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Spouse READI (Resilience Education and Deployment Information): Randomized Clinical Trial Formerly Reintegration: The Role of Spouse Telephone BATTLEMIND Randomized Clinical Trial

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14. ABSTRACT This randomized clinical trial of spouses coping with reintegration of the service member post deployment enrolled 228 spouses/significant others Active Duty/National Guard/Reserve service members who had served in Iraq or Afghanistan, approximately 76 in each study arm. For the main intervention arm, each telephone support group met 12 times during six months. For the attention control arm, online/telephone education webinars also met 12 times during six months. A Participant Workbook including comprehensive materials for all sessions and topics, other resources, and red flag resources was provided to these two groups. For the usual care arm, at the end of their participation, participants were offered a telephone workshop focusing on the components covered in the telephone groups and received the Participant Workbook. Outcomes included depression and anxiety symptoms, resilience, personal/family coping, and communication. Data were collected by telephone, at baseline, 6, and 12 months with outcomes only collected at 3 and 9 months. Participant satisfaction and benefit was measured with a qualitative project evaluation. Participants in all three study arms improved. These improvements occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return. Participants in all study arms attributed benefit to improved self-efficacy. Support participants cited self-reflection, skills building, support of other group members, and resources available to them. Education participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building, or support of others, usual care participants highlighted how the assessment battery had made them question and modify their thoughts and behaviors.				
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Introduction

It is impossible to consider the service member separately from the military family unit; there are effects of the war on families as well as the service member (Basham, 2013; MacDermid Wadsworth, 2013). Family stressors, strain, and resources are important for military spouses' psychological health (Green, Nurius & Lester, 2013). Deployment effects on the military spouse include increased loneliness, anxiety, depression, sleep disorders, adjustment disorders and stress, and family dysfunction (Link & Palinkas, 2013; Mansfield et al., 2010). Although rates are generally similar to those of service members (Eaton et al., 2008), spouses are almost four times more likely than service members (21.7% vs. 6.2%) to report that stress or emotional problems impact their work or other activities (Hoge, Castro, & Eaton, 2006).

Caregivers with higher levels of depression, anxiety, or any physical health problems increase the chance of subsequent injuries to the patient (Carlson et al. 2012). Service members returning with TBI make less progress in treatment if the family unit is distressed (Dausch & Saliman, 2009). Conversely, post traumatic stress disorder (PTSD) symptoms often decrease as family and social support increases (Frain, Bethel, & Bishop, 2010). Providing education and mental health resources to families can help reduce caregiver burden which in turn positively affects the health of the care recipient (Bernhardt, 2009; Monson, Taft, & Fredman, 2009).

This study tested telephone-based strategies to assist spouses of returning post 9/11 service members who served in Iraq (Operation Iraqi Freedom – OIF and Operation New Dawn - OND) and Afghanistan (Operation Enduring Freedom – OEF). The goal was to build spouses' resilience to cope with reintegration challenges, help them serve as a support system for service members, and ease the transition for families post-deployment. The study compared telephone support groups to education webinars and to usual care. The study enrolled 228 spouses. In the Telephone Support groups, a group facilitator and participants focused on education, skills building and support. Education Only webinars, which served as attention control, provided the same education content, without skills building or support. Each group met 12 times over 6 months. Content included ways returning service member, spouse and family may have changed during deployment; negotiation; strategies to reduce or eliminate reintegration difficulties; strategies to support the service member; and cues to alert spouses when to seek mental health services for family or self. Usual Care participants were offered a workshop focusing on the same topics after participation.

The goal of the study was to determine whether spouses of returning service members could be helped to cope with their own concerns after their partner's return from deployment and to serve as a support system for the partner. We hypothesized that the telephone support group arm, compared to education webinars and usual care, would be more effective in improving spouse outcomes, including depression, anxiety, resilience, personal/family coping strategies, and family problem-solving communication. We further hypothesized that the education webinar study arm, compared to usual care, would be more effective in improving outcomes.

Body

Task 1: Develop Manual of Operations (MOP)
2010

Months 1-7, October, 2009-April

Products for Task 1: Completed Manual of Operations (support group format, topics and scripts, participant workbooks and welcome packs, education group format, topics and scripts, screening forms and scripts, data collection forms, scripts and documentation, brochures and posters

Task 2: IRB approval
2010

Months 1-8, October, 2009-May

Product for Task 2: Approved consents and amendments

Task 3: Hire and train personnel

Months 1-5, October, 2009-February 2010.

Staff working with the project included a project manager, two group leaders, research data associates, a data analyst, and a statistician. During the course of the study, several University of Memphis Psychology graduate students worked with the project. Staff who have received pay during the study period include co-investigators Dr. Jennifer Martindale-Adams, Dr. Robert Burns, and Dr. Marshall Graney; group leaders Denise Brown, Jessica Roxy Martin, and Lauren Martin; research associates Celeste Bursi, Carolyn Clark, Karsten Everett, Barbara Higgins, Pat Miller, and Sylvia Zuber; data analyst Jeff Zuber, and graduate students Katherine Bracken-Minor, Amy Farrell, Jordan Fields, and Francisco Salgado-Garcia.

Product for Task 3: Trained and certified staff

Task 4: Recruitment and Randomization

Months 8-39, May 2010-December 2012.

READI participants were spouses or significant others of a service member/veteran who participated in OEF/OIF/OND and was at least 1 month post-deployment; had been a spouse throughout the recent deployment period; and lived with the service member/veteran when not deployed. Recruitment goals were met with 228 spouses, approximately 75 in each arm, enrolled in three ongoing telephone support groups and three ongoing education webinars. At baseline there were no statistically significant differences among the three randomization arms. As shown in Table 1 in Appendices, on average, participants were women, in their mid 30s, married around 9 years, with about 2 children. They were mostly white, with about 12% each being African American or Latina. They had, on average, about 3 years of college, and a little more than half were employed. Clinically, spouses reported health between good and very good, and relatively low depression or anxiety. On average, spouses reported that it had taken 3.4 months to adjust to the service member's return. However, 42.4% reported that they had not yet adjusted to the service member's return. In addition, they reported that time for the relationship to adjust had been 4.3 months and 46.8% felt their relationship had not yet adjusted to the service member's return.

Service members, on average, were in their late 30s and 75% were employed (Table 2 in Sup Appendices). Very few were junior enlisted, almost 2/3 were non-commissioned officers. Service members had served in the military 14 years, and 44.5% were currently Guard or Reserve. Consistent with their years in the military, they had 3.6 total deployments, with 2.1 OEF/OIF/OND deployments. On average, the most recent deployment had been almost a year long. Almost 2/3 had been injured and 43.6% met criteria for PTSD based on spouse report.

Service members took 4.5 months to adjust to return and 46.8% by spouse report had not yet adjusted, although they had been back almost two years.

Among support arm participants, 40.8% participated in six or more of the twelve sessions and 21% participated in no sessions. Among education arm participants, only 34.2% participated in six or more sessions and 30.3% participated in no sessions. As shown in Figure 1 in the Appendices, the discontinuation and lost to follow-up rate was also high for the education arm, with 24 participants discontinuing or being lost to follow-up, compared to ten participants in the support arm and four in the usual care arm. The number of sessions missed might have been higher if not for the support arm ability to move between groups; 29 (38.2%) of the 75 participants attended another group at least once.

Product for Task 4: 228 participants recruited

- Tables 1 and 2 in Appendices
- Figure 1 in Appendices

Task 5: Intervention (Telephone Groups)

Months 8-45, May 2010-June 2013

The telephone support groups were designed to have 6 members and a trained Group Leader, who was an experienced counselor. Groups met twice a month for six months. Groups were pre-scheduled on three different nights and at pre-determined times based on times that spouses were available and an acknowledgement that participants' schedules often change due to family, work and school schedules. Groups were open and ongoing and participants could enter at any session. Participants were encouraged to stay with the same group, but had the option to join another group if their schedule changed or to make up a missed session.

Because telephone support groups are not face-to-face, they may have a lack of interpersonal verbal and physical cues. To help with this potential difficulty, the support group leader was trained and certified in directing groups that lack face-to-face interaction. Group rules such as having group members identify themselves when speaking and give clear feedback also helped encourage interaction and a sense of camaraderie.

The one hour telephone support sessions included strategies and skills that have been successful in caregiving interventions, including education, training in and practice of coping skills (e.g., problem solving, communication) and cognitive restructuring (identifying and re-shaping negative and destructive thoughts), and support (Belle et al., 2006; Gottman, Gottman, & Atkins, 2011, Schulz et al., 2003). Learning and practice of new practical coping skills to help participants normalize their experiences in a safe environment was an important part of this program. At each session, participants were encouraged to develop a concrete, defined, strategy related to the topic and to write down the coping strategy they would try (commitment) (Najavits, 2002). The telephone groups had a structured format with scripted talking points, but were also participant-centered to incorporate participant input and direction of discussion.

Each participant had a one-on-one introduction call that focused on group logistics and rules (e.g., identify yourself when you speak, do not identify individuals you are speaking about) and the basics of problem solving. An ending one-on-one call included a topic review and lessons learned for the spouse. Group session topics included social support, communicating, emotional intimacy, family roles, commitment, mental health and resilience, asking for help from the community and others, navigating the system, strengthening your relationship, taking care of you, and Traumatic Brain Injury (TBI) and PTSD. Each group session had a similar format with

a review of member commitments from the previous sessions, a brief didactic presentation followed by member discussion of the topic, coping skills practice during the session, and commitments to try at least one skill between sessions.

A Participant Workbook provided materials for each session and additional resource material expanding on the topic plus “red flags” for spouse or service member – areas that may exacerbate problems, add difficulty or distress, and/or indicate a need for referrals (e.g., unsafe behaviors, substance abuse, spouse abuse, PTSD, depression, TBI).

Product for Task 5: Telephone Support groups completed

Task 6: Attention Control (Webinar Groups) Months 8-45, May 2010-June 2013

The attention control arm included 12 half-hour-long education webinar sessions during six months. Each participant received the Participant Workbook. The topics were the same as those covered in the intervention arm. However, there was no spouse interaction/support (i.e., participants could listen but not interact with each other) or active skills building components. Sessions were recorded so that spouses could be sent links to watch if they missed a session.

Product for Task 6: Education Webinar groups completed

Task 7: Data Collection/Data Entry/Cleaning Months 8-52, May 2010-January 2014

Quantitative data collection, by telephone by trained and certified research associates using standardized measures, occurred at baseline, 6 and 12 months (full), and 3 and 6 months (outcomes). Response cards were sent to participants beforehand to assist in data collection. Qualitative data included Group Leader notes charting progress for each group member and commitments for group members. Perceived participant benefit, collected at final follow-up, measured satisfaction, usefulness, relevance, and type of benefit. No data were collected from the service member.

Data. Outcomes included anxiety, depression, resilience, personal/family coping, and family communication. Independent measures were selected to characterize the study sample and to assess factors that have potential to affect the outcome measures and/or the reintegration process. Complete information on data measures is included in the draft manuscript, Support for Spouses of Post Deployment Service Members, in Appendices.

Anxiety	Generalized Anxiety Disorder-7 (GAD-7)	Spitzer, Kroenke, Williams, & Löwe, 2006 Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007
Depression	Patient Health Questionnaire (PHQ-9)	Kroenke, Spitzer, & Williams, 2001
Resilience	Connor-Davidson Resilience Scale (CD-RISC)	Connor & Davidson, 2003
Personal/Family Coping	1991-1992 Survey of Army Families II in USAR-EUR	Pittman, Kerpelman, & McFadyen, 2004 Durand, Larison, & Rosenberg, 1995
Communication	Family Problem Solving Communication scale (FPSC)	McCubbin et al., 1996
Demographics	name; DOB; gender;	

	race/ethnicity; years married; employment; number of people in household, ages and relationships; income; and service member's branch of service, DOB, rank, and previous deployments	
Health Status	General health scale	Ware et al., 1995
Health Services	support group, counseling (individual, couples, family, pastoral), drug/alcohol treatment, depression or anxiety medication, online education/support	
Marital Quality	Quality of Marriage Index (QMI)	Norton, 1983 Heyman, Sayers, & Bellack, 1994
Personal/Family Stress	Social Readjustment Rating Scale (SRRS)	Holmes & Rahe, 1967
Military Life Stress	Navy & Marine Stress of Life Index	Millennium Cohort Study
Spouse Perceptions Of PTSD Symptoms	Partner PTSD Checklist (PCL-P)	Gallagher, Riggs, Byrne, & Weathers, 1998 Weathers, Litz, Herman, Huska, & Keane, 1993
Social Support	Multidimensional Scale of Perceived Social Support	Zimet, Dahlem, Zimet, & Farley, 1988 Dahlen, Zimet & Walker, 1991
Concerns about time with friends, roles and responsibilities, service member's drug and alcohol use, resistance to getting help by the service member, and frustration at finding resources	Potential reintegration concerns	Riviere et al., 2007

Products for Task 7: Completed data collection and data entry

Task 8: Usual Care Group Workshops

Months 20-52, May 2011- January 2014

Usual Care participants did not receive any contact during the study period, except for data collection and any alert calls, which were follow ups if data collection identified dangerous findings such as suicidal or homicidal ideation, suspected or admitted domestic abuse, increased alcohol/drug use, clinical depression levels, or psychotic symptoms. At study's end, they were offered the Participant Workbook and a workshop covering the topics, targeted to the individual's expressed needs.

Products for Task 8: Workbooks sent and workshops offered and provided

Task 9: Data Analysis

Months 33-52, June 2012- January 2014

The main quantitative data analysis strategy was intention-to-treat, with all participants analyzed in accordance with their initial group assignments. Baseline characteristics were compared between participants in each arm using chi-squared tests or analysis of variance (ANOVA), as appropriate. Each outcome was treated as independent of the others. Randomized groups were compared using repeated measures mixed linear models to estimate group by time interaction. Examining outcomes within subgroups utilized this same strategy. Because mixed linear model analysis accommodates missing data without loss of subjects, no data imputation strategy was necessary for missing data. To investigate the relationship between two continuous variables, linear regression was used. *P* values less than or equal to .05 were considered statistically significant, and those between .05 and .10 were considered to document trends that approached, but did not attain, statistical significance. The study was designed to provide statistical power of .80 to document as statistically significant a true population difference in intervention effect equal to at least .25 *SD* of a primary outcome variable.

Each qualitative data source was examined individually by at least two staff members. Each reviewer sorted the descriptions, concepts and central ideas into potential themes and linked themes to verbatim quotes (Bernard, 2006; Maxwell, 1996). Independent reliability tests of the coding (Ryan et al., 2009) were conducted for each source. A researcher who had not been involved in the initial coding matched caregivers' quotes with themes and a kappa statistic (Cohen, 1968) computed.

Primary study outcomes. Primary study outcomes included anxiety, depression, communication, resilience, and personal and family coping. As shown in Table 3 in Appendices, during both six months and twelve months there were significant time effects with participants in all arms improving for all outcomes except for resilience, which was unchanged. There were no significant group effects or group by time interaction effects. Primary outcomes were also examined for different types of participants, including those most likely to be stressed.

Adjustment since service member's return. Participants who reported that they, the service member, or the relationship had or had not adjusted since the service member's return were compared across randomization arms. For those who had not adjusted (*n* = 121), there was a significant time effect for anxiety (*p* < .001), depression (*p* = .001), and personal coping (*p* < .001) and a trend for family coping (*p* = .06) but no group or group by time interaction effects. For those who were adjusted (*n* = 83), there was a significant time effect for personal coping (*p* = .01) but no group or group by time interaction effects.

Variance explained in the outcomes related to time since the service member's return from deployment was small. Only family coping was statistically significant (*n* = 120, *p* = .04), with *R*² of .035 with spouses of service members who were back more recently doing better than spouses of those who returned earlier.

Care difficulties. Participants providing care to an injured service member that caused them care difficulties were compared to those not experiencing care difficulties or whose service member had not been injured. For those experiencing care difficulties (*n* = 114), among the study arms there was a time effect for anxiety (*p* = .002) and personal (*p* = .001) and family coping (*p* = .02), but no group effect or group by time interaction effect for any outcome. For those who did not

report care difficulties (n = 113), among the study arms there was a time effect for anxiety ($p < .001$), depression ($p < .001$), and personal coping ($p < .001$) and group effects for anxiety ($p = .001$) and depression ($p < .001$) but no group by time interaction effects for any outcome.

