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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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13. SUPPLEMENTARY NOTES

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.

15. SUBJECT TERMS

Spouses, social support, stress disorders, post traumatic, combat disorders

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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.

Administrative Issues

A no cost extension was applied for and granted to facilitate preparation and dissemination of results.

Body

Task 1: Develop Manual of Operations (MOP) Months 1-7, October, 2009-April 2010

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 Months 1-8, October, 2009-May 2010

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. 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. 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 in manuscripts in Appendix

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

Products for Task 9: Completed 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 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

Primary analysis. During twelve months there were significant time effects with participants in all arms improving for all outcomes except resilience (see manuscript Appendix). There were no significant randomization group effects or group by time interaction effects.

Secondary analysis. We also analyzed differences in outcomes by post deployment stressors (adjustment since service member's return, difficulty providing care after injury), stressful life events, which are related to physical and psychological problems (Dohrenwend, 2006), and dosage. Here, also, participants tended to improve.

Adjustment since service member's return. Participants who reported that they, the service member, or the relationship had (n = 83) or had not adjusted (n = 121) since return were separately analyzed. For those who had not adjusted, there were significant time effects for improved anxiety (p < .001), depression (p = .001), and personal coping (p < .001) and a trend for family coping (p = .058) but no randomization group or group by time interaction effects. For those who were adjusted, there was a significant time effect for improved personal coping (p = .008) but no randomization group or group by time interaction effects.

Little outcome variance was explained by time since service member's return from deployment. Only family coping was statistically significant (n = 120, R2 = .035, p = .040), with spouses of recently returned service members doing better than spouses of those who returned earlier.

Care difficulties. Participants with injured service members with care difficulties were analyzed separately from those not experiencing care difficulties. For spouses experiencing care difficulties (n = 114) there were time effects for improved anxiety (p = .002), personal coping (p = .001), and family coping (p = .019), but no randomization group effect or group by time interaction effect for any outcome. For those who without care difficulties (n = 113) there were time effects for improved anxiety ($p < .001$), depression ($p < .001$), and personal coping ($p < .001$) and randomization group effects for anxiety ($p = .001$) and depression ($p < .001$) but no group by time interaction effects.

Stressful life events. Presence of stressful life events explained little variance in outcomes. Statistically significant variance explained was found for anxiety (n = 183, R2 = .060, p = .012), depression (n = 182, R2 = .088, p = .001), resilience (n = 181, R2 = .023, p = .041), and personal coping (n = 185, R2 = .115, $p < .001$) and a trend was found for family coping (n = 118, R2 = .065, p = .053).

Dosage. When support (n = 31) and education (n = 26) participants who had six sessions or more and usual care (n = 75) were compared, there were time effects for improved 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 support and education participants who had at least six sessions, there were group by time interaction effect trends for improved resilience (p = .075) and family coping (p = .052), and significant time effects for improved anxiety (p = .002), personal coping (p = .014), and a time effect trend for improved depression (p = .053).

Participant Benefit

Participant responses to questions about whether and what type of benefit was received were coded by randomization arm. 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 <u>usual care</u> 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."*

Task 10: Preparation/Dissemination of Results Months 31-52, April 2012-March 2015

<u>Products</u> for Task 10: Papers and Presentations, Grants, Implementation

- 2 manuscripts submitted
- 2 draft manuscripts in preparation
- 1 grant proposal submitted in May
- 2 presentations

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 Behavioral Health, Revise and resubmit, 10/14 (Appendix)
- Support for Spouses of Post Deployment Service Members, Military Behavioral Health, Submitted 8/14 (Appendix)
- Draft manuscripts:
    - Intimacy: Military Spouses and Service Members after Deployment
    - Social Support Discrepancies – Quantitative and Qualitative Data

Grant

- Interventions for Parent Caregivers of Injured Military/Veteran Personnel. Submitted in May to Operational Medicine Research Program (MOMRP). Based on requests from parents to be included in spouse study

Invited Presentations

- Nichols, LO and Martindale-Adams, J. Resources for Enhancing Caregivers' Health and Spouse Support. National VA Teleconference, VA TMS Item Number: VA- 19620 / 14.F2F.MA.CA.CASUP.VC.A. December 19, 2013
- Nichols LO, Martindale-Adams, J. Providing Support for Military Spouses. VAMC Memphis Research Service, September 6, 2014.

