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A Randomized Controlled Clinical Trial of the Strength at Home Men's Program for Partner Violence in Military Veterans

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ABSTRACT

Objective: We evaluated the efficacy of the Strength at Home Men's Program (SAH-M), a trauma-informed group intervention based on a social information processing model to end intimate partner violence (IPV) use in a sample of veterans/service members and their partners. To date, no randomized controlled trial has supported the efficacy of an IPV intervention in this population.

Method: Participants included 135 male veterans/service members and 111 female partners. Recruitment was conducted from February 2010 through August 2013, and participation occurred within 2 Department of Veterans Affairs hospitals. Male participants completed an initial assessment that included diagnostic interviews and measures of physical and psychological IPV using the Revised Conflict Tactics Scales and were randomly assigned to an enhanced treatment as usual (ETAU) condition or SAH-M. Those randomized to SAH-M were enrolled in this 12-week group immediately after baseline. Those randomized to ETAU received clinical referrals and resources for mental health treatment and IPV services. All male participants were reassessed 3 and 6 months after baseline. Female partners completed phone assessments at the same intervals that were focused both on IPV and on the provision of safety information and clinical referrals.

Results: Primary analyses using hierarchical linear modeling indicated significant time-by-condition effects such that SAH-M participants compared with ETAU participants evidenced greater reductions in physical and psychological IPV use ($\beta = -0.135$ [SE = 0.061], $P = .029$; $\beta = -0.304$ [SE = 0.135], $P = .026$; respectively). Additional analyses of a measure that disaggregated forms of psychological IPV showed that SAH-M, relative to ETAU, reduced controlling behaviors involving isolation and monitoring of the partner ($\beta = -0.072$ [SE = 0.027], $P = .010$).

Conclusions: Results provide support for the efficacy of SAH-M in reducing and ending IPV in male veterans and service members.

Trial Registration: ClinicalTrials.gov Identifier: NCT01435512

J Clin Psychiatry 2016;77(9):1168–1175
dx.doi.org/10.4088/JCP.15m10020

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Intimate partner violence (IPV) in veterans and service members is a serious public health problem, with notable elevations in IPV found among those who experience symptoms of posttraumatic stress disorder (PTSD).^{1,2} The scope of this problem is underscored by the fact that 23 million veterans reside in the United States, and the total US military force currently includes over 1.4 million active duty personnel, of which 55% are married and 86% are male.³

There is a pressing need to deliver effective IPV intervention for veterans and military families. The Strength at Home Men's Program (SAH-M) was developed with this aim in mind. SAH-M is a cognitive-behavioral, trauma-informed group therapy program that is based on social information processing models of trauma and IPV.^{4–6} Evidence from pilot studies suggests the effectiveness of SAH-M in reducing physical and psychological IPV,^{7,8} but a more rigorous randomized controlled clinical trial is needed to demonstrate program efficacy.

To date, no randomized controlled trial in a military or veteran population has demonstrated the efficacy of an IPV intervention in reducing or preventing IPV use.⁹ Although the research base is limited, negative findings mirror those from nonmilitary settings that have shown IPV intervention programs to have very modest effects, with those receiving IPV interventions averaging a reduction in recidivism of only 5% relative to untreated groups.¹⁰

We examined the efficacy of SAH-M relative to an enhanced treatment as usual (ETAU) condition in which the veteran/service member and their partner received referrals and monitoring. We hypothesized that men who were assigned to SAH-M would have greater reductions in physical and psychological IPV use than men assigned to ETAU, as assessed using reports from both the male participant and his collateral reporting female partner.

METHOD

Participants & Procedure

This randomized controlled trial was registered at ClinicalTrials.gov (NCT01435512). Participants were recruited from February 2010 to August 2013 from 2 major metropolitan areas in the Northeast by clinician-referrals, self-referrals, and court-referrals. Inclusion criteria were (1) male participant and his partner were over 18 years of age, (2) male participant was a veteran or service member; (3) male participant provided partner contact consent; and (4) a self-, collateral- or court-report of at least 1 act of male-to-female physical IPV over the previous 6 months or of severe physical

IPV over the past 12 months or an ongoing legal problem related to IPV. Exclusion criteria included current substance dependence not in remission, current uncontrolled bipolar or psychotic disorder, and severe cognitive impairment, because each of these factors can negatively impact the group and the ability to benefit from the intervention. There were 9 participants who did not self-report any physical IPV, but all were included due to court involvement or partner IPV reports. The number of participants who did not report physical IPV at baseline did not differ by condition ($\chi^2 = 1.12, P = .290$) or site ($\chi^2 = 0.01, P = .914$).