Stressful life events. The presence of stressful life events (SRRS) explained little variance in improvement in outcomes. Statistically significant variance explained was found for anxiety (n = 183, $R^2 = .060$, $p = .01$), depression (n = 182, $R^2 = .088$, $p = .001$), resilience (n = 181, $R^2 = .023$, $p = .04$), personal coping (n = 185, $R^2 = .115$, $p < .001$). A trend was found for family coping (n = 118, $R^2 = .065$, $p = .053$).

Anxiety. During the study there was a decrease in the proportion of participants with likelihood of generalized anxiety disorder suggested by a score of ≥ 10 on the GAD-7 (n = 68, $p = .001$). When comparing participants who had likelihood of generalized anxiety disorder at baseline across the three groups, although numbers were small, there were time effects for depression ($p < .001$), and personal ($p = .001$) and family coping ($p = .05$).

Depression. The proportion of participants who had scores on the PHQ-9 indicating likelihood of major depression (n = 24) also decreased during the study ($p = .025$). For participants who had likelihood of major depression there was a time effect for anxiety ($p = .001$) and a trend for personal coping ($p = .09$).

Dosage. When support and education arm participants who had six sessions or more (n = 31 and 26, respectively) and the usual care group (n = 75) were compared, there were time effects for anxiety ($p < .001$), depression ($p = .004$), and personal coping ($p < .001$) but no group or group by time interaction effects for any outcome. When comparing only discussion and education arm participants who had at least six sessions, there were group by time interaction effect trends for resilience ($p = .08$) and family coping ($p = .052$). There were significant time effects for anxiety ($p = .002$) and personal coping ($p = .01$) and a time effect trend for depression ($p = .053$).

Participant Benefit

Participant responses to questions about whether and what type of benefit was received were coded by randomization arm as shown in Table 4 in Appendices. The kappa for this coding was 0.95, indicating high agreement among researchers on themes (Landis & Koch, 1977). For support participants, connecting with others was the most important benefit. *“It was comforting to have the opportunity to share in a group where everyone had similar difficulties and truly understood. It was also good to be able to share hope with others who felt hopeless.” “It was nice to know I wasn’t the only one dealing with the same issues.”* Spouses who were Guard and Reserve or whose families did not have military experience were surprised to realize how similar experiences were. *“Interesting to hear that people who do live near a base or are active duty face many of the same problems.”*

Self-efficacy was an important benefit, including skills building in areas of self-care, problem solving and stress reduction and self-reflection, new perspectives, and increased confidence. *“A lot of times you forget that you can give so much you have nothing to give, so it brought back a renewed sense...to work on having a goal to think about me and that I matter.” “The group has really helped me deal with all the stress.”* One critical area related to self-efficacy was using skills to work on relationships. *“I realized that my husband needs me more than I realized and more than he realized it. I stopped thinking so much about myself and more about him.”* Learning skills was tied into participants’ appreciation of the resources and workbook and their

appreciation that someone cared about them. *“It provided me with resources and ideas to help me in different areas of my life.” “It [the workbook] had a lot of resources in there and a lot of good information.”*

Benefits for education arm participants were similar. The most mentioned area was self-efficacy, which included self-reflection, a new perspective, and learning skills. *“In some of the modules we did, it really got me to think about when my husband’s emotions would go from one side to the other...and the modules helped me to zero in on that and not take it personally and deal with what is an issue and what is a non issue no matter how he is reacting.” “One of the things that really opened my eyes was the warning signs, things to look for.”*

One particular area related to learning and self-efficacy was improved relationships. *“It helped me to understand what my husband was going through and how I could deal with it and help him to deal with it.” “It also helped me to be more supportive.” “This program helped my husband and me to openly discuss issues that, of course, led to more communication and able to focus on issues that were identified.”*

Tied into these two areas but specifically mentioned by participants were the resources, including the workbook and webinars, and appreciation that someone cares. *“The materials that were provided offered some good information regarding the issues that we as a military family deal with especially with regards to multiple deployments and the adjustments that go along with that both before and after and during.” “I’m really thankful for people like you who take the time to do this.”*

Although education arm participants were not able to speak with other participants in their group, they voiced a sense of connecting with others. *“So listening in on the calls and just kind of hearing what’s going on and knowing that there’s other spouses that are listening at the same time really benefitted me personally.”*

For usual care arm participants, the main benefit received was self-efficacy with an emphasis on self-reflection. Specifically, participants mentioned that the assessment battery questions had prompted them to think about what was going on and to modify behavior, including specifically improving their relationship with the service member. *“It made me look at certain things that I wouldn’t have made a connection about.” “I looked at some of the questions that you asked about communicating with my spouse and I tried to do that more...and it has helped a lot.” “It’s good every once in a while to be reminded, to think about everything. Yeah, like how is my health, how am I doing, are we working as a family? So it’s good to be reminded with all the questions of what areas we can improve in and just kind of assess everything and kind of look at it, so that is good.”*

Usual care arm participants also mentioned that someone cared about them. *“Even though I was just in the control group and having these interviews, it let me know that somebody was listening and having a voice has helped me emotionally.” “I felt like there was somebody that was willing to listen and get down and actually go through what was going on within the family and all that. That was something that helped.”*

Products for Task 9: Completed data analysis

- Tables 3 and 4 in Appendices

- Nichols LO, Martindale-Adams J, Zuber J, Graney M. Service Member Need and Supportive Services Use of Military/Veteran Spouses. *Military Medicine*, Submitted 11/27/13
- Draft manuscripts in Appendices:
 - Support for Spouses of Post Deployment Service Members
 - Intimacy: Military Spouses and Service Members after Deployment

Task 10: Preparation/Dissemination of Results Months 31-52, April 2012-January 2014

Products for Task 10: Papers and Presentations, Grants, Implementation

- 1 manuscript submitted
- 2 draft manuscripts in preparation
- 1 grant proposal submitted and funded
- 1 grant proposal to be submitted in May
- 9 presentations
- 1 expansion of a national implementation

Key Research Accomplishments

- Significant improvement over time for participants in all study arms for
 - anxiety
 - depression
 - personal/family coping
 - communication
 - not for resilience
- Significant improvements over time for participants who
 - were dealing with care challenges for an injured service member
 - had scores reflective of major depression or generalized anxiety disorder
 - experienced more serious life events
 - reported not yet being adjusted to the service member's return in some way
 - regardless of time since deployment return
- Support arm participants attributed benefit to
 - self-efficacy: self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook.
- Education arm participants ascribed benefit to
 - self-efficacy: self-reflection, skills building, and resources available.
- Without access to resources, skills building techniques, or support of others, usual care arm participants used what they had access to and ascribed benefit to
 - self-efficacy: self-reflection, specifically how the assessment battery had made them question and modify their thoughts and behaviors.
- Service use findings
 - At baseline, 39.6% of spouses were using counseling or support services and 50.9% of service members were using services
 - Number of services used was related ($r = .53, p < .001$)
 - Service members more likely to use alcohol/drug treatment and psychotropic medications, and spouses more likely to use online services

- Spouses using services had more depression and anxiety symptoms, and were in poorer health and less resilient than those not using services
- Three service member need factors significantly explained spouse service use
 - service member PTSD severity,
 - injuries causing care difficulties, and
 - spouse frustration at finding resources

Reportable Outcomes

Manuscripts

- Nichols LO, Martindale-Adams J, Zuber J, Graney M. Service Member Need and Supportive Services Use of Military/Veteran Spouses. *Military Medicine*, Submitted 11/27/13
- Support for Spouses of Post Deployment Service Members, draft manuscript
- Intimacy: Military Spouses and Service Members after Deployment

Grants

- Telephone Support During Overseas Deployment for Military Spouses (Formerly: Telephone Support During Deployment for OEF/OIF Spouses). Funded by US Army Medical Research and Materiel Command (USAMRMC), Military Operational Medicine Research Program (MOMRP) from April 2011 through March 2015 (W81XWH-11-2-0087). Based on spouse requests for information earlier in deployment cycle
- Interventions for Parent Caregivers of Injured Military/Veteran Personnel. To be submitted in May to Operational Medicine Research Program (MOMRP). Based on requests from parents to be included in spouse study

Invited Presentations

- Nichols, LO, Martindale Adams, J. Spouse READI Telephone Support (Resilience Education and Deployment Information). U.S. Army US Army Medical Research and Materiel Command, Military Operational Medicine Research Program (MOMRP) grantee meeting, 7/21/10, Frederick, MD.
- Nichols, LO, Martindale-Adams J. Update: Spouse READI Telephone Support (Resilience Education and Deployment Information). U.S. ARMY MOMRP Meeting, Frederick, MD, July 22, 2011.
- Nichols, LO, Martindale-Adams, J. Support for Military Spouses during Reintegration. 2011 International Research Symposium on Military Families. Military Family Research Institute at Purdue University and the Center for Deployment Psychology, Indianapolis, IN, September 27-28, 2011.
- Nichols, L, Martindale-Adams, J. VA Caregiving Research. University of Tennessee Health Science Center, Preventive Medicine Faculty Seminar, 11/18/10.
- Nichols, L, Martindale-Adams, J. Reintegration: Support for Spouses Post Deployment. VA Medical Center, Research Service Conference, December 2, 2011.
- Martindale-Adams, J, Nichols, L. Research with Post 9/11 Spouses. VA National Caregiver Research Interest Group (CGRIG), 2/14/12.
- Nichols, L, Martindale-Adams, J. Spouse READI: Telephone Support (Resilience Education and Deployment Information). U.S. Army MOMRP Meeting, August 2, 2012.

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Implementation into Practice Expansion

- National VA Spouse Telephone Support (STS) program, based on the pilot spouse telephone support research study (W81XWH-08-2-0195) is being expanded by the Memphis Caregiver Center to allow clinicians to include Vietnam and Gulf War spouse and caregiver groups. Based on requests from other types of caregivers, such as parents and family members, and caregivers of veterans from other eras who requested entrance into the study

Conclusions. In this study of spouses coping with reintegration of the service member, participants in the telephone support arm, the education webinar arm, and the usual care arm had a significant improvement over time for anxiety, depression, personal/family coping and communication, but not for resilience. Similar improvements over time across all study arms occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return.

Improvement across all arms was unexpected. Support arm participants attributed benefit to self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook. Education arm participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building techniques, or support of others, usual care arm participants used what they had access to and attributed benefit to the assessment battery making them question and modify their thoughts and behaviors. Another factor that may have influenced participants positively was the perception that someone cared about them. Participants were grateful that DoD and the VA cared about military families and the resource and compassion that the study staff provided. This was the case even for usual care participants who would mention how nice the data collection staff were.

Implementation

- Providing spouses and significant others with resources and education about post deployment challenges and access to skills building and support from peers or caring professionals increases self-efficacy and ability to manage the relationship between spouse and service member.
- There are multiple avenues that can be used to support military families post deployment, dependent on the capacity and staffing of the military or veteran organization providing service.

- Options include telephone or in-person support groups, education webinars that could be pre-recorded with the increased capability of discussion among participants, or webinars that could be watched when convenient for participants followed by monitored chat rooms or scheduled discussions.

Spouses who participated were eager for assistance and reported learning new skills and strategies, as shown in the fairly extensive quote below.

*“I have made several gains over the past 6 months to include: -More self-aware of my "trouble spots" with stress and frustration and what can cause me to feel this way. -Learning how to better cope with and communicate these feelings so that they don't build up. -Realizing that many of my experiences and feelings are shared with others and that I am not alone, I am not unusual and things that I find my "civilian spouse" friends don't struggle with, are often very common feelings/concerns for military spouses; I have noticed that I am a more patient person (or at least I make a better effort to be aware of my thoughts and feelings before I simply blurt them out in a possibly hurtful/deconstructive way). I may not always succeed, but I am working to be better at "thinking before I speak" and accessing what's the root of my emotions or feelings before I just dump them on someone else; I would really like to continue working on better communication skills that focus on really hearing what the other person is saying, instead of just always focusing on what I want to say next; I am taking care of myself by putting a more concerted effort on making *real* and meaningful friendships. As wonderful as it is having my husband back from deployment, the friendships of other women has proven vital to my sanity, in terms of their understanding of my perspective as a spouse and woman. There are certain things that women only understand about other women, and even with a husband who is a great listener, girlfriends are still so important for connecting, laughing, chatting and sharing thoughts on different things from a woman's perspective. Instead of trying to just go to every social event possible to be "busy," I am now focusing on meeting friends, spending quality time with them and building trust, instead of just meeting as many people as possible...”*

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Table 1. Baseline Characteristics of READI Spouses

Variable	Total	Support	Webinar	Usual Care	<i>p</i> -value
	n = 227	n = 76	n = 76	n = 75	
	M ± SD or %	M ± SD or %	M ± SD or %	M ± SD or %	
Demographic					
Female	98.7	97.4	98.7	100.0	.78
Age, years	36.5 ± 8.6	36.4 ± 8.6	38.0 ± 8.3	35.1 ± 8.7	.12
Years married	9.0 ± 6.9	8.6 ± 7.4	8.7 ± 6.1	9.7 ± 7.0	.53
Years cohabitated	9.7 ± 6.8	9.5 ± 7.4	9.3 ± 6.0	10.4 ± 7.0	.61
Children, number	1.6 ± 1.3	1.5 ± 0.2	1.3 ± 0.2	1.2 ± 0.1	.95
Race					.16
White	79.3	80.3	78.9	78.7	
Black	12.3	13.2	17.1	6.7	
Native American	1.8	1.3	0.0	4.0	
Asian/Pacific Islander	1.8	0.0	1.3	4.0	
Other	4.8	5.3	2.6	6.7	
Ethnicity, Latino/a	11.9	13.2	9.2	13.3	.68
Education, years	15.2 ± 2.1	15.1 ± 2.1	15.3 ± 2.3	15.1 ± 1.7	.77
Employed, full-time or part-time	55.9	46.1	64.5	57.3	.07
Household income, monthly	5056 ± 2657	5132 ± 2382	5277 ± 2852	4759 ± 2741	.50
Military service	16.3	11.8	18.4	18.7	.44
Training/Deployment					
Pre-deployment	37.0	38.2	39.5	33.3	.71

During deployment	23.8	23.7	27.6	20.0	.55
Post-deployment	22.5	23.7	28.9	14.7	.11
Months for SP to adjust to SM's return	3.4 ± 5.9	3.0 ± 3.3	4.2 ± 8.4	2.8 ± 4.1	.56
SP not yet adjusted to SM's return	42.4	43.3	36.8	47.1	.47
Months for relationship to adjust to SM's return	4.3 ± 7.2	3.3 ± 5.1	6.7 ± 10.3	2.8 ± 4.4	.07
Relationship not yet adjusted to SM's return	46.8	35.8	48.5	55.9	.06
Months for children to adjust to SM's return	3.6 ± 4.7	3.0 ± 3.8	3.4 ± 4.2	4.4 ± 6.0	.52
Children not yet adjusted to SM's return	33.3	31.0	25.6	42.2	.25
Clinical					
General health (0-4)	2.4 ± 1.0	2.3 ± 1.1	2.5 ± 0.8	2.4 ± 1.1	.34
Depression (0-27)	6.2 ± 5.3	6.6 ± 5.8	5.8 ± 5.2	6.4 ± 4.7	.65
Anxiety (0-21)	7.6 ± 5.1	7.9 ± 5.5	7.1 ± 5.1	7.9 ± 4.8	.54
Quality Marriage Index (6-45)	33.9 ± 9.0	33.6 ± 10.3	33.7 ± 8.2	34.5 ± 8.4	.78
Social support (12-84)	65.5 ± 12.4	65.5 ± 13.8	66.6 ± 10.2	64.5 ± 12.8	.58
Family communication (0-30)	20.9 ± 5.6	20.1 ± 6.7	21.1 ± 4.9	21.7 ± 5.1	.24
Personal coping (8-40)	32.5 ± 4.7	32.3 ± 5.2	32.7 ± 4.6	32.4 ± 4.4	.87
Family coping (6-30) ^a	26.3 ± 3.2	26.9 ± 2.8	25.8 ± 3.7	26.3 ± 2.9	.18
Social readjustment (0-437)	149.2 ± 79.4	154.9 ± 81.3	143.4 ± 77.0	149.4 ± 80.6	.68
Resilience (0-100)	77.0 ± 10.1	75.8 ± 10.0	78.8 ± 10.6	76.4 ± 9.5	.16

Note: SM = Service Member, Depression = PHQ-9, Anxiety = GAD-7, Family communication = FPSC, Social readjustment = SRRS, Resilience = CD-RISC

^a n = 48, 52, 56 respectively. This scale is only assessed with participants who have children living in the home.