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…"*

References Cited – Please see manuscript Support for Spouses of Post Deployment Service Members, in Appendices

Appendices

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

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

Abstract

Using Andersen and Aday's healthcare use model, spouse predisposing, enabling, and need factors and service member need variables were examined to explain spouse supportive service use. Service use was analyzed with stagewise regression for 227 spouses. Spouses who used supportive services reported worse depression, anxiety, resilience, general health and more service member care difficulties. By themselves, spouse predisposing, enabling, and need variables did not significantly explain spouse service use. However, also including service member need variables significantly explained 16.2% of variance in spouse service use. These results suggest that family members have a reciprocal influence on each other's healthcare use.

KEYWORDS

Service use, depression, mental health, counseling, stagewise regression, family dynamics, interrelated, reintegration, post deployment

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Military-specific variables, such as combat injury or post-deployment injury aftermath, influence service use of service members and veterans. It is unclear how these variables may be related to service use of spouses of service members and veterans, even though family members also suffer effects of these stressors (Basham, 2013; Mansfield et al., 2010). For example, service members' deployment is associated with spouses' increased mental health diagnoses and supportive services use (Mansfield et al., 2010). Mental health service use 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 (Mansfield et al., 2010). For post deployment National Guard members and significant others, of those meeting criteria for mental health problems, 50% of members and 61% of significant others reported seeking help (Gorman, Blow, Ames & Reed, 2011).

Andersen and Aday's behavioral model of healthcare use is widely used to examine service use. The model includes predisposing (e.g., demographic, social structural, attitudinal-belief variables), enabling (e.g., family resources, community characteristics), and need variables (e.g., perceived and evaluated illness) (Aday & Andersen, 1974; Andersen, 1995). For mental or emotional problems, predisposing variables (age, gender, race/ethnicity, marital status, education), enabling and impeding variables (income, health insurance, emotional support), and perceived need (number of mentally and physically unhealthy days, self-rated health) and evaluated need (psychological distress) are significantly associated with service use (Dhingra, Zack, Strine, Pearson, & Balluz, 2010).

The most frequently researched predisposing variables are age, marital status, gender/sex, education, ethnicity/nativity, and employment status (Babitsch, Gohl, & von Lengerke, 2012). For military families, marital status and age are important in predicting potential post deployment difficulty, although they are not specifically linked to service use. Unmarried partners (Spera, 2009) and younger families report more difficulties (Booth, Wechsler Segal, & Bell, 2007; Faber, Willerton, Clyner, MacDermid, & Weiss, 2008). Predisposing variables associated with service use for military members, but not investigated for their families, include race (Spoont, Hodges, Murdoch, & Nugent, 2009), gender (Chatterjee, et al., 2009; Fikretoglu, Guay, Pedlar, & Brunet, 2008), age (Chatterjee, et al., 2009), and marital status (Fikretoglu et al., 2008).

Enabling variables most often studied are income/financial situation, health insurance, having a usual source of care, and availability of medical services (Babitsch et al., 2012). For many service members, enabling variables, or more accurately their lack, can serve as barriers for supportive service use. These barriers can be similar to those for non-military individuals – general stigma associated with mental health care (Mansfield et al., 2011), more related to military culture – concerns about service utilization appearing on military records (Gorman et al., 2011), or lack of trust in military health, administrative, and social services (Fikretoglu et al., 2008). For spouses/significant others of service members, service use barriers are similar to civilians' barriers, including costs, scheduling, time off work, and not knowing where to get help (Mansfield et al., 2011).

The most frequently examined need variables are mental or physical health, self-reported/perceived health, medical conditions (diabetes, depressive symptoms, hypertension, heart disease, cancer), prior medical/chronic conditions, and daily activity limitation (Babitsch et al., 2012). Need for service is also important for military spouses. In a sample of National Guard significant others, 34% met screening criteria for one or more mental health problems and 61% of those sought help (Gorman et al., 2011).