Although there was no trauma requirement for inclusion, all participants reported at least 1 trauma on the Traumatic Life Events Questionnaire.¹¹ Over 65% of male participants reported exposure to military combat, and 42.2% indicated that this was the most distressing event experienced in their lifetime. Other most-distressing events included the unexpected death of a loved one (8.9%), childhood physical abuse (6.7%), car accident (5.9%), and witnessing family violence as a child (5.9%); all other events were endorsed by fewer than 5.0%.

Figure 1 provides a description of the participant flow from recruitment to study completion. All participant data were collected at 2 Veterans Affairs (VA) hospitals in accordance with Institutional Review Board–approved procedures. Trained masters-level and doctoral-level psychology staff conducted all consent and assessment procedures. Written consent was obtained from the male veteran participants prior to beginning study procedures. After the initial assessment, groups of 4 to 5 participants were randomized by blocks using a random number generator to receive either SAH-M immediately or ETAU. Veteran data were obtained from assessments completed on-site or through an online survey method for hard-to-reach participants prior to initiating treatment, immediately following SAH-M (or 3 months after baseline in ETAU), and 3 months following SAH-M (or 6 months after baseline in ETAU). Veterans were paid \$50 for completing each assessment.

Female partners' verbal consent was obtained via telephone prior to completing assessments, and partners were assessed at time points corresponding with their male veteran partner's assessments. Assessments were completed by research assistants or by project coordinators who were not the treating clinician for each case. Prior to all assessments, partners were asked if they were in a safe and private place to answer questions. If not, a call-back time was scheduled. Additional safety procedures were in place, such as the provision of information regarding available emergency resources including crisis hotlines, emergency room/urgent care center numbers, and shelter services. Partners were asked about their safety and offered safety planning advice. Doctoral-level clinical psychologists were available for consultation. After the assessment, partners who expressed interest in clinical services were provided with referrals. Partners were paid \$50 for completing each assessment.

- There has been a lack of randomized controlled trials examining intimate partner violence prevention interventions for veterans and service members, and no prior trial has shown treatment effects within this population.
- Trauma-informed cognitive-behavioral intervention for intimate partner violence can be effective for military veterans and service members.

In total, 135 male veteran participants were enrolled and included in intent-to-treat analyses. One hundred eleven female partners (82.2%) agreed to provide collateral information; 6 female partners declined to be in the study, 18 were unable to be reached. The mean duration of intimate relationships between veterans and partners was 87.3 months ($SD = 106.14$), and 66.7% of the sample indicated they were also parents.

Table 1 contains the characteristics of the sample presented by condition at study entry. There were no statistically significant differences by condition at baseline on any demographic characteristics or IPV main outcomes. Compared with the Boston site, the Providence site enrolled more individuals who were court-involved (Boston, $n = 5, 15.6\%$; Providence, $n = 75, 72.8\%$; $\chi^2_{1,135} = 33.076, P = .000$), had relatively fewer participants from the Vietnam era (Boston, $n = 8, 26.7\%$; Providence, $n = 9, 9.7\%$; $\chi^2_{1,123} = 5.47, P = .019$), and had participants with relatively lower scores on the Hostile Withdrawal subscale of the Multidimensional Measure of Emotional Abuse (MMEA)¹² (Boston, mean = 6.41, $SD = 0.98$; Providence, mean = 5.52, $SD = 2.16$; $t_{133} = 3.22, P = .002$).