Table 2. Baseline Characteristics of READI Service Members

Variable	Total	Support	Webinar	Usual Care	<i>p</i> -value
	n = 227	n = 76	n = 76	n = 75	
	M ± SD or %	M ± SD or %	M ± SD or %	M ± SD or %	
Demographic					
Age, years	38.0 ± 7.9	37.8 ± 7.6	38.8 ± 7.3	37.2 ± 8.7	.47
Employed, full-time or part-time	75.3	78.9	76.3	70.7	.48
Branch of service					.47
Army	29.5	23.7	30.3	34.7	
Army Guard/Reserve	42.7	50.0	39.5	38.7	
Navy	7.5	7.9	5.3	9.3	
Naval Reserve	4.0	3.9	6.6	1.3	
Air Force	6.2	3.9	6.6	8.0	
Air Guard/Reserve	3.1	1.3	5.3	2.7	
Marines	5.7	5.3	6.6	5.3	
Marine Reserve	1.3	3.9	0.0	0.0	
Class					.72
Non-commissioned officer	42.7	42.5	45.2	48.5	
Commissioned officer	20.3	20.5	20.5	23.5	
Senior NCO	20.7	23.3	26.0	16.2	
Junior enlisted	7.5	9.6	4.1	10.3	
Warrant officer	3.1	4.1	4.1	1.5	
Status					.54

Serving in guard or reserve	44.5	52.6	44.7	36.0	
Serving in regular military	30.8	28.9	27.6	36.0	
Retired	11.5	6.6	11.8	16.0	
Discharged	10.1	9.2	11.8	9.3	
Other	3.1	2.6	3.9	2.7	
Years in military	14.0 ± 7.8	14.2 ± 7.1	14.0 ± 7.7	13.9 ± 8.6	.98
Receive VA services	39.9	34.7	43.2	41.9	.52
Deployment					
Deployments ever, number	3.6 ± 3.0	3.5 ± 2.7	3.6 ± 3.3	3.7 ± 3.0	.96
OEF/OIF deployments, number	2.1 ± 1.3	2.2 ± 1.6	1.9 ± 1.0	2.1 ± 1.3	.42
Previous deployments, number	1.6 ± 2.4	1.4 ± 1.8	1.7 ± 2.8	1.6 ± 2.7	.84
Months since return	21.8 ± 22.6	20.0 ± 19.5	23.3 ± 24.0	22.0 ± 24.0	.65
Months of last deployment	11.1 ± 4.7	12.0 ± 6.1	10.2 ± 4.1	10.9 ± 3.5	.06
Injured	62.1	63.2	59.2	64.0	.81
Months for SM to adjust to return	4.5 ± 6.5	3.9 ± 3.9	6.1 ± 9.0	3.4 ± 5.0	.19
SM not yet adjusted to return	46.8	43.3	45.6	51.5	.62
PTSD severity (17-85) ^a	42.9 ± 20.0	43.1 ± 20.2	40.5 ± 20.1	45.1 ± 19.6	.36
Meets criteria for PTSD Diagnosis ^a	43.6	43.4	38.2	49.3	.38

Note: SM = Service Member

^a Assessed with the PCL-P

Table 3. Mixed Model Analysis of Outcome Variables

Variable	Baseline M ± SD	6 Months M ± SD	12 Months M ± SD	Group p-value	Time p-value	Group by Time p-value
Anxiety (0-21)				.34	<.001	.67
Support	7.9 ± 5.5	5.5 ± 4.0	6.0 ± 4.8			
Webinar	7.1 ± 5.1	5.2 ± 4.4	6.1 ± 4.9			
Usual Care	7.9 ± 4.8	6.2 ± 4.4	5.5 ± 4.8			
Depression (0-27)				.49	<.001	.54
Support	6.6 ± 5.8	4.5 ± 4.6	4.8 ± 5.1			
Webinar	5.8 ± 5.2	4.4 ± 4.8	5.3 ± 4.8			
Usual Care	6.4 ± 4.7	5.3 ± 4.1	5.0 ± 4.7			
Resilience (0-100)				.68	.59	.24
Support	75.8 ± 10.0	78.1 ± 12.4	78.1 ± 11.0			
Webinar	78.8 ± 10.6	77.9 ± 13.0	76.3 ± 12.5			
Usual Care	76.4 ± 9.5	77.7 ± 10.7	78.0 ± 10.2			
Family Communication (0-30)				.77	.03	.57
Support	20.1 ± 6.7	22.0 ± 5.8	21.4 ± 5.9			
Webinar	21.1 ± 4.9	22.3 ± 5.9	21.3 ± 6.4			
Usual Care	21.7 ± 5.1	21.9 ± 6.4	22.0 ± 6.2			
Personal Coping (8-40)				.78	<.001	.67
Support	32.3 ± 5.2	33.3 ± 5.2	34.0 ± 4.7			
Webinar	32.7 ± 4.6	33.5 ± 4.9	33.2 ± 4.1			
Usual Care	32.4 ± 4.4	33.7 ± 4.3	34.0 ± 4.3			

Family Coping ^a (6-30)				.49	.01	.35
Support	26.9 ± 2.8	27.1 ± 3.6	27.3 ± 3.0			
Webinar	25.8 ± 3.7	26.4 ± 3.7	26.0 ± 3.4			
Usual Care	26.3 ± 2.9	26.6 ± 3.9	27.1 ± 3.0			

Note: Depression = PHQ-9, Anxiety = GAD-7, Family communication = FPSC, Resilience = CD-RISC. Mixed model analysis also included measurements at 3 months and 9 months.

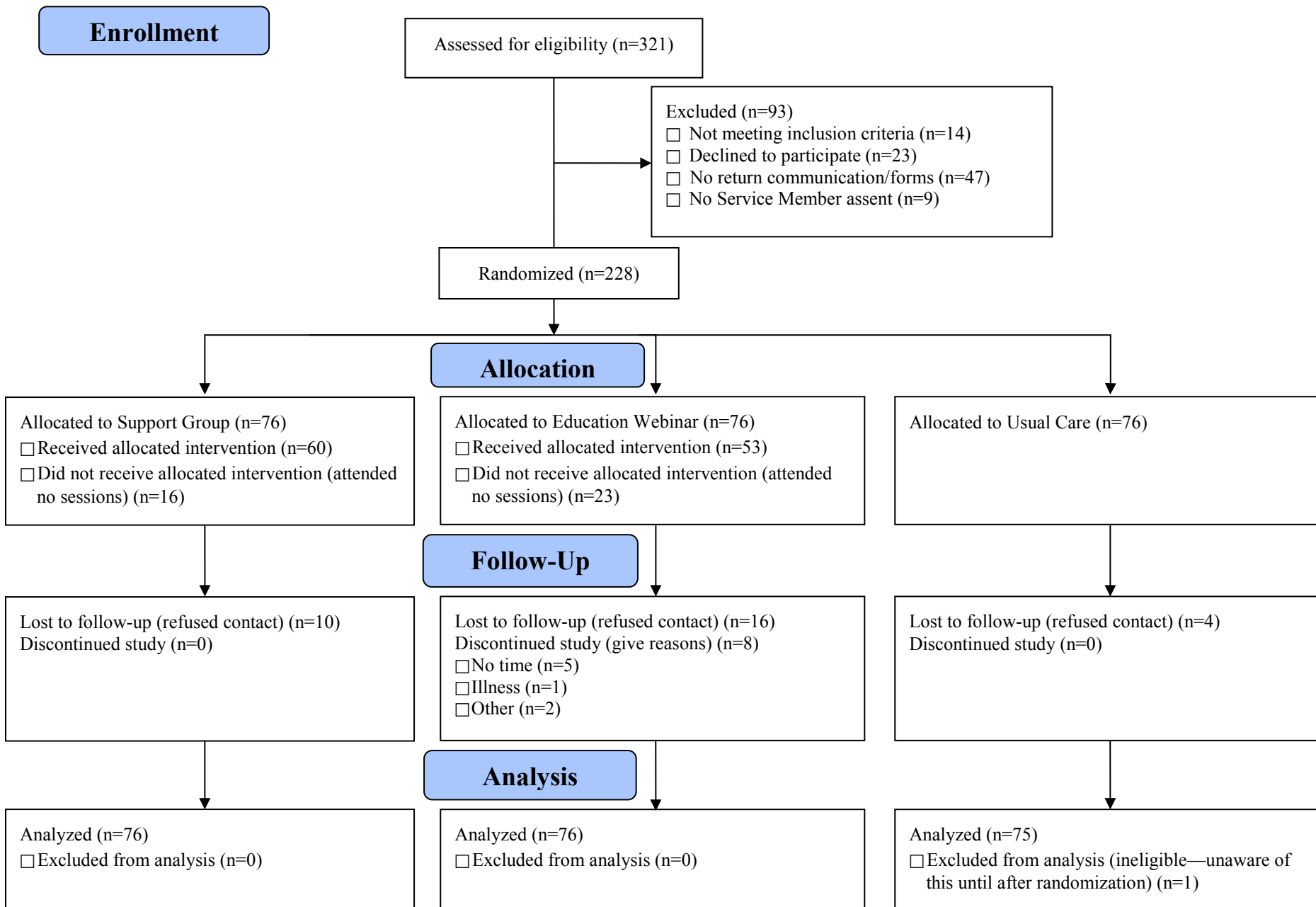
^aN = 156 and n = 48, 52, 56 respectively. This scale is only assessed with participants who have children living in the home.

Table 4. Project Benefit Themes by Randomization Arm

Randomization Arm and Themes	n (%)*
Support Group Themes	
Connecting with others	33 (34.3)
Great resources/workbook/wonderful staff	22 (22.9)
Self-efficacy	22 (22.9)
Improved relationship	8 (8.3)
Gap in services	6 (6.3)
Someone cares	5 (5.2)
Education Group Themes	
Self-efficacy	29 (38.7)
Great resources/workbook/wonderful staff	23 (30.7)
Improved relationship	9 (12.0)
Connecting with others	8 (10.7)
Someone cares	6 (8.0)
Control Group Themes	
Self-efficacy	46 (73.0)
Someone cares	10 (15.9)
Improved relationship	7 (11.1)

*Percentages are calculated from number of responses for each randomization group.

Figure 1. Consort Diagram of Enrollment and Study Progress



Service Member Need and Supportive Services Use of Military/Veteran Spouses

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Abstract

Military service members' deployment is associated with increased mental health diagnoses and supportive service use for their spouses. Using Andersen and Aday's behavioral model of healthcare use, we conceptualized need that could influence service use beyond spouse parameters to include concerns of the returning service member, specifically, service member post-traumatic stress disorder (PTSD) symptom severity, service member resistance to seeking services, and care difficulties from service member injuries. Spouse supportive services use was examined through hierarchical forward linear regression. Not all of the 212 spouses and their service members used supportive services. For spouses, 39.6% were using counseling or support services and 50.9% of service members were using services. Spouses who used supportive services were struggling with the service member's injuries, difficulties in care, and their own health. By themselves, spouse predisposing, enabling, and need factors did not significantly explain service use for spouses with 1.2%, 2.6% and 8.7% of variance explained respectively. However, service member need factors significantly influenced spouse service use and increased variance explained to 16.7%. The interdependence of family members and their influence on each other's health care use must not be overlooked.

Military service members' deployment is associated with increased mental health diagnoses and supportive services use for their spouses.¹ For example, the rate of use of mental health services is 19% to 27% higher among spouses of military members who have been deployed compared to spouses of non-deployed military members, with higher use associated with longer deployments.¹ Effects occur before, during, and beyond deployment. In a sample of 332 National Guard members and 212 significant others, of those meeting the criteria for mental health problems, 50% of service members and 61% of significant others used services.² Military-specific factors, such as combat injury or post-deployment aftermath of injury, certainly influence service use of service members and veterans. However, it is unclear whether these factors may also be related to service use of spouses of service members and veterans, because family members, including spouses and children, also suffer the effects of these stressors.^{1,3}

Andersen and Aday's behavioral model of healthcare use is the theoretical model most widely used to examine service use. The model includes three major categories: predisposing factors (e.g., demographic, social structural, and attitudinal-belief factors); enabling factors (e.g., family resources and characteristics of the community); and need factors (e.g., perceived and evaluated illness).^{4,5} In an examination of 328 articles using the model, the most frequently researched predisposing factors were age, marital status, gender/sex, education, ethnicity/nativity and employment status. Enabling factors most often studied were income/financial situation, health insurance, having a usual source of care/family doctor, and availability of medical services/inpatient and outpatient care facilities. The most frequently examined need factors were health status (mental or physical), self-reported/perceived health, diabetes, depressive symptoms, hypertension, heart disease, cancer, number of prior medical/chronic conditions, and daily activities/limitation in daily activities.⁶

Just as for the general population, for families of service members/veterans enabling and need factors are important influences on service use. For many service members, enabling factors, or more accurately a lack of enabling factors, can serve as barriers or perceived barriers for supportive service use. These barriers can be similar to those experienced by non-military individuals, such as general stigma associated with mental health care² or more related to military life and culture, such as specific concerns about service utilization appearing on military records² or general lack of trust in military health, administrative, and social services.⁷ For spouses/significant others of service members, barriers are similar to those in the general community, including costs of care, trouble with scheduling appointments, difficulty in getting time off work, and not knowing where to get help.² As in other populations seeking and using care, need for service is a critical factor in frequency and intensity of service use. However, military specific stressors such as current deployment are also associated with service use for both service members^{8,9} and their spouses.¹⁰

Perceived need has been conceived of as a biological, attitudinal, and societal construct consisting of the immediate reason for use, with capability to increase or decrease through such factors as health education, social structure, health beliefs, and financial means.⁵ However, we conceptualized need that could influence service use beyond these individual and societal parameters to include concerns of the returning service member; specifically, service member PTSD symptom severity, service member resistance to seeking services, and spouse care difficulties caused by injuries. Theoretically, this reasoning is sound. Need can be mutable,⁵ and family factors can impact perception of individual need.¹¹ This family dynamic has primarily been seen in children and parents where an infant's symptoms heighten the mother's distress,

leading to maternal negative affect and consequent maternal health care seeking, separate from the need to obtain services for the infant.¹²

The military spouse is part of an interdependent family system.¹³⁻¹⁵ Family stress and strain significantly impact military spouse psychological health.¹⁶ For example, combat deployment can worsen family members' psychological health.^{1,17-19} This linkage is made explicit in family resiliency and stress theory; during short-term adjustment or long-term adaptation to the stressful situation of coping with a service member injury and its consequences, the family unit or individual family members can experience deterioration.^{13,14,3} For example, Vietnam-era veteran PTSD has been found to negatively impact spouse or partner health, including increased depression, insomnia, family conflict, and secondary traumatization.¹⁹ In a study of spouses of service members/veterans of the Iraq and Afghanistan conflicts, wives of husbands with serious injuries, compared to those whose husbands had no or less serious injury, were more likely to be depressed, anxious, and have less social support.²⁰

This expanded behavioral model was used to examine supportive service use for military/veteran spouses. Spouse service use was hypothesized to be influenced by spouse predisposing factors, enabling factors, and need factors. Additionally, as the service member reintegrated back into the family, we hypothesized that service member post-traumatic stress disorder (PTSD) symptom severity, resistance to getting services, and difficulty with care caused by those injuries would be related to spouse service use.

Methods

Sample.

Participants were 212 spouses or significant others living as married, of a service member or veteran who was at least one month post deployment from Operation Enduring Freedom,

Operation Iraqi Freedom, or Operation New Dawn (OEF/OIF/OND). The analysis includes those participants who had complete baseline data available; thus, fifteen participants who did not answer the income question were excluded from the original sample of 227. All but three spouses were women. Spouses were participating in a randomized clinical trial, Spouse READI (Resilience, Education and Deployment Information), funded by the Department of Defense (DoD), Defense Health Program (DHP) and managed by the US Army Medical Research and Materiel Command, Military Operational Medicine Research Program (MOMRP). The study compared telephone support groups, informational webinars, and usual care, and was overseen by the Memphis VA Medical Center Institutional Review Board. Baseline data from spouse self-report, the basis for this analysis, were collected by telephone by trained and certified research specialists.