Perceived need for services has been conceived as a biological, attitudinal, and societal construct consisting of the immediate reason for use, with capability to increase or decrease through such variables as health education, social structure, health beliefs, and finances (Andersen, 1995). Need that could influence service use can be conceptualized beyond self and societal parameters to include concerns of the returning service member partner. The original model of service use focused on the family as the unit of analysis because an individual's service use is related to family demographics and economics (Andersen, 1995). Need can be mutable (Andersen, 1995), and family variables can impact individual need.

Military specific stressors such as deployment can worsen family members' psychological health (Chretlen & Chretlen, 2013; Link & Palinkas, 2013; MacDermid Wadsworth et al., 2013; Mansfield et al., 2010) and are associated with service use both for service members (Christensen & Yaffe, 2012) and for their spouses (Larson et al., 2012). In one Army study, for service member spouses, deployment was associated with increases of 4.2% in specialist office visits, 6.7% in antidepressants, and 14.2% in antianxiety medications (Larson et al., 2012).

A recently proposed conceptual framework suggests reciprocity between patient and spouse well-being, especially as it relates to disease management (Trivedi, Piette, Fihn, & Edelman, 2012). This linkage is explicit in family resiliency and stress theory; during adaptation to a service member's injury and its consequences, the family unit or individual members can experience deterioration (Kosciulek, McCubbin & McCubbin, 1993; MacDermid Wadsworth, 2010 McCubbin & McCubbin, 1989). 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 (Link & Palinkas, 2013). Wives of service members/veterans of the Iraq and Afghanistan conflicts 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 (Nichols et al., 2013). Thus, family stress and strain negatively impact military spouse psychological health (Green, Nurius, & Lester, 2013) and the service member. Service members with traumatic brain injury (TBI) make less progress in treatment if the family is distressed (Dausch & Saliman, 2009). Military family caregivers with higher depression, anxiety, or any physical health problems increase the chance of subsequent injuries to the injured service member (Carlson et al., 2012). However, service member PTSD symptoms often decrease as family and social support increases (Frain, Bethel, & Bishop, 2010). Improving caregiver social support improves outcomes for both caregiver and veteran (Griffin, Friedmann-Sánchez, Hall, Phelan, & van Ryn, 2009).

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 variables, enabling variables, and need variables. Additionally, service member PTSD symptom severity, resistance to getting services, and difficulty with care caused by injuries were hypothesized to increase spouse service use.

Methods

Sample.

Participants were 227 spouses or significant others living as married of a service member or veteran who was at least one month post deployment from serving in Iraq (Operation Iraqi Freedom – OIF, Operation New Dawn – OND) or Afghanistan (Operation Enduring Freedom – OEF). Spouses were in a national randomized controlled trial, Spouse READI (Resilience, Education and Deployment Information), funded by Department of Defense (DoD), Defense

Health Program and managed by the US Army Medical Research and Materiel Command, Military Operational Medicine Research Program. The study was housed at the Memphis VA Medical Center and overseen by its Institutional Review Board. Baseline data from spouse self-report 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 supportive services in the past six months. If yes, spouses were asked to report all services used, including support group, counseling (individual, couples, family, pastoral), treatment for drug/alcohol use, depression or anxiety psychotropic medication, online education/support, or another supportive service.

Spouse model variables were chosen based on variables most often examined in the service use behavioral model (Babitsch et al., 2012) and/or shown to be related to military families. Spouse predisposing variables most often studied in other service use analyses (Babitsch et al., 2012) and included were age, race, ethnicity, and education. Gender was excluded because there were only three men.

Enabling variables that have been extensively studied (Babitsch et al., 2012) and were included were monthly household income and employment. Spouse frustration with trying to find resources to help or assist with reintegration was a proxy for service availability (Babitsch et al., 2012). Guard/Reserve status was another proxy because these families do not have access to resources available on active-duty installations (Blow et al., 2012).

An additional enabling variable was social support, which is an important buffer against stress for military spouses and a variable in family resilience (MacDermid, Samper, Schwarz, Nishida, & Nyaronga, 2008). Individuals who receive emotional support are less likely to use health care services for mental or emotional issues than those who receive less frequent emotional support (Dhingra et al., 2010). Lack of support leads to adjustment difficulties for families post deployment (Spera, 2009).