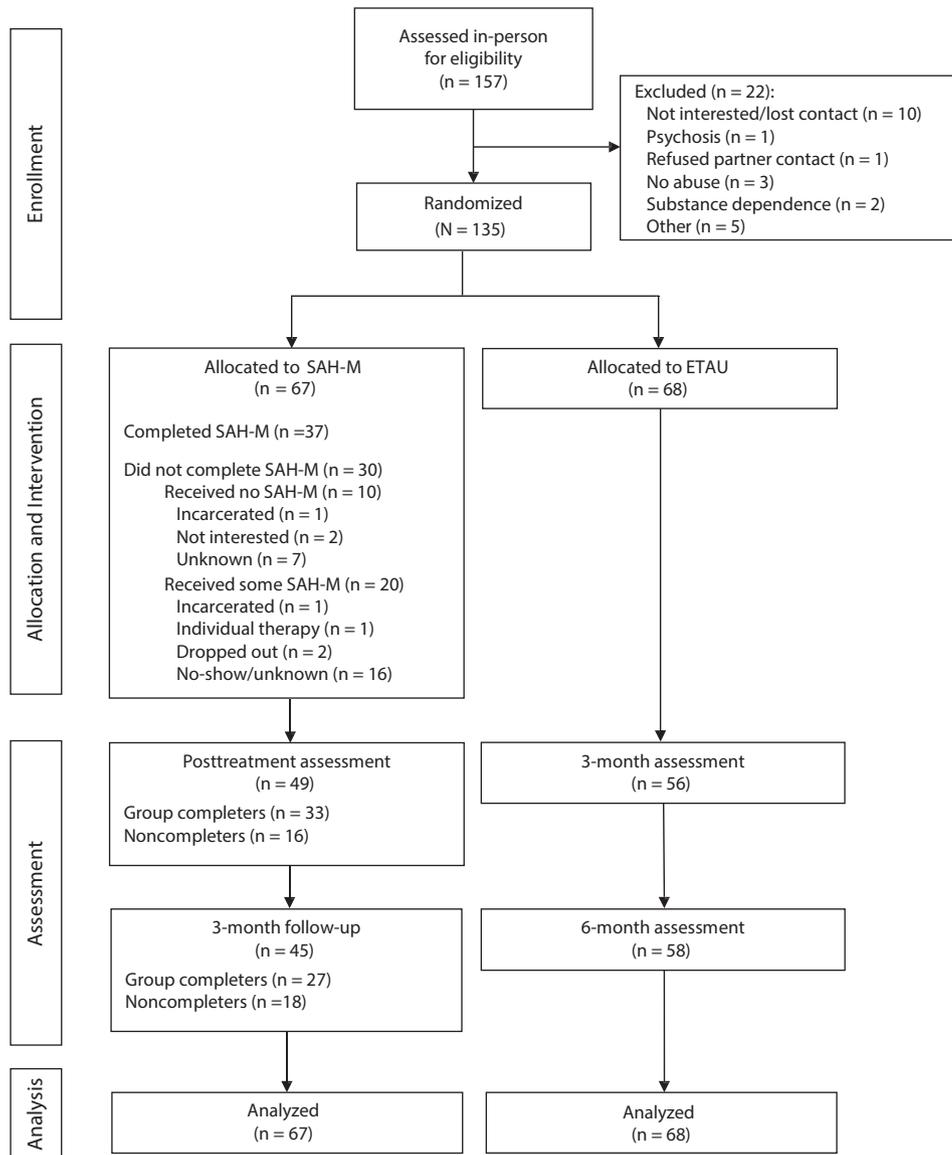
Measures

The Mini-International Neuropsychiatric Interview (MINI)¹³ was used to evaluate exclusion criteria for male participants. The clinicians assessed for organic mental disorder, the presence of a psychotic disorder, and substance dependence using the MINI, a semistructured assessment that asks about the symptoms for each disorder.

The Clinician-Administered PTSD Scale (CAPS)¹⁴ was administered to assess for PTSD to assist in characterizing the sample. The CAPS is a widely used semistructured clinician interview that assesses PTSD diagnostic status and symptom severity consistent with *DSM-IV* criteria.

Physical IPV and psychological IPV were measured using the 12-item Physical Assault subscale and the 8-item Psychological Aggression subscale of the Revised Conflict Tactics Scales (CTS2).¹⁵ Male participants and female partners reported the frequency with which the male participant had engaged in IPV behaviors in the past 3 months on a scale ranging from 0 (never) to 6 (more than 20 times). Prior research demonstrates high levels of consistency between telephone administrations of the CTS2 and in-person administrations.¹⁶ In accordance with previous literature using this measure,¹⁷ participant-reported

Figure 1. Flow Diagram of Subject Progress Through the Phases of the Randomized Trial



Abbreviations: ETAU = enhanced treatment as usual, SAH-M = Strength at Home Men’s Program.

and partner-reported items were compared, and the larger of the 2 individual item responses was used in the calculation of CTS2 scores. The CTS2 scores consisted of the sum of the highest endorsements for each item regardless of the source to mitigate underreporting.

The MMEA¹² was included as an additional measure of psychological IPV. The MMEA contains 28 items, with four 7-item subscales measuring Restrictive Engulfment (eg, tried to stop you from seeing certain friends or family members), Hostile Withdrawal (eg, refused to have any discussion of a problem), Denigration (eg, called you a loser, failure, or similar term), and Dominance/Intimidation (eg, threw, smashed, hit, or kicked something in front of you). The MMEA was calculated in the same manner as CTS2 scores.