Model Development.

Spouses were asked if they or their service member had received any type of counseling or other supportive services in the past six months. If yes, spouses were asked to report all services used, choosing from a list of services including support group, counseling (individual, couples, family, pastoral), treatment for drug/alcohol use, medication for depression or anxiety, online education/support, or another supportive service.

Spouse model factors were chosen based on those factors most often examined in the service use behavioral model for individuals⁴⁻⁶ plus factors relating to the service member's reintegration and injury. Spouse predisposing factors included spouse demographics of age, race, ethnicity, education, and spouse frustrations with trying to find resources. Gender/sex was excluded because of the low number of male spouses. Spouse frustrations with trying to find

resources to help or assist with reintegration issues was assessed with one question from the potential reintegration concerns,²⁰ scored 0 (no) or 1 (yes).

Enabling factors included monthly household income, employment status and social support. Employment was recoded as (1) (employed full-time or part-time) and (0) (not employed – homemaker, unemployed, disabled). The Multidimensional Scale of Perceived Social Support (MSPSS)²¹ has 12 questions focusing on family, friend, and significant other support. The questions are scored on a seven-point scale and scores are summed. The MSPSS has good internal consistency, with a Cronbach's alpha for the total scale of .91 and alphas for the Family, Friends, and Other subscales of .90, .94, and .95, respectively.²²

Spouse need factors included depression, anxiety, resilience, and health status. The Patient Health Questionnaire (PHQ-9) was used to assess depression.²³ The PHQ-9 has 9 items based on the DSM-IV depression diagnostic criteria that are scored from 0 (not at all) to 3 (nearly every day). Scores are summed to characterize depression as minimal (0 to 4), mild (5 to 9), moderate (10 to 14), moderately severe (15 to 19), or high/severe (20 to 27). Cronbach's alphas from the original samples are .86 and .89. With a cut-point of 10, sensitivity is .88 and specificity is .88 for detecting major depression.²³

The Generalized Anxiety Disorder-7 scale (GAD-7)²⁴ assessed anxiety. The GAD-7 contains a 7-item checklist of anxiety symptoms focusing primarily on generalized anxiety disorder, but the measure also screens for other anxiety disorders (panic disorder, social anxiety disorder, and post-traumatic stress disorder – PTSD).²⁵ Scoring for each item ranges from 0 (not at all) to 3 (nearly every day) for an overall score of 0 to 21; higher scores equal more anxiety. The GAD-7 has a Cronbach's alpha of .92. Used as a screening instrument for general anxiety disorder, a cut-point of 10 gives sensitivity of .89 and specificity of .82.²⁴

The 25 items of the Connor-Davidson Resilience Scale (CD-RISC) examined how respondents felt during the last month, with responses from (0) not true at all to (4) true nearly all of the time.²⁶ Higher scores reflect greater resilience. The scale has been shown to have a Cronbach's alpha of .89 with good test-retest reliability (intraclass correlation coefficient of .87).

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General health was assessed with one item from the Medical Outcomes Study 36-Item survey²⁷ asking about general health. Response options range from 0 (poor) to 4 (excellent). This question is comparable to longer instruments in predicting mortality, hospitalization, and high outpatient use.²⁸

Service member related need factors, from spouse self-report, included PTSD symptom severity, service member resistance to seeking help, and care difficulties related to injuries. The Partner PTSD Checklist (PCL-P),²⁹ a 17-item questionnaire that correlates to the PTSD Checklist-Military (PCL-M),³⁰ was used to assess spouse perceptions of service member PTSD symptoms during the past month. Items on the PCL-P are similar to those on the PCL-M and are scored the same way.²⁹ The PCL-M³⁰ is a 17-item measure that assesses the frequency of PTSD symptoms during the past month. Items are scored from 1 (not at all) to 5 (extremely), with an overall score of 17 to 85, with higher scores indicating greater number of symptoms or greater severity. It has excellent internal consistency (Cronbach's alpha = .97). At a cut-point of 50, sensitivity is .82 and specificity is .83.³⁰ Correlation between the PCL-M and the PCL-P instruments for overall PTSD has been shown to be .71.²⁹

Service member resistance to getting help for reintegration issues was assessed with one question from the potential reintegration concerns,²⁰ scored 0 (no) or 1 (yes). Spouses were also

asked if the service member had been injured (including PTSD) and if yes, if the injury had caused difficulties or extra care, scored 0 (no) or 1 (yes).

Data Analysis

Baseline data were compared between spouses who used services and those who did not using chi-squared or independent-samples t-tests, as appropriate. For data that did not meet criteria for the chi-squared test, Fisher's exact test *p*-values are reported. Percentage of services used for spouses and service members were compared using difference of proportion tests. *P* values less than or equal to .05 were considered statistically significant, and those between .05 and .10 were considered to document trends that approached, but did not attain, statistical significance. Multivariate models were constructed using forward linear regression, introducing blocks of predisposing, enabling, spouse need, and service member need factors successively as predictors of spouse service use.

Results

The tables show baseline data relating to supportive service use for the 212 spouses. Not all spouses and their service members used supportive services. For spouses, 39.6% were using counseling or support services and 50.9% of service members were using services. As shown in Table 1, the most common service used was counseling. As expected, for spouses and service members, number of services used was related ($r = .532, p < .001$). However, there was a statistically significant difference in the proportion of services used between spouses and service members for three services. Service members were more likely to use alcohol/drug treatment and psychotropic medications, and spouses were more likely to use online services.

- Insert Table 1 about here -

There were no significant predisposing or enabling factors differences between spouses who were using supportive services and those who were not using services, as shown in Table 2. For spouse need factors, depression, anxiety, and general health status were significantly different between the two groups, with a trend in resilience. Those using services had more depression and anxiety symptoms, and were in poorer health and were less resilient, than those who were not using services.

For service member need factors, spouses who used supportive services were more likely to report care difficulties caused by the service member's injury. Not all service member injuries caused care difficulties for the spouse. A total of 62% of spouses reported that their service member had been injured, but only 51% of spouses reported that they were dealing with care difficulties from injuries. The main types of care difficulties included monitoring and managing/assisting the service member, particularly those with PTSD and TBI, driving to appointments, helping to recover from surgeries, and assistance with medications. Spouses who reported dealing with care difficulties used significantly more services than spouses who were not (1.67 vs. 0.78, $p = .001$) as did their service members (2.38 vs. 0.54, $p < .001$).

- Insert Table 2 about here -

In examining predictors of spouse supportive service use, as shown in Table 3, the predisposing factors model was not significant nor were any of the model factors, and the model only explained 1.2% of variance in supportive service use. Adding enabling factors resulted in an additional 1.4% in variance explained and neither the model nor any of the factors were statistically significant. Analysis of adding spouse need factors had a similar outcome, with neither model nor any factors statistically significant, although explained variance increased to 8.7%, and R^2 change was significant. With the addition of service member need factors, three

factors significantly predicted spouse service use: service member PTSD severity, injuries causing care difficulties, and spouse frustration at finding resources. The model itself and the R^2 change were statistically significant, and the model explained 16.7% of variance.

- Insert Table 3 about here -

Discussion

Although the models did not explain large percentages of variance in supportive services used by military/veteran spouses, they provided insights into the role of service member need as a predictor of spouse service use. By themselves, spouse predisposing, enabling, and need factors did not significantly explain service use for spouses. However, addition of three service member need factors significantly influenced spouse service use. In the model that included service member need factors, service member PTSD symptom severity, care difficulty for the spouse caused by a service member injury, and spouse frustration at finding resources to aid with reintegration were all statistically significant.

Interestingly, the importance of spouse frustration at finding services to aid with reintegration issues only became evident with the addition of service member need. Although there was no significant difference in service use for frustrated spouses, compared to non-frustrated spouses, there was a difference for their service members. For spouses who were frustrated at finding services, 63.2% of their service members were using counseling and support services compared to 42.4% of service members of spouses who were not frustrated ($p = .003$). This finding suggests that, even with the higher service use of service members whose injuries caused care difficulties, spouses still perceive gaps in care.

The study has certain limitations. All but three spouses/significant others were female. Service use was limited to supportive services and did not include general outpatient or inpatient care. In addition, all factors and service use for both spouse and service member were spouse

self-reports. Mental health diagnoses for spouses or service members, which could document an objective need factor, were not available. However, despite its limitations, the study suggests multiple opportunities for future work. For researchers, additional study is needed to expand our understanding of the role that each family member plays in the health of the others. Close attention to the mechanisms by which these impacts occur may expand caregiving science to show caregiver health and well-being may suffer from factors not generally considered in the stress-health process. An appreciation of the inter-relations between family members and health care use will help clinicians treat individuals in their role in the family and the family unit itself appropriately. For health care systems, the study makes a strong case to ensure that interdependence among family members is considered and integrated into existing military and veteran systems of care, which is not always the case.^{15,16,31}

Spouses who used supportive services were struggling with the service member's injuries and difficulties in care, and their own health, in the form of depression, anxiety, and poorer general health. In addition, service member need factors helped to explain the use of supportive services by their spouses. Although the mechanism of action between spouse and service member need and service use cannot be specified from our data, the caregiving role may be a factor in spouse service use. Research has clearly shown that caregivers have increased morbidity and mortality; the mechanism of action generally postulated for this decreased well-being has been that of the stress of caregiving and its impact on health, although our study suggests that illness of the care recipient can contribute to that stress. The family is an integrated system. As the Army Family Strong website states, "Everything the soldier goes through, you go through." The interdependence of family members and their influence on each other's health and health care use should be considered in any health care encounter.

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Table 1. Baseline Couple Service Use (N = 212)

Service Type	Spouse	Service	Total
	(n=84)	Member (n=108)	
	Number of Services Used (% of Total Use)	Number of Services Used (% of Total Use)	Number of Services Used (% of Total Use)
Support Group	37 (14.2)	36 (11.5)	73 (12.7)
Counseling (Individual, Couples, Family, Pastoral)	144 (55.4)	173 (55.3)	317 (55.3)
A/D Treatment*	2 (0.8)	11 (3.5)	13 (2.3)
Psychotropic Medications*	42 (16.2)	72 (23.0)	114 (19.9)
Online Service**	29 (11.2)	16 (5.1)	45 (7.9)
Other	6 (2.3)	5 (1.6)	11 (1.9)
Total Use	260	313	573

Difference of proportions tests for spouse and service member service use

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 2. Baseline Characteristics of Spouses Using and Not Using Services (N = 212)

Variable	Spouse Used	Spouse Not Used
	Services (n = 84)	Services (n = 128)
	M ± SD or %	M ± SD or %
Predisposing		
Age, years	35.9 ± 8.4	37.0 ± 8.9
Race		
White	83.3	75.0
Black	9.5	14.8
Native American	0.0	3.1
Asian/Pacific	2.4	1.6
Islander		
Other	4.8	5.5
Latino/a	11.9	12.5
Frustrations	39.3	42.2
Education	15.3 ± 1.8	15.1 ± 2.2
Enabling		
Household income, monthly	5100 ± 2633	5027 ± 2682
Employment status		
Full-time	39.3	36.7
Part-time	21.4	16.4
Homemaker	26.2	36.7

Variable	Spouse Used	Spouse Not Used
	Services (n = 84)	Services (n = 128)
	M ± SD or %	M ± SD or %
Unemployed	9.5	9.4
Disabled	3.6	0.8
Social support (12-84)	64.8 ± 12.0	65.7 ± 12.5
Spouse Need		
Depression (0-27)*	7.1 ± 5.6	5.6 ± 4.9
Anxiety (0-21)*	8.6 ± 5.0	6.9 ± 5.1
General health (0-4)*	2.2 ± 1.0	2.5 ± 1.0
Resilience (0-100)	75.4 ± 10.3	77.7 ± 9.8
Service Member Need		
PTSD symptom severity (17-85)	45.4 ± 20.0	41.5 ± 20.0
Resistant to care	45.2	44.5
Care difficulty from injury*	60.7	43.8

Note: Depression = PHQ-9, Anxiety = GAD-7, Resilience = CD-RISC, PTSD = PCL-P

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 3. Spouse Supportive Service Use Regression Models (N = 212)

	Stage 1	Stage 2	Stage 3	Stage 4
Variable	Beta	Beta	Beta	Beta
Predisposing				
Age	.062	.065	.037	.021
White	.074	.072	.030	.086
Latino/a	.005	-.006	-.034	-.046
Frustrations	.004	-.014	-.089	-.196*
Education	.047	.065	.078	.107
Enabling				
Income		-.058	-.026	.024
Employed		.097	.121	.123
Social support		-.058	.050	.105
Spouse Need				
Depression			.104	.087
Anxiety			.135	.074
General health			-.055	-.009
Resilience			-.086	-.093
Member Need				
PTSD symptom severity				.260*
Resistance to care				-.032
Care difficulty from injury				.167*
R ²	.012	.026	.087	.167***
R ² change		.014	.061*	.081***

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Support for Spouses of Post Deployment Service Members

Abstract

This randomized clinical trial of spouses coping with reintegration of the service member post deployment enrolled 228 spouses/significant others Active Duty/National Guard/Reserve service members who had served in Iraq or Afghanistan, approximately 76 in each study arm. For the main intervention arm, each telephone support group met 12 times during six months. For the attention control arm, online/telephone education webinars also met 12 times during six months. A Participant Workbook including comprehensive materials for all sessions and topics, other resources, and red flag resources was provided to these two groups. For the usual care arm, at the end of their participation, participants were offered a telephone workshop focusing on the components covered in the telephone groups and received the Participant Workbook. Outcomes included depression and anxiety symptoms, resilience, personal/family coping, and communication. Data were collected by telephone, at baseline, 6, and 12 months with outcomes only collected at 3 and 9 months. Participant satisfaction and benefit was measured with a qualitative project evaluation. Participants in all three study arms improved. These improvements occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return. Participants in all study arms attributed benefit to improved self-efficacy. Support participants cited self-reflection, skills building, support of other group members, and resources available to them. Education participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building, or support of others, usual care participants highlighted how the assessment battery had made them question and modify their thoughts and behaviors.

Background

The length of the war and the recurring and frequent deployments have increased the numbers of injuries, illnesses, and difficulties experienced by service members who served in Iraq (Operation Iraqi Freedom – OIF and Operation New Dawn - OND) and Afghanistan (Operation Enduring Freedom – OEF). Almost half (43%) of service members deploy multiple times and 17% deploy three or more times (Chretlen & Chretlen, 2013; Link & Palinkas, 2013). Soldiers serving their third or fourth tour in Afghanistan were more than twice as likely as those on their first tour to exhibit acute stress, depression, or anxiety, and more than three times as likely to use mental health medications (Chretlen & Chretlen, 2013; Hazle, Wilcox, & Hassan, 2012).

Post deployment, service members report mental health concerns such as depression, anxiety and PTSD symptoms (Hoge et al., 2004; Hoge, Auchterlonie, & Milliken, 2006; Howard, 2007). They also report increased interpersonal conflict, divorce, separation or problems getting along with relatives or children (Eaton et al., 2008; Link & Palinkas, 2013). Service member depression can impede personal relationships and cause emotional and financial stress in the family (Hazle, Wilcox, & Hassan, 2012).

It is impossible to consider the service member separately from the military family unit; there are effects of the war on families as well as the service member (Basham, 2013; MacDermid Wadsworth, 2013). Family stressors, strain, and resources are important for military spouses' psychological health (Green, Nurius & Lester, 2013). Deployment effects on the military spouse include increased loneliness, anxiety, depression, sleep disorders, adjustment disorders and stress, and family dysfunction (Link & Palinkas, 2013; Mansfield et al., 2010). Although rates are generally similar to those of service members (Eaton et al., 2008), spouses are almost four times more likely than service members (21.7% vs. 6.2%) to report that stress or emotional problems impact their work or other activities (Hoge, Castro, & Eaton, 2006).

