bachynski et al., 2012;

#### Table 5

Partner Within-Condition Change Scores and Effect Sizes for Physical, Psychological, and Sexual Intimate Partner Violence (IPV)

	SAH-C $(n = 71)$					SP $(n = 67)$		
Outcome by time point	Change scores	95% CI	Effect sizes	95% CI	Change scores	95% CI	Effect sizes	95% CI
CTS2 physical IPV								
T2-T1	29	[71, .13]	18	[45, .09]	.05	[39, .49]	.04	[30, .37]
T3-T1	46	[89,02]	32	[63,01]	25	[49,01]	33	[67, .01]
CTS2 severe physical IF	v	. , ,						
T2-T1	01	[19, .17]	02	[33, .29]	.14	[08, .36]	.21	[13, .56]
T3-T1	08	[25, .09]	15	[48, .17]	0.0	[04, .05]	.03	[31, .37]
CTS2 sexual coercion								
T2-T1	07	[19, .06]	17	[50, .16]	0.0	[18, .18]	0.0	[24, .24]
T3-T1	0.0	[20, .20]	0.0	[33, .33]	09	[20, .02]	23	[57, .11]
CTS2 psychological IPV	7							
T2-T1	-15.14	[-20.85, -9.43]	54	[77,32]	-9.52	[-13.30, -5.75]	53	[76,30]
T3-T1	-18.34	[-24.66, -12.02]	69	[95,42]	-14.03	[-17.63, -10.43]	77	[-1.13,40]
MMEA restrictive								
engulfment								
T2-T1	-19.08	[-27.49, -10.68]	61	[89,32]	-10.67	[-15.45, -5.89]	53	[78,27]
T3-T1	-19.55	[-28.72, -10.38]	60	[90,30]	-10.18	[-14.42, -5.94]	48	[83,14]

*Note.* SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; CTS2 = Revised Conflict Tactics Scales; T1–T3 = Time 1 to Time 3; MMEA = multidimensional measure of emotional abuse. Negative effect sizes indicate lower levels of IPV for individuals in the SAH-C condition. Italicized effect sizes denote effects that are statistically significant at p < .05.

Table 6								
Within-Condition	Change	Scores	and	Effect	Sizes	for	Suicidal	itv

Perpetrator and		SAH-C (r	i = 71)			SP(n =	= 67)	
outcome by time point	Change scores	95% CI	Effect sizes	95% CI	Change scores	95% CI	Effect sizes	95% CI
Suicidality								
Service member								
T2-T1	18	[39, .02]	33	[70, .04]	06	[10,01]	06	[11,01]
T3-T1	15	[30, 0.0]	33	[66, .01]	06	[01,01]	06	[40, .27]
Suicidality								
Partner								
T2-T1	21	[47, .05]	18	[39, .04]	.04	[32, .39]	.03	[26, .32]
T3-T1	03	[25, .19]	02	[18, .14]	.06	[21, .34]	.05	[28, .39]

Note. SP = supportive prevention; SAH-C = Strength at Home Couples; CI = confidence interval; T1-T3 = Time 1 to Time 3.

Castro & Kintzle, 2014; Schoenbaum et al., 2014; White House, 2013), and intimate relationship problems including the experience of IPV and sexual aggression are important risk factors (Bryan et al., 2015; Khan et al., 2020; Logan et al., 2015, 2016; Skopp et al., 2012, 2016). Efficacious couples-based military IPV prevention interventions should serve to reduce risk of suicidal thoughts and behaviors (Till et al., 2016), as was shown in the present study. Future suicide prevention work should consider incorporating couples violence prevention interventions such as *SAH-C* to address these salient risk factors.

Results suggest the potential of the social information processing model (McFall, 1982) as an integrative model that may help explain a number of problems that military couples experience, including different forms of IPV and suicidal thoughts and behaviors. Biases on how one interprets and responds to information within one's social environment, which may be heightened by experiences of trauma and life threat, may place the individual at greater risk for violence toward others (Eckhardt et al., 1998; Setchell et al., 2017; Thomas & Weston, 2020), including use of sexual violence (Masilla & Jacquin, 2020; Ó Ciardha, 2017), and toward oneself (Beard et al., 2017; Venta et al., 2014). The applicability of this potentially integrative model for other problems experienced by service members and their partners may also be a fertile avenue for future research. For example, social information processing biases have been shown to contribute to more negative consequences of alcohol use (Vik et al., 2014), and studies in both veterans and civilians show relationships between social information processing biases and symptoms of PTSD (Gilbar et al., 2021; Sippel & Marshall, 2011).

Since *SAH-C* has now shown promising effect size differences in two separate randomized controlled trials, in addition to continued effectiveness research, focus should be placed on implementation of this program in military and veteran contexts and factors that may facilitate or hinder successful implementation. Relatedly, given that this study investigated several outcomes with relatively low base rates, future larger scale implementation and program evaluation of *SAH-C* would provide greater statistical power to detect intervention effects and to examine gender differences, differences between dual military versus other couples, and other factors that may moderate intervention outcome. A larger sample may also help to prevent baseline differences across conditions in IPV that occurred in this study even with random assignment. It is important to note that effect sizes obtained in this study were larger than is typically found in IPV prevention studies (Babcock et al., 2004), and obtained effects may be clinically significant even if certain effects were not statistically significant.

Despite these challenges, it is our hope that this investigation represents a step toward greater prevention of various forms of violence and self-harm among military families. We are aware of no other couples-based IPV prevention intervention demonstrated effective for a military or veteran population in preventing different forms of violence toward others or oneself. Current findings are encouraging that *SAH-C* may simultaneously prevent multiple harmful violent behaviors and ultimately enhance military and family functioning and health.

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