All IPV subscale scores were computed by summing the number of positively endorsed items, known as “variety scores.” Variety scores reduce skewness caused by a small number of high-rate offenders, gives equal weight to each abusive behavior, and is most defensible with respect to memory limitations regarding behavior frequencies.¹⁸

Intervention: Strength at Home Men’s Program

The SAH-M is a 12-week group therapy that targets social information processing deficits presumed to increase IPV risk. The intervention was delivered by 2 coleaders, 1 doctoral-level male therapist and 1 doctoral-level or pre-doctoral-level female therapist. The therapy followed a closed-group format and met for weekly 2-hour sessions. The intervention included psychoeducational material; group

Table 1. Descriptives for Randomized Male Participants

Characteristic ^a	SAH-M (n=67)	ETAU (n=68)	Difference (95% CI)	Statistic	P Value
Age, mean (SD), y	37.5 (12.9)	38.2 (12.7)	-0.7 (-4.1 to 5.5)	<i>t</i> = 0.29	.78
Nonwhite	10 (15.4)	15 (22.7)		$\chi^2 = 1.14$.29
Relationship Status				$\chi^2 = 10.15$.07
Married	19 (29.2)	26 (41.3)	-7.0		
Dating	16 (24.6)	7 (11.1)	13.5		
Separated	10 (15.4)	5 (7.9)	7.5		
Divorced	9 (13.8)	7 (11.1)	2.7		
Military veteran era					
OEF/OIF/OND	41 (69.5)	36 (56.3)	13.2	$\chi^2 = 2.3$.13
Vietnam	7 (11.9)	10 (15.6)	-3.7	$\chi^2 = 0.36$.55
Employment (at least part time)	27 (41.5)	26 (38.8)	2.7	$\chi^2 = 0.10$.75
PTSD diagnosis	32 (47.8)	40 (61.5)	-13.7	$\chi^2 = 2.53$.11
CAPS-total, mean (SD)	47.0 (31.7)	57.0 (27.3)	-10.0 (-0.3 to 20.2)	<i>t</i> = -1.93	.06
Stable psychotropic medications	31 (47.0)	35 (52.2)	-5.2	$\chi^2 = 0.37$.54
Concurrent psychotherapy	21 (80.8)	27 (75.0)	5.8	$\chi^2 = 0.29$.59

^aAll values are n (%) unless otherwise stated.

Abbreviations: CAPS = Clinician-Administered PTSD Scale, ETAU = enhanced treatment as usual, OEF/OIF/OND = Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn, PTSD = posttraumatic stress disorder, SAH-M = Strength at Home Men's Program.

exercises; and practice assignments focused on recognizing core issues (trust, self-esteem, power/control) contributing to IPV, understanding anger and managing responses to potentially difficult situations, cognitive strategies to recognize and correct misinterpretations of others, and communication skills training. The role of trauma is discussed throughout the group while also emphasizing that all group members are ultimately accountable and responsible for their own behavior. A more detailed discussion of the conceptual rationale for the intervention and session content is provided elsewhere.¹⁹ Participants received a telephone call and a handwritten letter from 1 of the study therapists after any missed session to reduce attrition, and treatment sessions were scheduled in the evenings to avoid work schedule conflicts.

The treating clinicians attended weekly supervision with the clinical team. All treatment sessions were videotaped, and an expert clinician in SAH-M rated 10% of the possible treatment sessions for (1) protocol adherence (0 = did not complete, 1 = partially completed, and 2 = completed) and (2) therapist competence (scored on a 7-point Likert scale: 1 = poor; 7 = excellent). Seventy-seven percent of sessions were rated as completed, and 23% were rated as partially completed. The therapist competence mean score was 5.73 (SD = 0.39), and 94.6% of sessions were rated "good," "very good," or "excellent."

There were 14 groups conducted in the SAH-M condition, with a mean of 4.79 participants assigned to each. The mean number of sessions attended was 7.30 (SD = 4.18), with 71.6% of the sample attending 6 or more sessions and 55.2% attending 9 or more sessions.

Enhanced Treatment as Usual

In ETAU, participants received referrals to other mental health treatment resources within and outside of the VA Healthcare System, referrals and resources for additional IPV services, continued assessment of IPV, and a check-in call between assessments. For court-involved participants,

staff members provided documentation of assessment, enrollment, and monitoring as requested. At 3-month follow-up, ETAU participants reported involvement in individual therapy (39.7%), narcotics anonymous/alcoholics anonymous (10.3%), other drug or alcohol treatment (8.8%), anger management counseling (7.4%), other types of counseling or therapy (7.4%), inpatient treatment (4.4%), marriage/couples counseling (2.9%), and domestic violence counseling (1.5%). At 6-month follow-up, ETAU participants reported involvement in individual therapy (30.4%), narcotics anonymous/alcoholics anonymous (8.1%), other drug or alcohol treatment (6.7%), anger management counseling (1.5%), other types of counseling or therapy (5.9%), inpatient treatment (1.5%), marriage/couples counseling (2.2%), and domestic violence counseling (3.7%).