Reliance on Reserve and National Guard forces, who are 44% of OIF/OEF/OND veterans, may have long term implications for these service members and their families. These service members are more than twice as likely to have a mental health problem as those who are active duty and combat deployment can worsen family members' psychological health (Chretlen & Chretlen, 2013; Link & Palinkas, 2013). For example, 70% of Guard members reported parenting concerns and a fifth of Guard diagnosed with PTSD expressed relationship distress (Link & Palinkas, 2013). For National Guard spouses, 34%, compared to 40% of Guard members themselves, screen positive for mental health problems (Gorman, Blow, Ames, & Reed, 2011). Spouses who are more anxious have lower levels of social support and worse health (Fields et al, 2013).

Service member, spouse, and family mental health concerns are reasons why reunion and reintegration are often stressful, but not the only reasons (Blow et al., 2012; Knobloch & Theiss, 2011). Relationship uncertainty and unhelpful behavior by partners can exacerbate depressive symptoms and relationship dis-satisfaction after deployment (Knobloch & Theiss (2011). Deployment itself does not appear to be a risk factor for negative relationship change post deployment among United Kingdom military personnel. However, there are risk factors that are associated with relationship breakdown and difficulty readjusting. These include younger age, childlessness, increased length of deployment, problems adjusting on return from deployment, family violence, problems resuming sexual relationships, PTSD, other common mental health problems, and alcohol misuse (Morin, 2011; Rowe et al., 2013).

Another relationship difficulty during reintegration is re-negotiating roles and responsibilities that have changed during deployment (Bell & Schumm, 2000; Blow et al., 2012; Drummet, Coleman, & Cable 2003; Faber, Willerton, Clymer, MacDermid, & Weiss, 2008; Hosek, Kavanagh, & Miller, 2006; Nichols et al., 2013 a and b; Segal & Segal, 2003). The service member and family members must determine whether and how to resume previous patterns of roles and responsibilities, or to give up roles taken on during deployment, and negotiate new roles and responsibilities (Knobloch & Theiss, 2011; Sayers, Farrow, Ross, & Oslin, 2009). Family functioning is likely to be even more impaired if the service member/veteran exhibits PTSD symptoms (Dekel & Monson, 2010). Communication difficulties post deployment are a critical source of misunderstandings and conflict in relationships. For example, adaptive deployment behaviors, such as avoiding sensitive topics, may cause difficulty upon return (Faber et al., 2008; Knobloch & Theiss, 2011).

Recommendations to assist military families with reintegration (Booth, Wechsler Segal, & Bell, 2007) include strategies that provide education about effects of deployment on the service member and family, support from others who have been through the same experiences, and practical skills building, including problem solving skills, communication skills, stress reduction skills, and cognitive/mood management. These strategies have been shown to be the building blocks of successful caregiver interventions (Belle et al., 2003; Gottman, Gottman, & Atkins, 2011, Schulz et al., 2003). They are also consistent with health-stress models that help to explain how individuals deal with stress and how they cope (Lazarus & Launier, 1978).

However, many military families do not use available resources (Di Nola, 2008). Barriers to receiving care can be structural, financial, personal, social and cultural (Basham, 2013), with work and childcare common barriers to accessing care (Hoge, Castro, & Eaton, 2006). Because they are not on base, National Guard families face an additional lack of resources that are typically found on active-duty installations, and there is need for state and federal government and communities to work with National Guard/Reserve families after deployment (Blow et al., 2012). Even for active duty families, assistance may not always be available or used. For example, for the sample of spouses in this study, less than one quarter had post deployment training to help them cope with reintegration challenges; the figure is the similar for training during deployment.

Because individuals and families are likely to seek care in the community, there is need for community providers to be trained in military specific care (Chretlen & Chretlen, 2013) and for resources to be available, particularly in rural areas (Hazle, Wilcox, & Hassan, 2012). Currently, the level of knowledge and confidence of community providers to provide care for military related conditions are low. In a web-based survey (Kilpatrick, Best, Smith, Kudler, & Cornelison-Grant, 2011), community mental health and primary care providers reported a lack of knowledge about VA and DOD health-care and available resources, and uncertainty about their ability to provide best practice care for Traumatic Brain Injury (TBI), PTSD, and substance abuse. Most providers did not screen for military history and were not sure if their patients had been in the military. In addition, most providers did not have military experience themselves.

Telehealth options, telephone support groups, web-based training, information on resources available in the community, and collaborative health partnerships, particularly in rural areas, would ease some of the constraints in providing care by community providers to veterans, military personnel, and their families.

Both telephone support groups and web-based training have been used to provide information to stressed populations. Web-based materials are available at multiple sites, such as Military One Source and the VA's Caregiver Support Program website, and are routinely recommended to spouses. Telephone groups circumvent resource obstacles such as lack of local services, access, and travel and are currently being implemented nationally. Telephone groups have been used for stressed and/or isolated populations, including HIV/AIDS patients and caregivers (Nokes, Chew, & Altman, 2003; Stewart et al., 2001), chemotherapy patients (Alter et al., 1996), stroke patients (Hartke & King, 2003), and dementia caregivers (Belle et al., 2006; Martindale-Adams, Nichols, Burns, & Malone, 2002). For dementia caregiving telephone support groups, findings have been mixed. A recent study did not show a group by time improvement in outcomes such as depression or anxiety for telephone support groups over control conditions (Martindale-Adams et al., 2013). Other research has reported participant satisfaction and success in managing the technology (Bank, Argüelles, Rupbert, Eisdorfer, & Czaja, 2006; Martindale-Adams et al., 2002) and improvements in mental health status, self-efficacy, and social support (Marziali & Garcia, 2011).

Telephone support group interventions can make a difference in the lives of military spouses. Our previous DoD CDMRP sponsored pilot (W81XWH-08-2-0195) of spouses of returning Iraq and Afghanistan military service members was designed to demonstrate the feasibility and effectiveness of a telephone support group intervention for spouses of returning Iraq and Afghanistan service members. From baseline to follow-up, spouses reported significantly improved depression, anxiety and social support. Two of the three statistically significant findings, depression and anxiety, also met criteria for clinical significance. Over the course of the study, spouses reported a decreased level of concern about effects of reintegration on their social life, their home life, their family, their husband, and themselves. Spouses who were dealing with injuries that caused care difficulties were more burdened, but had a stronger clinical response to the intervention than spouses who were not coping with care difficulties (Nichols, Martindale-Adams, Graney, Zuber, & Burns, 2013a; Nichols et al., 2013b).

Guard/Reserve and Active Duty spouses participated in equal numbers, suggesting that even families that have access to resources for military families on base can use additional assistance. The study originally targeted spouses of newly returned service members during the first year post-deployment, when reintegration and mental health difficulties have been found to increase. However, the length of time post deployment ranged from one month to 80 months, with average time post deployment greater than two years.

Clearly, for some families, reintegration tasks continue to provide challenges and concerns several years after deployment ended and support should be ongoing. Based on these findings, the Veterans Health Administration (VHA) system of the Department of Veterans Affairs instituted telephone support groups for spouses of post 9/11 veterans in 2011 as a national clinical program.

These findings suggested that telephone support groups are a viable means of providing services to military spouses. Therefore, to meet the need for information, support and skills for military spouses coping with reintegration of the service member, and to overcome obstacles of distance, access, and lack of community resources, we tested telephone support groups and education webinars (attention control), compared to usual care.

The active and attention control interventions were grounded in the health process model of stress and coping. Individuals evaluate whether environmental stressors/demands pose a potential threat and whether they have coping capabilities (Lazarus & Launier, 1978). If they perceive demands as threatening and coping resources as inadequate they will experience stress. Stress is a major concern for military spouses, with specific stressors such as role negotiations (Bell & Schumm, 2002, Drummet, Coleman, & Cable, 2003; Faber et al., 2008; Segal & Segal, 2003). Coping with stress can include efforts to change the specific stressor or the behavioral response to the stressor. Resources and options available to the stressed person shape coping activity. For example, social support is an important resource for military spouses (Rosen & Moghadam, 1990), as are services available on base to active duty families (Faber et al., 2008; Segal & Segal, 2003), and information and skills directed toward diminishing, tolerating, or mastering situational demands. Both support group members and those participating in the education webinars had opportunity to gain knowledge and skills directed toward specific difficulties families encounter during reintegration, such as integrating social support systems of both partners into the family and role negotiation, and communication, through didactic and written materials presented by the Group Leaders. Support group members also had additional skills building practice and support through their interactions with other support group members.

Managing emotional and cognitive responses (Lazarus & Launier, 1978) is another important component of coping that was targeted in the two active interventions. Perceptions of demands and coping are very individualized, and effects of deployment vary among individuals and families (Boss, 1986). Spouses had the opportunity to strengthen their psychosocial resources through learning how to recognize and change negative thoughts and to use assertiveness, relaxation techniques, and other intrapersonal coping strategies.

Goals, Aims and Hypotheses

The goal of the study was to determine whether spouses of returning service members could be helped to cope with their own concerns after their partner's return from deployment and to serve as a support system for the partner. We hypothesized that the telephone support group arm, compared to the education webinars and usual care, would be more effective in improving spouse outcomes, including depression, anxiety, resilience, personal/family coping strategies, and family problem-solving communication. We further hypothesized that the education webinar study arm, compared to usual care, would be more effective in improving outcomes.

Methods

Overview. Spouse READI (Resilience Education and Deployment Information) was a five-year randomized clinical trial, October 2009 to February 2014, funded by the Department of Defense (DoD), Defense Health Program (DHP) and managed by the US Army Medical Research and Materiel Command (USAMRMC), Military Operational Medicine Research Program (MOMRP). READI participants were spouses or significant others of a service member/veteran who participated in OEF/OIF/OND and was at least 1 month post-deployment; had been a spouse throughout the recent deployment period; and lived with the service member/veteran when not deployed. Spouses were recruited through mailed brochures, online materials, social media, and contact with military bases, VA facilities, or Family Readiness Group leaders.

The study was approved and conducted under the oversight of the Memphis VA Medical Center (VAMC) Institutional Review Board (IRB) and the USAMRMC Human Research Protection Office. Informed consent was collected by telephone. Per IRB instruction, after successful screening, the spouse was asked to obtain service member/veteran verbal assent for the spouse to participate in the study. After assent was documented, an informed consent form was mailed to the potential participant for an informed consent call. Blocked randomization (to ensure that arm characteristics were consistent over time) occurred after a baseline data collection call. Privacy and information security procedures included ID numbers on all analytic files, secure paper and electronic files with access limited to study personnel, and password protected, secure servers. All names and identifying information were kept in databases and files separate from study data.

Intervention. In lessons learned from our pilot telephone support study, spouses requested modifications to better meet their needs and these modifications were incorporated into the current study. Spouses requested increased time for spouse participation and sharing during the hour sessions, and increased focus on spouses and their concerns while still acknowledging their role as the support of the service member. Logistically, spouses suggested that the duration of the groups go from one session a month for one year to two a month for six months, because once a month was too long to wait between groups; *“Thirty days is a long time... thirty days of hell for some people.”* They also suggested repeat sessions for those who must miss a session. Key features of the interventions are detailed below.

Telephone Support Groups. The telephone support groups were designed to have 6 members and a trained Group Leader, who was an experienced counselor. Groups met twice a month for six months. Groups were pre-scheduled on three different nights and at pre-determined times based on times that spouses were available and an acknowledgement that participants' schedules often change due to family, work and school schedules. Participants were encouraged to stay with the same group, but had the option to join another group if their schedule changed or to make up a missed session.

Because telephone support groups are not face-to-face, they may have a lack of interpersonal verbal and physical cues. To help with this potential difficulty, the support group leader was trained and certified in directing groups that lack face-to-face interaction. Group rules such as having group members identify themselves when speaking and give clear feedback also helped to encourage interaction and a sense of camaraderie.

Format and structure of one hour telephone support sessions included strategies and skills that have been successful in caregiving interventions, including education, training in and practice of coping skills (e.g., problem solving, communication) and cognitive restructuring (identifying and re-shaping negative and destructive thoughts), and support (Belle et al., 2006; Gottman, Gottman, & Atkins, 2011, Schulz et al., 2003). Learning and practice of new practical coping skills to help participants normalize their experiences in a safe environment was an important part of this program. At each session, participants were encouraged to develop a concrete, defined, strategy related to the topic and to write down the coping strategy they would try (commitment) (Najavits, 2002). The telephone groups had a structured format with scripted talking points, but were also participant-centered to incorporate participant input and direction of discussion.

Each participant had a one-on-one introduction call that focused on group logistics and rules (e.g., identify yourself when you speak, do not identify individuals you are speaking about) and

the basics of problem solving. An ending one-on-one call included a topic review and lessons learned for the spouse. Group session topics included social support, communicating, emotional intimacy, family roles, commitment, mental health and resilience, asking for help from the community and others, navigating the system, strengthening your relationship, taking care of you, and TBI and PTSD. Each group session had a similar format with a review of member commitments from the previous sessions, a brief didactic presentation followed by member discussion of the topic, coping skills practice during the session, and commitments to try at least one skill between sessions.

A Participant Workbook provided materials for each session and additional resource material expanding on the topic plus “red flags” for spouse or service member – areas that may exacerbate problems, add difficulty or distress, and/or indicate a need for referrals (e.g., unsafe behaviors, substance abuse, spouse abuse, PTSD, depression, traumatic brain injury).

Attention Control Arm and Usual Care Arm. The attention control arm included 12 half-hour-long education webinar sessions during six months. Each participant received the Participant Workbook. The topics were the same as those covered in the intervention arm. However, there was no spouse interaction/support (i.e., participants could listen but not interact with each other) or active skills building components. Sessions were recorded so that spouses could be sent links to watch if they missed a session. Usual Care participants did not receive any contact during the study period, except for data collection and any alert calls, which were follow ups if data collection identified dangerous findings such as suicidal or homicidal ideation, suspected or admitted domestic abuse, increased alcohol/drug use, clinical depression levels, or psychotic symptoms. At study's end, they were offered the Participant Workbook and a workshop covering the topics, targeted to the individual's expressed needs.

Data. Quantitative data collection, by telephone by trained and certified research associates using standardized measures, occurred at baseline, 6 and 12 months (full), and 3 and 6 months (partial). Response cards were sent to participants beforehand to assist in data collection. Qualitative data included Group Leader notes charting progress for each group member and commitments for group members. Perceived participant benefit, collected at final follow-up, measured satisfaction, usefulness, relevance, and type of benefit. No data were collected from the service member.

Outcomes. Outcomes included depression, anxiety, resilience, personal/family coping, and family communication. The Patient Health Questionnaire (PHQ-9) was used to assess depression (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has 9 items based on the DSM-IV depression diagnostic criteria that are scored from 0 (not at all) to 3 (nearly every day). Scores are summed to characterize depression as minimal (0-4), mild (5-9), moderate (10-14), moderately severe (15-19), or high/severe (20-27). On the PHQ-9, major depressive disorder is suggested if 5 or more items, at least one of which must be one of the first two items, (interest and feeling depressed, also known as the PHQ-2) are ranked positive (at least "more than half the days"). The last item on the PHQ-9 (thoughts of being better off dead or hurting self) is counted toward major depressive disorder if rated at least "several days."

The Generalized Anxiety Disorder-7 (GAD-7) (Spitzer, Kroenke, Williams, & Löwe, 2006) was used to assess anxiety. For screening anxiety disorders, the GAD-7 contains a 7-item checklist of anxiety symptoms focusing primarily on generalized anxiety disorder, with a score of ≥ 10 , but the measure has been shown to have reasonably good performance in detecting other anxiety

disorders (panic disorder, social anxiety disorder, and PTSD) (Kroenke, Spitzer, Williams, Monahan, & Löwe, 2007). Scoring for each item ranges from 0 (not at all) to 3 (nearly every day) for an overall score of 0 to 21; higher scores indicate more anxiety. Sensitivity is .89 and specificity is .82 (Spitzer et al., 2006).

The Connor-Davidson Resilience Scale (CD-RISC) 25 items examine resilience in how respondents felt during the last month, with responses from (0) not true at all to (4) true nearly all of the time (Connor & Davidson, 2003). Higher scores indicate greater resilience. The scale has been shown to have a Cronbach's alpha of 0.89 with good test-retest reliability (intraclass correlation coefficient of 0.87).