Employment was coded 0 (not employed) or 1 (employed). Spouse frustration with trying to find resources to help or assist with reintegration issues (Nichols et al., 2013) was scored 0 (no) or 1 (yes). The 12 question Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988) focused on family, friend, and significant other support, with items scored on seven-point scales and scores summed. The MSPSS has Cronbach's alpha of .91 and subscale alphas for .90, .94, and .95, respectively (Dahlem, Zimet, & Walker, 1991).

Spouse need variables included depression, anxiety, and health status, all of which are frequently part of the behavioral health model (Babitsch et al., 2012). Resilience, conceptualized as stress coping ability and a potential treatment target in anxiety, depression, and stress reactions (Connor & Davidson, 2003), was also included. The Patient Health Questionnaire (PHQ-9) assessed depressive symptoms (Kroenke, Spitzer, & Williams, 2001). The 9 items, based on the DSM-IV depression diagnostic criteria, are scored from 0 (not at all) to 3 (nearly every day). Scores are summed to characterize minimal (0 to 4), mild (5 to 9), moderate (10 to 14), moderately severe (15 to 19), or high/severe (20 to 27) depression. Cronbach's alphas from the original samples are .86 and .89. With a 10 cutpoint, sensitivity is .88 and specificity is .88 for detecting major depression (Kroenke, Spitzer, & Williams, 2001).

The 7-item Generalized Anxiety Disorder-7 scale (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006) focuses primarily on generalized anxiety disorder symptoms but also screens for panic disorder, social anxiety disorder, and PTSD (Kroenke, Spitzer, Williams, Monahan, &

Lowe, 2007). Scoring ranges from 0 (not at all) to 3 (nearly every day) for an overall score of 0 to 21; higher scores indicate more anxiety. GAD-7 has Cronbach's alpha of .92, and used for general anxiety disorder screening, a 10 cutpoint has sensitivity of .89 and specificity of .82 (Spitzer et al., 2006).

The 25 item Connor-Davidson Resilience Scale (CD-RISC) assessed how respondents felt about their coping behaviors, with responses from 0 (not true at all) to 4 (true nearly all of the time). Higher scores indicate greater resilience. The scale has Cronbach's alpha of .89 with intraclass correlation coefficient of .87 (Connor & Davidson, 2003).

General health was assessed with one Medical Outcomes Study question (Ware et al., 1995). Response options range from 0 (poor) to 4 (excellent). This question is comparable to longer instruments in predicting mortality, hospitalization, and high outpatient use (DeSalvo, Fan, McDonnell, & Fihn, 2005).

Service member related need variables were based on items that have been shown to increase military spouse/family distress or service use. Three items from spouse self-report were included in the model: service member PTSD symptom severity (Link & Palinkas, 2013), service member resistance to seeking help, and care difficulties related to injuries (Nichols et al., 2013).

The 17-item Partner PTSD Checklist (PCL-P) (Gallagher, Riggs, Byrne, & Weathers, 1998) was used to assess spouse perceptions of service member PTSD symptoms. PCL-P items correlate to the PTSD Checklist-Military (PCL-M) (Weathers, Litz, Herman, Huska, & Keane, 1993) that assesses PTSD symptoms frequency. Items on both measures are scored 1 (not at all) to 5 (extremely), with an overall score of 17 to 85, where higher scores indicate more symptoms or greater severity. PCL-P has Cronbach's alpha of .97. At a 50 cutpoint, sensitivity is .82 and specificity is .83 (Weathers et al., 1993). Correlation between PCL-M and PCL-P for overall PTSD is .71 (Gallagher et al., 1998).

Service member resistance to getting reintegration help was assessed with one question (Nichols et al., 2013) 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. Spouse and service member percentage of services used 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 statistical significance. Multivariate models were constructed using stagewise regression, introducing blocks of predisposing, enabling, spouse need, and service member need variables successively as explainers of spouse service use.