Statistical Analyses

Participants who dropped out of the treatment phase were invited to participate in all assessments, and all analyses were conducted on the intent-to-treat sample. Forty-three participants who dropped out of treatment completed all assessments. Hierarchical linear modeling (HLM)^{20,21} was used to investigate the effect of treatment on changes in IPV over time. It estimates change within individuals by estimating a trajectory for each participant including coefficients for an intercept (eg, baseline use of IPV) and a slope (ie, IPV/time relationship). Using HLM, differences between individuals in the overall within-person trajectory of change can be estimated while taking into account the dependence of repeated measures within participants. In HLM, analyses examine the extent to which there are patterns of within-person (Level 1) change (ie, changes in a participant's scores over time) that correspond with between-person (Level 2) change (ie, treatment). This method is particularly well-suited to the analysis of longitudinal data because it accounts for the intercorrelations between a participant's scores at different time points,²¹ thereby increasing statistical power.

Table 2. Outcome Measures^a

Scale	Score, Mean (95% CI)			Within-Condition Effect Size, Hedges <i>g</i> (95% CI)		Between-Condition Effect Size, Hedges <i>g</i> (95% CI)	
	Pretreatment	Posttreatment	3-Month Follow-Up	Posttreatment	3-Month Follow-Up	Posttreatment	3-Month Follow-Up
Revised Conflict Tactics Scales							
Physical IPV							
						0.44 (0.08 to 0.81)	0.002 (-0.36 to 0.37)
SAH-M	2.82 (2.19 to 3.45)	0.71 (0.33 to 1.10)	0.80 (0.18 to 1.41)	1.02 (0.66 to 1.38)	0.89 (0.53 to 1.24)		
ETAU	2.51 (1.90 to 3.13)	1.69 (1.01 to 2.38)	0.80 (0.37 to 1.23)	0.36 (0.01 to 0.70)	0.73 (0.41 to 1.04)		
Psychological IPV							
						0.43 (0.06 to 0.80)	0.27 (-0.10 to 0.64)
SAH-M	4.43 (3.87 to 5.00)	2.81 (2.21 to 3.41)	3.04 (2.35 to 3.73)	0.84 (0.55 to 1.14)	0.68 (0.36 to 1.01)		
ETAU	4.46 (3.94 to 4.99)	3.87 (3.20 to 4.54)	3.69 (3.11 to 4.26)	0.26 (-0.05 to 0.57)	0.37 (0.08 to 0.66)		
Multidimensional Measure of Emotional Abuse							
Restrictive engulfment							
						0.52 (0.16 to 0.88)	0.61 (0.24 to 0.98)
SAH-M	3.47 (2.89 to 4.05)	2.11 (1.54 to 2.68)	1.80 (1.21 to 2.38)	0.54 (0.29 to 0.78)	0.67 (0.39 to 0.95)		
ETAU	3.93 (3.40 to 4.45)	3.35 (2.73 to 3.97)	3.24 (2.61 to 3.86)	0.21 (-0.07 to 0.49)	0.37 (0.05 to 0.69)		
Denigration							
						0.43 (0.07 to 0.79)	0.06 (-0.30 to 0.43)
SAH-M	3.21 (2.66 to 3.76)	1.80 (1.23 to 2.36)	2.35 (1.68 to 3.02)	0.65 (0.40 to 0.90)	0.35 (0.08 to 0.62)		
ETAU	3.49 (2.90 to 4.07)	2.82 (2.19 to 3.45)	2.51 (1.89 to 3.13)	0.23 (-0.05 to 0.51)	0.43 (0.16 to 0.71)		
Hostile withdrawal							
						0.30 (-0.06 to 0.66)	0.42 (0.05 to 0.78)
SAH-M	5.63 (5.14 to 6.12)	4.10 (3.39 to 4.82)	3.94 (3.22 to 4.67)	0.57 (0.26 to 0.89)	0.63 (0.35 to 0.92)		
ETAU	5.84 (5.38 to 6.29)	4.95 (4.24 to 5.65)	5.03 (4.41 to 5.66)	0.33 (0.01 to 0.64)	0.45 (0.13 to 0.78)		
Dominance/intimidation							
						0.18 (0.16 to 0.88)	0.01 (-0.36 to 0.37)
SAH-M	3.79 (3.22 to 4.37)	2.20 (1.61 to 2.79)	1.91 (1.29 to 2.53)	0.64 (0.36 to 0.93)	0.81 (0.52 to 1.09)		
ETAU	3.46 (2.89 to 4.02)	2.64 (2.01 to 3.27)	1.92 (1.37 to 2.46)	0.28 (0.01 to 0.56)	0.76 (0.44 to 1.08)		