Personal/family coping behaviors are from the 1991-1992 Survey of Army Families II in USAR-EUR (Pittman, Kerpelman, & McFadyen, 2004; Durand, Larison, & Rosenberg, 1995). Fourteen items measure how wives of deployed personnel manage day-to-day activities, from household tasks to coping with loneliness. Six of the items are family coping related to child care; the other eight items relate to personal coping. Each item uses a 5-point scale from (1) very poorly to (5) very well. In a factor analysis of 5 of the items treated as an additive scale, reliability was alpha = .77 (Pittman, personal communication).

Quality of family communication is a determinant of how families manage tension and strain and develop good family functioning (McCubbin et al., 1996). The 10-item Family Problem Solving Communication scale (FPSC) evaluates positive and negative aspects of communication that families use to cope with stress and difficulties and was developed to examine family stress and resiliency. Each item is scored on a 4-point scale from completely false (0) to completely true (3). A total score and two subscale scores (affirming and incendiary communication) can be computed. The FPSC has excellent internal consistency with an alpha of .89 for the total scale and alphas of .86 and .78 for the respective subscales. Test-retest correlation is .86 and the scale has good concurrent validity.

Independent Measures. Independent measures were selected to characterize the study sample and to assess factors that have potential to affect the outcome measures and/or the reintegration process. Demographics included participant name; date of birth; gender; race/ethnicity; years married; employment status; number of people in household, ages and relationships; income; and service member's branch of service, date of birth, rank, and previous deployments.

Health status was measured on a 5 point scale ranging from 0 (excellent) to 4 (poor) (Ware et al., 1995). Health services (e.g., general health, hospital admission) were tallied. Spouses were asked if they or their service member had received any type of counseling or other supportive services during the past six months. If yes, spouses were asked to report all services used, choosing from a list of services including support group, counseling (individual, couples, family, pastoral), treatment for drug/alcohol use, medication for depression or anxiety, online education/support, or another supportive service.

For marital quality, the Quality of Marriage Index (QMI) (Norton, 1983) was used. A 7-point scale is used for rating five of the six QMI items, which are attitudes and behaviors with responses from (1) very strongly disagree to (7) very strongly agree. The last QMI item, overall degree of happiness, is rated on a 10-point scale, (1) very unhappy to (10) perfectly happy. Total scores range from 6 to 45, with higher scores indicating greater relationship satisfaction. The measure has high internal consistency (alpha coefficient for both women and men = 0.97) and excellent convergent and discriminant validity (Heyman, Sayers, & Bellack, 1994).

Personal/family stress was measured in two ways. The Social Readjustment Rating Scale (SRRS) is a list of 43 stressful life events, both positive and negative, that can contribute to illness (Holmes & Rahe, 1967). Twelve of these events that were not duplicative of the military stress measure and were most likely for this age cohort were measured, such as pregnancy or change in financial state. Occurrence of the event in the last six months was scored as no (0) or 1 (yes). Each event has points assigned to it based on how stressful it is. Points for all events present are added for a total score that ranges from 0 to 437. Stressful events experienced by military families were from the Navy & Marine Stress of Life Index from the Millennium Cohort Study. This 15-item measure determines the frequency of each type of stressful event (e.g., combat related deployment, caring for your disabled service member) and not an overall measure of stress. The last four questions are asked only of Guard and Reserve families (e.g., unpredictability of when your service member will be activated). Scoring is on a scale of 0 (not at all stressful) to 3 (very stressful).

Spouse perceptions of PTSD symptoms of the service member/veteran during the past month were assessed with the Partner PTSD Checklist (PCL-P), a 17-item questionnaire that correlates to the PTSD Checklist (PCL). Items are similar to those on the PCL and are scored the same (Gallagher et al., 1998). The PCL (Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item measure that assesses the frequency of PTSD symptoms in the past month. For both instruments, items are scored from 1 (not at all) to 5 (extremely), with an overall score of 17 to 85, with higher scores indicating greater number of symptoms or greater severity. Correlation between the two instruments for overall PTSD has been shown to be .71 (Gallagher, Riggs, Byrne, & Weathers, 1998).

Social support was assessed using the Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988). There are 12 questions focusing on family, friend, and significant other support. The questions are scored on a seven-point scale of 1 (very strongly disagree) to 7 (very strongly agree). Items are summed to a range of 12 to 84. The measure has very good internal reliability with a Cronbach's alpha for the total scale of .91 and alphas for the Family, Friends, and Other subscales of .90, .94, and .95, respectively (Dahlen, Zimet & Walker, 1991).

Potential reintegration concerns were assessed for five areas including spending time with friends, roles and responsibilities, service member's drug and alcohol use, resistance to getting help by the service member, and frustration at finding resources. Each concern was listed as a statement (e.g., I think I spend too little time with friends or on activities I enjoy) to which participants respond "yes" or "no." "Yes" items were then rated on a scale of 1 (not very concerned) to 4 (seriously concerned) (Riviere et al., 2007).

Data Analysis. The main quantitative data analysis strategy was intention-to-treat, with all participants analyzed in accordance with their initial group assignments. Baseline characteristics were compared between participants in each arm using chi-squared tests or analysis of variance (ANOVA), as appropriate. Each outcome was treated as independent of the others. Randomized groups were compared using repeated measures mixed linear models to estimate group by time interaction. Examining outcomes within subgroups utilized this same strategy. Because mixed linear model analysis accommodates missing data without loss of subjects, no data imputation strategy was necessary for missing data. To investigate the relationship between two continuous variables, linear regression was used. *P* values less than or equal to .05 were considered statistically significant, and those between .05 and .10 were considered to document trends that

approached, but did not attain, statistical significance. The study was designed to provide statistical power of .80 to document as statistically significant a true population difference in intervention effect equal to at least .25 *SD* of a primary outcome variable.

Each qualitative data source was examined individually by at least two staff members. Each reviewer sorted the descriptions, concepts and central ideas into potential themes and linked themes to verbatim quotes (Bernard, 2006; Maxwell, 1996). Independent reliability tests (Ryan et al., 2009) were conducted for each source. A researcher who had not been involved in the initial sorting or coding matched caregivers' quotes with themes and a kappa statistic (Cohen, 1968) computed.

Results

Participants

At baseline there were no statistically significant differences among the three randomization arms. As shown in Table 1, on average, participants were women, in their mid 30s, married around 9 years, with about 2 children. They were mostly white, with about 12% each being African American or Latina. They had, on average, about 3 years of college, and a little more than half were employed. Clinically, spouses reported health between good and very good, and relatively low depression or anxiety. On average, spouses reported that it had taken 3.4 months to adjust to the service member's return. However, 42.4% reported that they had not yet adjusted to the service member's return. In addition, they reported that time for the relationship to adjust had been 4.3 months and 46.8% felt their relationship had not yet adjusted to the service member's return.

- Insert Table 1 about here -

As shown in Table 2, service members, on average, were in their late 30s and 75% were employed. Very few were junior enlisted, almost 2/3 were non-commissioned officers. Service members had served in the military 14 years, and 44.5% were currently Guard or Reserve. Consistent with their years in the military, they had 3.6 total deployments, with 2.1 OEF/OIF/OND deployments. On average, the most recent deployment had been almost a year long. Almost 2/3 had been injured and 43.6% met criteria for PTSD based on spouse report. Service members took 4.5 months to adjust to return and 46.8% by spouse report had not yet adjusted, although they had been back almost two years.

- Insert Table 2 about here -

One important concern was whether participants were using supportive services. Not all spouses and their service members used supportive services. At baseline, 39.6% of spouses were using counseling or support services and 50.9% of service members were using services. As shown in Table 3, the most commonly used service was counseling. Table 3 shows baseline data relating to supportive service use for 212 spouses, excluding 15 participants who did not answer the baseline income question. As expected, for spouses and service members, number of services used was related ($r = .53, p < .001$). However, there was a statistically significant difference in the proportion of services used between spouses and service members for three services. Service members were more likely to use alcohol/drug treatment and psychotropic medications, and spouses were more likely to use online services.

- Insert Table 3 about here -

At baseline, depression, anxiety, and general health status were significantly different between spouses who were using supportive services and those not using services, with a trend in resilience. Those using services had more depression and anxiety symptoms, and were in poorer health and less resilient than those not using services. Spouse variables explained little variance in spouse service use. However, three service member need factors significantly explained spouse service use: service member PTSD severity, injuries causing care difficulties, and spouse frustration at finding resources. (Manuscript submitted to Military Medicine and appended.)

Dosage or Process

Among support arm participants, 40.8% participated in six or more of the twelve sessions and 21% participated in no sessions. Among education arm participants, only 34.2% participated in six or more sessions and 30.3% participated in no sessions. As shown in Figure 1, the discontinuation and lost to follow-up rate was also high for the education arm, with 24 participants discontinuing or being lost to follow-up, compared to ten participants in the support arm and four in the usual care arm. The number of sessions missed might have been higher if not for the support arm ability to move between groups; 29 (38.2%) of the 75 participants attended another group at least once.

- Insert Figure 1 about here -

Outcomes

Primary study outcomes. Primary study outcomes included anxiety, depression, communication, resilience, and personal and family coping. As shown in Table 4, during both six months and twelve months there were significant time effects with participants in all arms improving for all outcomes except for resilience, which was unchanged. There were no significant group effects or group by time interaction effects. Primary outcomes were also examined for different types of participants, including those most likely to be stressed.

- Insert Table 4 about here -

Adjustment since service member's return. Participants who reported that they, the service member, or the relationship had or had not adjusted since the service member's return were compared across randomization arms. For those who had not adjusted ($n = 121$), there was a significant time effect for anxiety ($p < .001$), depression ($p = .001$), and personal coping ($p < .001$) and a trend for family coping ($p = .06$) but no group or group by time interaction effects. For those who were adjusted ($n = 83$), there was a significant time effect for personal coping ($p = .01$) but no group or group by time interaction effects.

Variance explained in the outcomes related to time since the service member's return from deployment was small. Only family coping was statistically significant ($n = 120$, $p = .04$), with R^2 of .035 with spouses of service members who were back more recently doing better than spouses of those who returned earlier.

Care difficulties. Participants providing care to an injured service member that caused them care difficulties were compared to those not experiencing care difficulties or whose service member had not been injured. For those experiencing care difficulties ($n = 114$), among the study arms there was a time effect for anxiety ($p = .002$) and personal ($p = .001$) and family coping ($p = .02$), but no group effect or group by time interaction effect for any outcome. For those who did not

report care difficulties ($n = 113$), among the study arms there was a time effect for anxiety ($p < .001$), depression ($p < .001$), and personal coping ($p < .001$) and group effects for anxiety ($p = .001$) and depression ($p < .001$) but no group by time interaction effects for any outcome.

Stressful life events. The presence of stressful life events (SRRS) explained little variance in improvement in outcomes. Statistically significant variance explained was found for anxiety ($n = 183$, $R^2 = .060$, $p = .01$), depression ($n = 182$, $R^2 = .088$, $p = .001$), resilience ($n = 181$, $R^2 = .023$, $p = .04$), personal coping ($n = 185$, $R^2 = .115$, $p < .001$). A trend was found for family coping ($n = 118$, $R^2 = .065$, $p = .053$).

Anxiety. During the study there was a decrease in the proportion of participants with likelihood of generalized anxiety disorder suggested by a score of ≥ 10 on the GAD-7 ($n = 68$, $p = .001$). When comparing participants who had likelihood of generalized anxiety disorder at baseline across the three groups, although numbers were small, there were time effects for depression ($p < .001$), and personal ($p = .001$) and family coping ($p = .05$).

Depression. The proportion of participants who had scores on the PHQ-9 indicating likelihood of major depression ($n = 24$) also decreased during the study ($p = .025$). For participants who had likelihood of major depression there was a time effect for anxiety ($p = .001$) and a trend for personal coping ($p = .09$).

Dosage. When support and education arm participants who had six sessions or more ($n = 31$, 26) and the usual care group ($n = 75$) were compared, there were time effects for anxiety ($p < .001$), depression ($p = .004$), and personal coping ($p < .001$) but no group or group by time interaction effects for any outcome. When comparing only discussion and education arm participants who had at least six sessions, there were group by time interaction effect trends for resilience ($p = .08$) and family coping ($p = .052$). There were significant time effects for anxiety ($p = .002$) and personal coping ($p = .01$) and a time effect trend for depression ($p = .053$).

Participant Benefit

Participant responses to questions about whether and what type of benefit was received were coded by randomization arm as shown in Table 5. The kappa for this coding was 0.948, indicating high agreement among researchers on themes (Landis & Koch, 1977). For support participants, connecting with others was the most important benefit. *“It was comforting to have the opportunity to share in a group where everyone had similar difficulties and truly understood. It was also good to be able to share hope with others who felt hopeless.” “It was nice to know I wasn’t the only one dealing with the same issues.”* Spouses who were Guard and Reserve or whose families did not have military experience were surprised to realize how similar experiences were. *“Interesting to hear that people who do live near a base or are active duty face many of the same problems.”*

- Insert Table 5 about here -

Self-efficacy was an important benefit, including skills building in areas of self-care, problem solving and stress reduction and self-reflection, new perspectives, and increased confidence. *“A lot of times you forget that you can give so much you have nothing to give, so it brought back a renewed sense...to work on having a goal to think about me and that I matter.” “The group has really helped me deal with all the stress.”* One critical area related to self-efficacy was using skills to work on relationships. *“I realized that my husband needs me more than I realized and more than he realized it. I stopped thinking so much about myself and more about him.”*

Learning skills was tied into participants' appreciation of the resources and workbook and their appreciation that someone cared about them. *"It provided me with resources and ideas to help me in different areas of my life."* *"It [the workbook] had a lot of resources in there and a lot of good information."*

Benefits for education arm participants were similar. The most mentioned area was self-efficacy, which included self-reflection, a new perspective, and learning skills. *"In some of the modules we did, it really got me to think about when my husband's emotions would go from one side to the other...and the modules helped me to zero in on that and not take it personally and deal with what is an issue and what is a non issue no matter how he is reacting."* *"One of the things that really opened my eyes was the warning signs, things to look for."*

One particular area related to learning and self-efficacy was improved relationships. *"It helped me to understand what my husband was going through and how I could deal with it and help him to deal with it."* *"It also helped me to be more supportive."* *"This program helped my husband and me to openly discuss issues that, of course, led to more communication and able to focus on issues that were identified."*

Tied into these two areas but specifically mentioned by participants were the resources, including the workbook and webinars, and appreciation that someone cares. *"The materials that were provided offered some good information regarding the issues that we as a military family deal with especially with regards to multiple deployments and the adjustments that go along with that both before and after and during."* *"I'm really thankful for people like you who take the time to do this."*

Although education arm participants were not able to speak with other participants in their group, they voiced a sense of connecting with others. *"So listening in on the calls and just kind of hearing what's going on and knowing that there's other spouses that are listening at the same time really benefitted me personally."*

For usual care arm participants, the main benefit received was self-efficacy with an emphasis on self-reflection. Specifically, participants mentioned that the assessment battery questions had prompted them to think about what was going on and to modify behavior, including specifically improving their relationship with the service member. *"It made me look at certain things that I wouldn't have made a connection about."* *"I looked at some of the questions that you asked about communicating with my spouse and I tried to do that more...and it has helped a lot."* *"It's good every once in a while to be reminded, to think about everything. Yeah, like how is my health, how am I doing, are we working as a family? So it's good to be reminded with all the questions of what areas we can improve in and just kind of assess everything and kind of look at it, so that is good."*

Usual care arm participants also mentioned that someone cared about them. *"Even though I was just in the control group and having these interviews, it let me know that somebody was listening and having a voice has helped me emotionally."* *"I felt like there was somebody that was willing to listen and get down and actually go through what was going on within the family and all that. That was something that helped."*

Discussion

"I would have ridden these last few months out in rougher waters if I hadn't gone through it"

In this study of spouses coping with reintegration of the service member, we had hypothesized that participants in the telephone support arm and the education webinar arm would improve and this was the case, although the support arm did not have greater improvement than the education arm. What we did not hypothesize was that participants in the usual care arm would also improve. In fact, there was a significant improvement over time for all outcomes except resilience for participants in all arms. These improvements over time across all study arms occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return.