Results

Spouse and service member numbers of services used were related ($r = .532$, $p < .001$). For spouses, 39.6% were using counseling or support services as were 50.7% of service members. The modal service used was counseling (Table 1). There were three statistically significant differences in number of services used between spouses and service members. 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 statistically significant predisposing or enabling variable differences between spouses who were using supportive services and those not using services (Table 2). All spouse need variables were significantly different between the two groups. Those using services had significantly more depression and anxiety symptoms, poorer health, and less resilience than those not using services.

For service member need variables, there was a trend for spouses who used services to report more severe service member PTSD symptoms than those who did not. Spouses who used supportive services were significantly more likely to report care difficulties caused by the service member's injury. Not all service member injuries caused care difficulties: 62% of spouses reported service member injuries, but only 50% reported care difficulties. The main difficulties included monitoring and managing/assisting the service member, particularly those with PTSD and TBI, driving to appointments, helping to recover from surgeries, and medication assistance. Spouses who were dealing with care difficulties used significantly more services than spouses who were not (1.67 vs. 0.77, $p < .001$) as did their service members (2.39 vs. 0.55, $p < .001$).

- Insert Table 2 about here -

In examining spouse supportive service use (Table 3), neither the predisposing variables model nor any predisposing model variables were statistically significant. That model explained 1.1% of supportive service use variance. Adding enabling variables resulted in an additional 1.7% in variance explained and neither the combined model nor any of its variables was statistically significant. Adding spouse need variables resulted in employment becoming a trend, but the model and other variables were not statistically significant. The explained variance increased to 9.3%.

With the addition of service member need variables, service member PTSD severity significantly explained spouse service use, and injuries causing care difficulties was a trend to explain spouse service use. Enabling variables also became important: decreased spouse frustration at finding resources became significant and employment continued as a trend to explain spouse service use. The model was statistically significant, with 16.2% of variance explained.

- Insert Table 3 about here -

Discussion

The study provided insight explaining supportive service use by military/veteran spouses. Spouses who used supportive services reported care difficulties caused by injuries, the service member's PTSD symptoms, and their own depression, anxiety, decreased resilience, and poorer health. In the absence of consideration of service member needs, no spouse variables significantly explained service use. With the inclusion of service member need in the model, decreased spouse frustration finding resources to aid with reintegration and greater PTSD symptoms significantly explained service use, and greater care difficulty due to a service member injury and being employed emerged as trends.

The study has limitations that may have influenced outcomes. Numbers of individuals using supportive services were not large, but consistent with other studies of military populations (Fikretoglu et al., 2008). The model did not include organization, provider or environmental variables that measure the context within which utilization occurs (Phillips, Morrison, Andersen, & Aday, 1998), which may be important to military families. Most of the sample were Guard and Reserve spouses who are likely to seek care in the community, where resources may not be readily available (Hazle, Wilcox, & Hassan, 2012). Community providers' unfamiliarity with military health concerns (Chretlen & Chretlen, 2013) may discourage supportive service use by military spouses. Service use data were limited to supportive services and did not include general outpatient or inpatient care. In addition, all data for spouse and service member were spouse self-reports. Mental health diagnoses for spouses or service members, which could document an objective or evaluated need variable, were not available.

Although the mechanism of action between spouse and service member need and service use cannot be specified from our data, the caregiving role certainly may be a variable in spouse service use. Research has shown that caregivers have increased morbidity and mortality, and the mechanism of action generally postulated for this decreased well-being has been caregiving stress and its impact on health. Close attention to the mechanisms by which these impacts occur may expand caregiving science to show caregiver health and well-being may suffer from parameters such as care recipient need independent of, or in addition to, the caregiver's response to the need (Trivedi et al., 2012). Newer conceptualizations of caregiving suggest that care is not unidirectional, and that each individual in a family may provide care to the others (Lingler, Sherwood, Crighton, Song, & Happ, 2008). Thus, for researchers, additional study is needed to expand our understanding of the role that each family member plays in the health of others.