^aMeans are of the full sample available at each time point. Effect sizes are calculated based on data available at both comparison time points. Abbreviations: ETAU=enhanced treatment as usual, IPV=intimate partner violence, SAH-M=Strength at Home Men's Program.

In all analyses, the Level 1 model predicted outcome (use of IPV) as a function of an uncentered version of time (natural log of assessment time point). For final analyses, treatment condition assignment was dummy-coded and included as a Level-2 predictor of between-person change in the use of IPV and baseline use of IPV. Hierarchical linear modeling accounts for any individual differences between groups on the outcome of interest, can estimate models with incomplete data, and can take into account unbalanced data resulting from varying measurement intervals within participants.²¹ Thus, missing data were not imputed, but rather HLM was allowed to estimate trajectories with missing data. In all analyses, we modeled effects as random and estimated parameters using the full maximum likelihood approach. A visual analysis of scatterplots revealed that participants' trajectories on the use of IPV were positively skewed. Thus, an overdispersed constant-exposure Poisson sampling model and log link function were used, which provide an inherent logarithmic transformation yet allow for the possibility of values of zero.^{22,23}

Longitudinal analyses were supplemented by cross-sectional analyses at posttreatment and 3-month follow-up. Mean IPV ratings were calculated with 95% confidence intervals (CIs) at each assessment. Within-condition pretreatment to posttreatment and pretreatment to 3-month follow-up Hedges *g* effect sizes²⁴ were calculated. Finally, between-group Hedge *g* effect sizes²⁴ were calculated at posttreatment and 3-month follow-up. An effect size of 0.2 is considered a small effect, 0.5 is considered a medium effect, and 0.8 is considered a large effect.²⁴

We also examined data from participants who completed the treatment, indicated by attendance of 9 or more sessions, in the SAH-M condition (37 of 67 participants) compared with all participants in the ETAU condition (*n* = 68), and the results were highly consistent with the results found in the intent-to-treat sample. Thus, results from only the intent-to-treat sample are presented in full, and any differences in the completer analyses are noted. No cohort effects were found for any outcome measures. (Full model details for the completer and cohort analyses are available from the first author upon request.)

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Table 3. Multilevel Modeling Results for Change in Use of IPV as Measured by the Revised Conflict Tactics Scale (CTS2)^a

Model	β	SE	P Value	95% CI
CTS2 Physical IPV				
Baseline (Level 1)				
ETAU	0.819	0.122	<.001	(1.779 to 2.893)
SAH-M	0.073	0.171	.671	(0.767 to 1.507)
Change over time (Level 2)				
ETAU	-0.246	0.042	<.001	(0.720 to 0.849)
SAH-M	-0.135	0.061	.029	(0.773 to 0.986)
CTS2 Psychological IPV				
Baseline (Level 1)				
ETAU	1.480	0.058	<.001	(3.915 to 4.931)
SAH-M	-0.045	0.089	.613	(0.801 to 1.140)
Change over time (Level 2)				
ETAU	-0.292	0.081	<.001	(0.637 to 0.875)
SAH-M	-0.304	0.135	.026	(0.565 to 0.964)

^aTime is included as the natural log of days between assessments.

SAH-M represents the difference from the ETAU condition. Thus, at Level 1, SAH-M represents the difference in baseline IPV between the 2 conditions, and, at Level 2, ETAU represents the overall slope (ie, the main effect of time) and SAH-M represents the difference in the steepness of the slope of change over time between the 2 conditions (ie, the interaction of time-by-condition).

Abbreviations: ETAU = enhanced treatment as usual, IPV = intimate partner violence, SAH-M = Strength at Home Men's Program.