An important clue to the improvement of participants in support groups, education webinars, and usual care can be found in comments of participants about their perceived benefit. Self-reflection and self-efficacy were important themes in participant comments in all three randomization arms. This was expected for the support group and education webinar participants but not for the usual care participants.

Support arm participants attributed benefit to self-reflection, skills building, support and advice of other group members, and resources available to them, such as the workbook. Education arm participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building techniques, or support of others, usual care arm participants used what they had access to and highlighted how the assessment battery had made them question and modify their thoughts and behaviors. The phenomenon of the assessment battery being a source of education, normalization, and validation is not unknown, with 82% of control group dementia caregivers also reporting one of these benefits (Nichols et al., 2012).

However, usual care arm participants' emphasis on how they had internalized the information provided in the questions, and subsequently modified their actions, was surprising. *"The study kind of helped me realize that I needed to take a look at myself and that I needed to go get help for myself and not just for my husband. And so through the study, I actually reached out to the VA and also on the civilian side. I was able to get help so that I could better understand what my husband was going through. And how I could better support him and also to support myself."* *"And so by the periodic calls and interviews it makes me think about what's going on....being able to every few months have that on my mind and make a decision to work on that."* *"Every time I give my answers, it made me think how's everything going so it helped me to push a little bit more. When you asked me a question, I realized what the status I am in that particular part of my life and in my family."*

In addition to perceived benefit, there can be multiple reasons why all participants improved, including factors related to the outcome, the intervention, the study design, or the participants. Nonspecific factors such as attention or positive regard by staff can influence control group improvement (Beal, Stuijbergen, Volker, & Becker, 2009; Jensen, Weersing, Hoagwood, & Goldman, 2005; Nichols et al., 2012) and these factors appeared in the benefits that participants mentioned, although they were not the most frequent benefit mentioned.

Other researchers have postulated that time since deployment is a factor in improvement for service member and family distress, with mental health symptoms and reintegration difficulties improving on their own with greater distance from combat and deployment. However, our results did not bear out this finding. Although participants in all groups improved with time,

time since service member return was not significantly correlated with improvement in spouse outcomes. Also, 42.4% of spouses had not adjusted to the service member's return and almost half (46.8%) believed their relationship had not adjusted, although the average time since deployment was almost two years (21.8 months) and median time since deployment was 13 months, with the range of time since deployment being 1 to 120 months.

One initial thought was that spouses who were more distressed would be more likely to benefit from the intervention (Nichols et al., 2013a). Spouses were not screened for distress as a criterion for study entry, and this may have been a lack as they did not exhibit high levels of anxiety or depression or low levels of resilience at baseline. In an attempt to determine if those who were most stressed had more benefit from the intervention, spouses who were depressed, anxious, had more stressful life events, or were caring for a service member whose injuries caused care difficulties were examined by randomization arm status. However, these spouses also improved across all three randomization arms during the study.

Conclusions

Finding benefit over time for participants in all study arms was unexpected. The design and content of the telephone support and education webinars interventions should have provided additional benefit not available in usual care. The telephone support intervention was based on a stress-health process model and was multi-component with education, skills building, and support. It was structured to include information on safety, self-care/health and emotional well-being, social support, and problem behaviors/caregiver skills. Through discussion and commitments, it was targeted to the needs of the caregiving dyads who participated.

Multicomponent interventions with emphasis on these risk areas targeted to specific concerns have been shown to be important for caregivers (Belle et al., 2006; Gottman et al., 2011; Goy, Kansagara, & Freeman, 2010; Schulz et al., 2003). Many of these same components were also present in the education webinar intervention, which provided education and an opportunity to acquire skills through the didactic content and the workbook and included the same topics, albeit abbreviated, as the support sessions. However, although participants in usual care did not have access to these components, their attention to and reliance on the assessment battery provided them an opportunity to gain knowledge and put that knowledge into practice. Another factor that may have influenced participants positively was the perception that someone cared about them. Participants were grateful that DoD and the VA cared about military families and the resource and compassion that the study staff provided. This was the case even for usual care participants who would mention how nice the data collection staff were.

There were several limitations that may have influenced these findings. One was the relatively large percentage of participants who discontinued (3.5%) or were lost to follow up (13.2%). Coupled with this loss was the number of individuals who did not fully participate, with less than half of support group participants attending at least six sessions. Participants' busy lives providing care for children and sometimes for the service member is one factor that may have contributed to lower participation. For example, one spouse reported that she had had a hysterectomy, her life had been hectic with working days and going to school at night, her son recently had a car accident, and she had been sick a lot. Another factor that may have contributed to lessened participation could have been lack of face-to-face interaction, which is always a factor for telephone support groups. Several participants wanted to be able to use social media tools such as Skype or Google Hangout or be able to email each other outside groups.

Some participants wanted longer calls or more frequent calls or to have a shorter duration (three instead of six months). One comment that participants frequently made was that they would have liked to have received the information during or immediately post deployment to be prepared to deal with the challenges. These comments were one impetus for the Spouse Deployed study, providing support to spouses and significant others of deployed service members. This study is funded by the US Army Medical Research and Materiel Command (USAMRMC), Military Operational Medicine Research Program (MOMRP) from April 2011 through March 2015 (W81XWH-11-2-0087).

Although our study did not show decisively that one intervention provided superior benefit, it has research and clinical implications. Spouses used more online services for resources and service members used more alcohol/drug treatment and psychotropic medications. We did not have enough male spouses or female service members to determine whether this is related to deployment stresses or is a possible gender bias.

One important finding was the role of service member factors, including the service member's PTSD symptoms and injuries causing care difficulties for the spouse and the spouse's difficulty in finding resources, in explaining spouse use of services. This finding highlights the interconnectedness of the military family and the need to support the entire family. Caregivers with higher levels of depression, anxiety, or any physical health problems increase the chance of subsequent injuries to the patient (Carlson et al., 2012). Service members returning with TBI make less progress in treatment if the family unit is distressed (Dausch & Saliman, 2009). Conversely, PTSD symptoms often decrease as family and social support increases (Frain, Bethel, & Bishop, 2010). Providing education and mental health resources to families can help reduce caregiver burden which in turn positively affects the health of the care recipient (Bernhardt, 2009; Monson, Taft, & Fredman, 2009).

Spouses who participated were eager for assistance and reported learning new skills and strategies, as shown in the fairly extensive quote below.

*"I have made several gains over the past 6 months to include: -More self-aware of my "trouble spots" with stress and frustration and what can cause me to feel this way. -Learning how to better cope with and communicate these feelings so that they don't build up. -Realizing that many of my experiences and feelings are shared with others and that I am not alone, I am not unusual and things that I find my "civilian spouse" friends don't struggle with, are often very common feelings/concerns for military spouses; I have noticed that I am a more patient person (or at least I make a better effort to be aware of my thoughts and feelings before I simply blurt them out in a possibly hurtful/deconstructive way). I may not always succeed, but I am working to be better at "thinking before I speak" and accessing what's the root of my emotions or feelings before I just dump them on someone else; I would really like to continue working on better communication skills that focus on really hearing what the other person is saying, instead of just always focusing on what I want to say next; I am taking care of myself by putting a more concerted effort on making *real* and meaningful friendships. As wonderful as it is having my husband back from deployment, the friendships of other women has proven vital to my sanity, in terms of their understanding of my perspective as a spouse and woman. There are certain things that women only understand about other women, and even with a husband who is a great listener,*

girlfriends are still so important for connecting, laughing, chatting and sharing thoughts on different things from a woman's perspective. Instead of trying to just go to every social event possible to be "busy," I am now focusing on meeting friends, spending quality time with them and building trust, instead of just meeting as many people as possible..."

Providing spouses and significant others with resources and education about post deployment challenges and access to skills building and support from peers or caring professionals appears to increase self-efficacy and ability to manage concerns and improve the relationship between spouse and service member. These factors provide improvements in anxiety, depression, personal and family coping, and communication, and perceived benefit. From our findings, these factors cut across types of spouses, providing benefit to those who are more or less distressed with the challenges brought on by combat and service member injury.

Findings suggest that there are multiple avenues that can be used to support military families post deployment, dependent on the capacity and staffing of the military or veteran organization providing service. Telephone or in-person support groups, education webinars that could be pre-recorded with the increased capability of discussion among participants, or webinars that could be watched when convenient for participants followed by monitored chat rooms or scheduled discussions, could all be options that organizations could provide.

Modification of interventions when they move into large scale practice is common (Fixsen, Naom, Blase, Friedman, & Wallace, 2005). With the passage of Public Law 111-163 Caregivers and Veterans Omnibus Health Services Act of 2010, the Department of Veterans Affairs Veterans Health Administration began to provide service to caregivers of veterans with an emphasis on post 9/11 veteran caregivers. One service provided through the Memphis Caregiver Center was the Spouse Telephone Support (STS) program, based on the pilot spouse telephone support research funded by the Defense Health Program (DHP), managed by the U.S. Army Medical Research and Materiel Command, through the Congressionally Directed Medical Research Program (CDMRP) and the Department of the Army Medical Research Acquisition Activity (W81XWH-08-2-0195). This project pilot was the basis for the current study. The national STS program trains and certifies VA clinicians to provide telephone support groups to spouses of post 9/11 veterans who have served in Iraq or Afghanistan. A participant workbook very similar to the one in the current study is provided to each participant. Although the groups were designed for telephone support, VA clinicians have modified them to suit the needs of their caregivers and facilities, with face-to-face, open and closed enrollment, fixed and participant selected topics all options that are currently available. The groups and materials are also being expanded by the Memphis Caregiver Center to allow clinicians to include Vietnam and Gulf War spouse and caregiver groups.

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Table 1. Baseline Characteristics of READI Spouses

Variable	Total	Support	Webinar	Usual Care	<i>p</i> -value
	n = 227	n = 76	n = 76	n = 75	
	M ± SD or %	M ± SD or %	M ± SD or %	M ± SD or %	
Demographic					
Female	98.7	97.4	98.7	100.0	.78
Age, years	36.5 ± 8.6	36.4 ± 8.6	38.0 ± 8.3	35.1 ± 8.7	.12
Years married	9.0 ± 6.9	8.6 ± 7.4	8.7 ± 6.1	9.7 ± 7.0	.53
Years cohabitated	9.7 ± 6.8	9.5 ± 7.4	9.3 ± 6.0	10.4 ± 7.0	.61
Children, number	1.6 ± 1.3	1.5 ± 0.2	1.3 ± 0.2	1.2 ± 0.1	.95
Race					.16
White	79.3	80.3	78.9	78.7	
Black	12.3	13.2	17.1	6.7	
Native American	1.8	1.3	0.0	4.0	
Asian/Pacific Islander	1.8	0.0	1.3	4.0	
Other	4.8	5.3	2.6	6.7	
Ethnicity, Latino/a	11.9	13.2	9.2	13.3	.68
Education, years	15.2 ± 2.1	15.1 ± 2.1	15.3 ± 2.3	15.1 ± 1.7	.77
Employed, full-time or part-time	55.9	46.1	64.5	57.3	.07
Household income, monthly	5056 ± 2657	5132 ± 2382	5277 ± 2852	4759 ± 2741	.50
Military service	16.3	11.8	18.4	18.7	.44
Training/Deployment					
Pre-deployment	37.0	38.2	39.5	33.3	.71

During deployment	23.8	23.7	27.6	20.0	.55
Post-deployment	22.5	23.7	28.9	14.7	.11
Months for SP to adjust to SM's return	3.4 ± 5.9	3.0 ± 3.3	4.2 ± 8.4	2.8 ± 4.1	.56
SP not yet adjusted to SM's return	42.4	43.3	36.8	47.1	.47
Months for relationship to adjust to SM's return	4.3 ± 7.2	3.3 ± 5.1	6.7 ± 10.3	2.8 ± 4.4	.07
Relationship not yet adjusted to SM's return	46.8	35.8	48.5	55.9	.06
Months for children to adjust to SM's return	3.6 ± 4.7	3.0 ± 3.8	3.4 ± 4.2	4.4 ± 6.0	.52
Children not yet adjusted to SM's return	33.3	31.0	25.6	42.2	.25
Clinical					
General health (0-4)	2.4 ± 1.0	2.3 ± 1.1	2.5 ± 0.8	2.4 ± 1.1	.34
Depression (0-27)	6.2 ± 5.3	6.6 ± 5.8	5.8 ± 5.2	6.4 ± 4.7	.65
Anxiety (0-21)	7.6 ± 5.1	7.9 ± 5.5	7.1 ± 5.1	7.9 ± 4.8	.54
Quality Marriage Index (6-45)	33.9 ± 9.0	33.6 ± 10.3	33.7 ± 8.2	34.5 ± 8.4	.78
Social support (12-84)	65.5 ± 12.4	65.5 ± 13.8	66.6 ± 10.2	64.5 ± 12.8	.58
Family communication (0-30)	20.9 ± 5.6	20.1 ± 6.7	21.1 ± 4.9	21.7 ± 5.1	.24
Personal coping (8-40)	32.5 ± 4.7	32.3 ± 5.2	32.7 ± 4.6	32.4 ± 4.4	.87
Family coping (6-30) ^a	26.3 ± 3.2	26.9 ± 2.8	25.8 ± 3.7	26.3 ± 2.9	.18
Social readjustment (0-437)	149.2 ± 79.4	154.9 ± 81.3	143.4 ± 77.0	149.4 ± 80.6	.68
Resilience (0-100)	77.0 ± 10.1	75.8 ± 10.0	78.8 ± 10.6	76.4 ± 9.5	.16

Note: SM = Service Member, Depression = PHQ-9, Anxiety = GAD-7, Family communication = FPSC, Social readjustment = SRRS, Resilience = CD-RISC

^a n = 48, 52, 56 respectively. This scale is only assessed with participants who have children living in the home.

Table 2. Baseline Characteristics of READI Service Members

Variable	Total n = 227 M ± SD or %	Support n = 76 M ± SD or %	Webinar n = 76 M ± SD or %	Usual Care n = 75 M ± SD or %	p-value
Demographic					
Age, years	38.0 ± 7.9	37.8 ± 7.6	38.8 ± 7.3	37.2 ± 8.7	.47
Employed, full-time or part-time	75.3	78.9	76.3	70.7	.48
Branch of service					.47
Army	29.5	23.7	30.3	34.7	
Army Guard/Reserve	42.7	50.0	39.5	38.7	
Navy	7.5	7.9	5.3	9.3	
Naval Reserve	4.0	3.9	6.6	1.3	
Air Force	6.2	3.9	6.6	8.0	
Air Guard/Reserve	3.1	1.3	5.3	2.7	
Marines	5.7	5.3	6.6	5.3	
Marine Reserve	1.3	3.9	0.0	0.0	
Class					.72
Non-commissioned officer	42.7	42.5	45.2	48.5	
Commissioned officer	20.3	20.5	20.5	23.5	
Senior NCO	20.7	23.3	26.0	16.2	
Junior enlisted	7.5	9.6	4.1	10.3	
Warrant officer	3.1	4.1	4.1	1.5	
Status					.54

Serving in guard or reserve	44.5	52.6	44.7	36.0	
Serving in regular military	30.8	28.9	27.6	36.0	
Retired	11.5	6.6	11.8	16.0	
Discharged	10.1	9.2	11.8	9.3	
Other	3.1	2.6	3.9	2.7	
Years in military	14.0 ± 7.8	14.2 ± 7.1	14.0 ± 7.7	13.9 ± 8.6	.98
Receive VA services	39.9	34.7	43.2	41.9	.52
Deployment					
Deployments ever, number	3.6 ± 3.0	3.5 ± 2.7	3.6 ± 3.3	3.7 ± 3.0	.96
OEF/OIF deployments, number	2.1 ± 1.3	2.2 ± 1.6	1.9 ± 1.0	2.1 ± 1.3	.42
Previous deployments, number	1.6 ± 2.4	1.4 ± 1.8	1.7 ± 2.8	1.6 ± 2.7	.84
Months since return	21.8 ± 22.6	20.0 ± 19.5	23.3 ± 24.0	22.0 ± 24.0	.65
Months of last deployment	11.1 ± 4.7	12.0 ± 6.1	10.2 ± 4.1	10.9 ± 3.5	.06
Injured	62.1	63.2	59.2	64.0	.81
Months for SM to adjust to return	4.5 ± 6.5	3.9 ± 3.9	6.1 ± 9.0	3.4 ± 5.0	.19
SM not yet adjusted to return	46.8	43.3	45.6	51.5	.62
PTSD severity (17-85) ^a	42.9 ± 20.0	43.1 ± 20.2	40.5 ± 20.1	45.1 ± 19.6	.36
Meets criteria for PTSD Diagnosis ^a	43.6	43.4	38.2	49.3	.38