Table 4. Multilevel Modeling Results for Change in Use of IPV as Measured by the Multidimensional Measure of Emotional Abuse (MMEA)^a

Model	β	SE	P Value	95% CI
MMEA—Restrictive Engulfment				
Baseline (Level 1)				
ETAU	1.371	0.069	<.001	(3.436 to 4.512)
SAH-M	-0.045	0.089	.613	(0.801 to 1.140)
Change over time (Level 2)				
ETAU	-0.068	0.018	<.001	(0.902 to 0.969)
SAH-M	-0.072	0.027	.010	(0.882 to 0.983)
MMEA—Denigration				
Baseline (Level 1)				
ETAU	1.236	0.083	<.001	(2.918 to 4.056)
SAH-M	-0.135	0.121	.268	(0.687 to 1.111)
Change over time (Level 2)				
ETAU	-0.093	0.020	<.001	(0.876 to 0.947)
SAH-M	-0.022	0.030	.450	(0.922 to 1.037)
MMEA—Hostility				
Baseline (Level 1)				
ETAU	1.782	0.036	<.001	(5.537 to 6.383)
SAH-M	-0.058	0.057	.310	(0.842 to 1.057)
Change over time (Level 2)				
ETAU	-0.065	0.018	<.001	(0.905 to 0.971)
SAH-M	-0.033	0.027	.215	(0.918 to 1.020)
MMEA—Dominance				
Baseline (Level 1)				
ETAU	1.246	0.081	<.001	(2.965 to 4.079)
SAH-M	0.037	0.115	.749	(0.827 to 1.301)
Change over time (Level 2)				
ETAU	-0.133	0.022	<.001	(2.965 to 4.079)
SAH-M	-0.013	0.030	.674	(0.930 to 1.048)

^aTime is included as the natural log of days between assessments.

SAH-M represents the difference from the ETAU condition. Thus, at Level 1, SAH-M represents the difference in baseline IPV between the 2 conditions, and, at Level 2, ETAU represents the overall slope (ie, the main effect of time) and SAH-M represents the difference in the steepness of the slope of change over time between the 2 conditions (ie, the interaction of time-by-condition).

Abbreviations: ETAU = enhanced treatment as usual, IPV = intimate partner violence, SAH-M = Strength at Home Men's Program.

RESULTS

Rates of IPV use at baseline, posttreatment, and 3-month follow-up are reported in Table 2.

Effect of time. Unconditional growth models were conducted in which only time was entered as a predictor. Findings for intercept and slope and unexplained variability in IPV, using the Physical Assault and Psychological Aggression subscales of the CTS2 and the 4 MMEA subscales, indicated that it was appropriate to engage in modeling with variables other than time on all outcome measures.²¹

Final models. For final analyses, treatment condition was included as a Level-2 predictor of between-person IPV at baseline and over time. There were no baseline differences between the SAH-M and ETAU conditions on any of the CTS2 or MMEA subscales, indicating effective randomization of participants to condition. As expected, there were main effects of time on the CTS2 and MMEA scores, indicating significant within-person decreases in IPV for the combined group of participants from both conditions. Consistent with hypotheses, there were significant time-by-condition effects such that SAH-M participants compared with the ETAU participants evidenced more reductions in physical and psychological IPV as measured by the CTS2, as presented in Table 3. When specific forms of psychological IPV were examined, only the MMEA Restrictive Engulfment subscale evidenced a significant time-by-condition effect such that SAH-M participants had more reductions in this form of IPV than ETAU participants, as presented in Table 4. In the completer analyses, both the MMEA Denigration and Hostility subscales evidenced a significant time-by-condition effect such that SAH-M participants had more reductions in these forms of IPV than ETAU participants.

Additional Analyses

Cross-sectional. Table 2 shows means (95% CI), within-treatment pretreatment to posttreatment and pretreatment to 3-month follow-up Hedges *g* (95% CI) effect sizes, and posttreatment and 3-month follow-up between-condition effect sizes. Findings revealed that in the SAH-M condition, there were large within-treatment effect sizes for CTS2 physical and psychological IPV and medium within-treatment effect sizes for all subscales of the MMEA at posttreatment. In the ETAU condition, all within-treatment effect sizes on the CTS2 and MMEA subscales at posttreatment were small. This pattern of results (SAH-M evidencing medium to large within-treatment effects and ETAU evidencing small within-treatment effect sizes) was generally maintained at the 3-month follow-up, with the exception of the MMEA-Denigration subscale, which evidenced small within-treatment effect in SAH-M, and a few CTS2 and MMEA subscales in ETAU condition, which evidenced medium within-treatment effect sizes.

At posttreatment, SAH-M evidenced superiority relative to ETAU, with a small-to-medium between-group effect size on psychological and physical IPV on the CTS2, and either small-to-medium or medium between-group effect

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sizes on several MMEA subscales. At 3-month follow-up, there was a medium between-group effect size difference on Restrictive Engulfment and a small effect size difference on Hostile Withdrawal, both indicating superiority of SAH-M relative to ETAU. No other differences were noted at 3-month follow-up.

Recidivism. At baseline, over 90% of the sample reported some physical IPV. At posttreatment, violence recidivism was significantly higher in the ETAU condition (43.3%) than the SAH-M condition (23.3%) ($\chi^2 = 5.25, P = .02$), representing a small effect size ($\phi = -0.213$). At 3-month follow-up, 26.7% of the ETAU participants recidivated compared with 18.5% of SAH-M participants ($\chi^2 = 1.07, P = .30$), representing a small effect size ($\phi = -0.097$).

DISCUSSION

Results suggest the effectiveness of SAH-M in reducing and ending physical and psychological IPV in male military veterans and service members who have previously engaged in physical IPV. Those who participated in SAH-M, relative to those who received an enhanced version of treatment as usual in the VA health care system, evidenced reductions in physical and psychological IPV behaviors as reported by themselves and their collateral partners over time. When psychological IPV behaviors were examined separately, SAH-M appeared particularly effective in reducing behaviors that involve controlling one's partner through isolation and monitoring. SAH-M was associated with substantial pretreatment to posttreatment reductions in physical and psychological IPV that were maintained at 3-month follow-up.

Findings have important implications for the prevention and treatment of IPV in military and veteran populations.

This published randomized controlled clinical trial is the first that we are aware of that has shown an IPV program to demonstrate efficacy within this population. This is significant considering that this population is at increased risk for IPV¹ and presents to treatment with prior military training or deployment experiences and complicated clinical pictures that are challenging to treat.²⁵

Of note were findings that IPV reductions at 3-month follow-up were also observed in the ETAU condition, and thus differences between study conditions were primarily observed at posttreatment. It may be that the enhancements in treatment as usual were effective in linking participants to services that reduced IPV. It is also possible that observed reductions in IPV in ETAU were a function of the randomization approach. Court-mandated ETAU participants at 3-month follow-up were quite likely more closely monitored than those in the SAH-M condition because they had yet to complete their court-ordered treatment. Comparison of SAH-M to an active alternative treatment over longer follow-up time periods is an important next step in examining the long-term efficacy of the intervention.

The current study was limited to heterosexual male veterans/service members who engaged in IPV. Future investigations are needed to examine this trauma-informed intervention with women and those in non-heterosexual relationships, as well as those who exhibit co-occurring substance use problems. Considering high rates of trauma and PTSD that have been reported in samples of civilian men in IPV intervention programs²⁶ and less than impressive results obtained from prior civilian clinical trials,¹⁰ research examining the generalizability of SAH-M to the civilian context appears warranted.

Submitted: April 3, 2015; accepted August 10, 2015.

Online first: November 24, 2015.

Potential conflicts of interest: None reported.

Funding/support: This work was supported by grants from the Department of Veterans Affairs and Department of Defense and through the use of the facilities and resources of the Providence Veterans Affairs Medical Center.

Role of the sponsor: None.

Disclaimer: The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs.

Acknowledgments: The authors thank the veterans, service members, and partners who participated in this study. The authors also thank the Strength at Home study staff including: (a) project coordinators Karina Gilbert, PhD¹; Jamie Howard, PhD¹; Jonathan Lee, PhD¹; Alisa Miller, PhD¹; Elizabeth Sevin, MA²; Michael Suvak, PhD¹; and Sherry Walling, PhD¹; (b) research technicians Katherine Cunningham,¹ Brittany Liebsack,¹ Emily Maguire,¹ Andrea Massa,^{1,2} and Kayla Vanhaasteren¹; (c) outreach associates Paul Darcy^{1,2}; Amy Rachiele¹; Matt Santos¹; and Sarah Krill Williston, MA¹; (d) ad hoc assessors, therapists, and volunteers Nicole Abdo²; Anne Day, PhD²; Savannah Frazier²; Robin Gobin, PhD²; Maggie Gorraiz²; Lorig Kachadourian, PhD¹; Amy Lawrence, PhD¹; Gillian Michaelson²; Jill Panuzio¹; Matt Pierce²; April Trotman²; and Robin Weatherill, PhD.¹ We also

thank Jennifer Price, PhD,³ who provided formal staff training in PTSD assessment; M. Tracie Shea, PhD,² who assisted with setting up the second study site in Providence, RI, and was a site principal investigator from 2010–2013; and the Boston VA Research Institute, whose staff supported the project by managing the grant funds, hiring, assisting with purchasing, and providing additional financial assistance to the project during its final years. None of the Strength at Home study staff reported a conflict of interest in their study participation.

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