Note: SM = Service Member

^a Assessed with the PCL-P

Table 3. Baseline Couple Service Use (n = 212)

Service Type	Spouse	Service Member	Total
	(n=84)	(n=108)	
	Number of Services Used (% of Total Use)	Number of Services Used (% of Total Use)	Number of Services Used (% of Total Use)
Support Group	37 (14.2)	36 (11.5)	73 (12.7)
Counseling (Individual, Couples, Family, Pastoral)	144 (55.4)	173 (55.3)	317 (55.3)
A/D Treatment*	2 (0.8)	11 (3.5)	13 (2.3)
Psychotropic Medications*	42 (16.2)	72 (23.0)	114 (19.9)
Online Service**	29 (11.2)	16 (5.1)	45 (7.9)
Other	6 (2.3)	5 (1.6)	11 (1.9)
Total Use	260	313	573

Difference of proportions tests for spouse and service member service use

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Table 4. Mixed Model Analysis of Outcome Variables

Variable	Baseline M ± SD	6 Months M ± SD	12 Months M ± SD	Group p-value	Time p-value	Group by Time p-value
Anxiety (0-21)				.34	<.001	.67
Support	7.9 ± 5.5	5.5 ± 4.0	6.0 ± 4.8			
Webinar	7.1 ± 5.1	5.2 ± 4.4	6.1 ± 4.9			
Usual Care	7.9 ± 4.8	6.2 ± 4.4	5.5 ± 4.8			
Depression (0-27)				.49	<.001	.54
Support	6.6 ± 5.8	4.5 ± 4.6	4.8 ± 5.1			
Webinar	5.8 ± 5.2	4.4 ± 4.8	5.3 ± 4.8			
Usual Care	6.4 ± 4.7	5.3 ± 4.1	5.0 ± 4.7			
Resilience (0-100)				.68	.59	.24
Support	75.8 ± 10.0	78.1 ± 12.4	78.1 ± 11.0			
Webinar	78.8 ± 10.6	77.9 ± 13.0	76.3 ± 12.5			
Usual Care	76.4 ± 9.5	77.7 ± 10.7	78.0 ± 10.2			
Family Communication (0-30)				.77	.03	.57
Support	20.1 ± 6.7	22.0 ± 5.8	21.4 ± 5.9			
Webinar	21.1 ± 4.9	22.3 ± 5.9	21.3 ± 6.4			
Usual Care	21.7 ± 5.1	21.9 ± 6.4	22.0 ± 6.2			
Personal Coping (8-40)				.78	<.001	.67
Support	32.3 ± 5.2	33.3 ± 5.2	34.0 ± 4.7			
Webinar	32.7 ± 4.6	33.5 ± 4.9	33.2 ± 4.1			
Usual Care	32.4 ± 4.4	33.7 ± 4.3	34.0 ± 4.3			

Family Coping ^a (6-30)				.49	.01	.35
Support	26.9 ± 2.8	27.1 ± 3.6	27.3 ± 3.0			
Webinar	25.8 ± 3.7	26.4 ± 3.7	26.0 ± 3.4			
Usual Care	26.3 ± 2.9	26.6 ± 3.9	27.1 ± 3.0			

Note: Depression = PHQ-9, Anxiety = GAD-7, Family communication = FPSC, Resilience = CD-RISC. Mixed model analysis also included measurements at 3 months and 9 months.

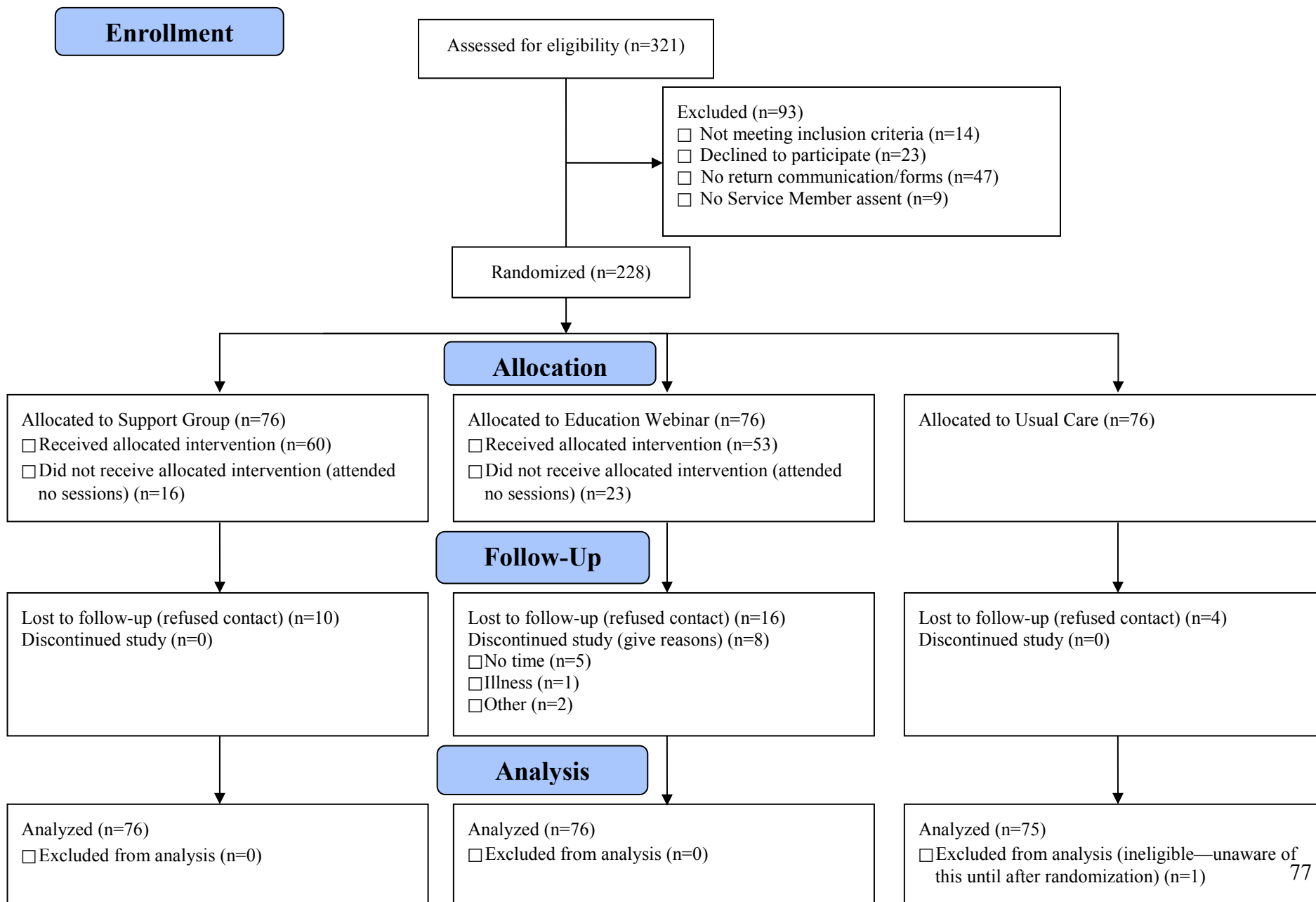
^aN = 156 and n = 48, 52, 56 respectively. This scale is only assessed with participants who have children living in the home.

Table 5. Project Benefit Themes by Randomization Arm

Randomization Arm and Themes	n (%)*
Support Group Themes	
Connecting with others	33 (34.3)
Great resources/workbook/wonderful staff	22 (22.9)
Self-efficacy	22 (22.9)
Improved relationship	8 (8.3)
Gap in services	6 (6.3)
Someone cares	5 (5.2)
Education Group Themes	
Self-efficacy	29 (38.7)
Great resources/workbook/wonderful staff	23 (30.7)
Improved relationship	9 (12.0)
Connecting with others	8 (10.7)
Someone cares	6 (8.0)
Control Group Themes	
Self-efficacy	46 (73.0)
Someone cares	10 (15.9)
Improved relationship	7 (11.1)

*Percentages are calculated from number of responses for each randomization group.

Figure 1.



Intimacy: Military Spouses and Service Members after Deployment

One of the continuing issues during reintegration is a return to intimacy. In qualitative analysis of spouse comments and commitments during group sessions, four main intimacy concerns were identified by spouses. These included: role changes in relationship, communication difficulties, more pressing needs, and physical intimacy concerns. This analysis is ongoing but selected spouse comments are shown below.

Role changes in relationship. Two different roles were identified by spouses as causing difficulty in re-establishing intimacy. The first was the expected – that the couple must become used to each other again. As one spouse reported, it was hard to have “long periods of time together difficult when used to frequent deployments.” The other role change was one related to injuries sustained during the deployment. Since return, the spouse’s role in managing care, ranging from actual physical care to supervision of activities and behavior, had increased. Spouses reported that this was a significant change in the family dynamic, “transitioning back from being caregiver to being wife.”

Communication difficulties. Spouses reported communication difficulties stemming from their behavior and the service member’s behavior. With the increased operation tempo of these conflicts, spouses protected themselves from becoming too dependent on the service member being home. “I am staying independent in preparation for possible future deployments.” At the same time, service members who were struggling with their own difficulties after deployment were not always available to rebuild communication channels. “He spends all his time holed up in his room.”

More pressing needs. Although spouses wanted a return to the relationship the way it had been, injuries incurred during deployment frequently were all encompassing of time and resources. Spouses who were dealing with injuries reported that medical appointments, therapy, and monitoring of medication usage all took away time from intimacy/couple time. In effect, these more pressing needs became the focus in the relationship. “We planned for him coming home or not, we didn’t plan for this.”

Physical intimacy concerns. The resumption of physical intimacy could be slowed by the service member’s struggle to reintegrate back into the family from the combat role, and the couple’s seeking of their equilibrium. “He acts like a different person. We need to relearn each other before intimacy can resume.” In addition to reintegration concerns, physical intimacy requirements and needs could be changed by injuries. As one spouse reported, I am “learning new ways to resume a sexual relationship with him after injuries.”

Manuscript Development – Intimacy Concerns.

This manuscript will include an analysis of spouses' baseline comments regarding their perceptions of intimacy and how perceptions changed with strategies used to address intimacy during the support groups.

Telephone Support During Overseas Deployment for Military Spouses

April 2011 – March 2015

Linda Nichols, Ph.D., Jennifer Martindale-Adams, Ed.D.

VA Medical Center, Memphis

Deployment impacts both service member and family, and the cost can be high. Spouses' reactions to deployment may include emotional distress, loneliness, anticipatory fear or grief, somatic complaints, and depression. The goal of this RCT is to help spouses learn ways to manage stress and solve problems related to deployment and reintegration, communication, managing long distance relationships, and other common problems. The study will compare telephone support groups to online education sessions. The study will enroll 160 spouses. In the Telephone Support groups, a group leader and participants meet 12 times over six months to focus on education, skills building and support. Education Only online sessions provide the same education content, without skills building or support. Content includes strategies to reduce or eliminate communication difficulties during deployment, how to find help; practical concerns during deployment; fostering resilience and decreasing stress; fostering relationships while apart, negotiating roles and relationships; changes during deployment; strategies to support the spouse and the service member; and cues to alert spouses when to seek mental health services for the family or themselves. Outcomes include resilience, depression, anxiety and coping behaviors. Telephone data collection is conducted at baseline, six and twelve months.

Sponsor: U.S. Army Medical Research and Materiel Command

Fort Detrick, Maryland 21702-5012

Contract Number: W81XWH-11-2-0087

Grant Number: 10020008

Interventions for Parent Caregivers of Injured Military/Veteran Personnel

Abstract

Background: For the current conflicts, the high operational tempo and its repeated deployments have had significant effects on service members. Over 103,792 individuals have been diagnosed with PTSD and 253,330 with TBI. Almost half (49.3%) of active military members are 25 years of age or younger, with the highest percentage of younger members in the Marines (68.5%) and 43.3% are unmarried. For many young and unmarried military service members, parents and, to a lesser extent, other family members, provide care ranging from full care to supervision. This group of individuals, focusing on parents, are frequently at a loss as to how to cope with changes in their child.

Hypotheses: REACH (Resources for Enhancing All Caregivers Health) individual Sessions, compared to Education Webinars, will be more effective in improving outcomes, including depression, anxiety, burden, coping and self-efficacy. Telephone Support Groups (based on Spouse Telephone Support (STS), compared to the webinar attention control study arm, will be more effective in improving outcomes, including depression, anxiety, resilience, coping and self-efficacy.

Specific Aims: Aims include: 1) assess feasibility; 2) determine participant satisfaction; 3) determine participant adherence to therapeutic recommendations; and 4) determine changes in parent/family caregivers' outcomes; and 5) develop dissemination materials.

Study Design: This randomized clinical trial will test two established interventions to provide education, training in coping skills, and support to parent/family member caregivers of military personnel (active duty, Guard, Reserve) who are post deployment. The two active interventions are research based and currently implemented nationally in the VA system for caregivers. The two study arms are: REACH individual sessions and webinar education sessions, which are analogous to the usual standard of care. Each arm will have 80 participants, for a total of 160 participants. Telephone data collection will be conducted at baseline, three and six. Outcome variables include depression, anxiety, burden, coping and self-efficacy, and participant satisfaction, focusing on utility and support.

Relevance: The caregiving population targeted in this study is underserved by VHA and DoD; frequently privacy laws prohibit them from even an understanding of the issues facing their child. However, with the large number of unmarried and young service members, parents frequently shoulder a large portion of care. For example, PTSD caregivers' care burden similar to dementia and chronic schizophrenia caregivers

To be submitted before May 23, 2014 to: U.S. Army Medical Research and Materiel Command

Fort Detrick, Maryland 21702-5012



PI : Nichols Org: VA Medical Center, Memphis TN Award Amount: \$1,164,962

Study/Product Findings

Participants in all three study arms improved. These improvements occurred for participants who were dealing with care challenges for an injured service member, who had scores reflective of major depression or generalized anxiety disorder, who experienced more serious life events, or who reported not yet being adjusted to the service member's return in some way, regardless of time since deployment return. Participants in all study arms attributed benefit to improved self-efficacy.

Approach

Randomized clinical trial of 228 spouses, 1/3 in each study arm. Compare usual care, and webinar sessions to more intensive telephone support groups. Telephone support arm spouses had 12 one-hour telephone support groups focusing on education, skills building and support over six months. Education group spouses participated in online webinars. Full data collected baseline, 6 and 12 months, outcomes at 3 and 9 months.

Chart of Changes in Control

A slide from one of the READI Webinars

My point of view about these different areas	My views before deployment of my spouse	My views during deployment of my spouse	My view of this now during reintegration	A different way to think about these changes may be
My self control and anger management skills				
My spouse's moods and safety (guns, driving, etc.)				
My confidence to assume new roles or learn new tasks				
My feelings about the family goals and purpose				
My community support and spiritual support/faith				
My relationships with family and friends				

Accomplishment: Data analysis ongoing for manuscripts and materials for implementation

Timeline and Cost

Activities	CY	10	11	12	13	14
Finalize manual, obtain approvals, print materials		■				
Recruit subjects			■	■	■	
Administer interventions			■	■	■	
Collect, analyze, process and publish data			■	■	■	
Estimated Budget (\$K)		\$130	\$337	\$341	\$357	

Goals/Milestones

- Finalized Manual of Operations (MOP) including telephone support group topics and scripts and online education/webinar sessions topics and scripts, screening forms and scripts, data collection forms, scripts and documentation
- Obtain IRB and HRPO approval
- Print approved materials, brochures and Workbooks
- Hire/Train personnel
- Recruit, enroll and randomize subjects (Goal: 225 spouses)
- Administer intervention 1 (telephone support groups)
- Administer intervention 2 (online education/webinar)
- Collect data
- Analyze data
- Process data
- Publish data

Comments/Challenges/Issues/Concerns

Budget Expenditure to date

Projected Expenditure: \$1,164,962.00 Actual Expenditure: \$933,448.51

(as of 1/31/14)