These results make 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 (Green, Nurius, & Lester, 2013; Hall, Sigford, & Sayer, 2010; MacDermid et al., 2013; Sawyer & Minick, 2012). This reciprocal caregiving, 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 Service Use for Spouses and Service Members (N = 205[a])

Service Type	**Total** **Number of Services Used (% of Total Use)**	**Spouse n=90** **Number of Services Used (% of Total Use)**	**Service Member n=115** **Number of Services Used (% of Total Use)**	***p*-value**
Support Group	76 (12.4)	38 (13.7)	38 (11.4)	.383
Counseling (Individual, Couples, Family, Pastoral)	339 (55.5)	154 (55.6)	185 (55.4)	.959
Alcohol/Drug Treatment	14 (2.3)	2 (0.7)	12 (3.6)	.018
Psychotropic Medications	122 (20.0)	45 (16.2)	77 (23.1)	.036
Online Service	46 (7.5)	30 (10.8)	16 (4.8)	.005
Other	14 (2.3)	8 (2.9)	6 (1.8)	.369
Total Use	611	277	334	

Note: Difference of proportions tests used to compare spouse and service member service use rates.

[a] Table represents only those spouses or service members who used services

Table 2. Baseline Characteristics of Spouses Using and Not Using Services (N = 227)

Variable	**Used Services** **(n = 90)** **M ± SD or %**	**Did Not Use Services** **(n = 137)** **M ± SD or %**	***p*-value**
Predisposing			
Age, years	36.0 ± 8.4	36.9 ± 8.7	.436
Race			.469
White	83.3	76.6	
Black	10.0	13.9	
Native American	0.0	2.9	
Asian/Pacific Islander	2.2	1.5	
Other	4.4	5.1	
Latino	12.2	11.7	.902
Education, years	15.3 ± 1.8	15.1 ± 2.2	.506
Enabling			
Household income, monthly, $[a]	5100 ± 2633	5027 ± 2682	.844
Employment status			.465
Full-time	37.8	35.0	
Part-time	23.3	17.5	
Homemaker	26.7	36.5	
Unemployed	8.9	9.5	
Disabled	3.3	1.5	

Variable	**Used Services** **(n = 90)** **M ± SD or %**	**Did Not Use Services** **(n = 137)** **M ± SD or %**	***p*-value**
Frustrations	37.8	40.9	.641
Guard/Reserve	53.3	49.6	.586
Social support (12-84)	64.5 ± 11.7	66.1 ± 12.8	.343
Spouse Need			
Depression (0-27)	7.3 ± 5.6	5.5 ± 4.9	.012
Anxiety (0-21)	8.9 ± 5.0	6.8 ± 5.1	.003
General health (0-4)	2.2 ± 1.0	2.5 ± 1.0	.009
Resilience (0-100)	75.3 ± 10.3	78.2 ± 9.8	.034
Service Member Need			
PTSD symptom severity (17-85)	46.1 ± 19.9	40.8 ± 19.8	.053
Resistance to care	45.6	43.8	.794
Care difficulty from injury	62.2	42.3	.003

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

[a] N = 212

Table 3. Spouse Supportive Service Use Regression Models (N = 227)

	Stage 1		**Stage 2**		**Stage 3**		**Stage 4**	
Variable	**Beta**	***p*-value**	**Beta**	***p*-value**	**Beta**	***p*-value**	**Beta**	***p*-value**
Predisposing								
Age	.064	.358	.055	.458	.036	.623	.017	.813
White	.065	.350	.063	.376	.023	.743	.077	.274
Latino	.024	.730	.015	.841	-.018	.798	-.023	.738
Education	.038	.588	.061	.418	.070	.357	.103	.171
Enabling								
Household income[a]			-.047	.543	-.018	.819	.028	.718
Employed			.091	.207	.119	.095	.117	.092
Frustrations			-.027	.723	-.099	.206	-.185	.023
Guard/Reserve			.027	.718	-.005	.944	.020	.783
Social support			-.089	.251	.034	.678	.074	.373
Spouse Need								
Depression					.080	.485	.056	.614

	Stage 1		Stage 2		Stage 3		Stage 4	
Variable	**Beta**	***p*-value**	**Beta**	***p*-value**	**Beta**	***p*-value**	**Beta**	***p*-value**
Anxiety					.168	.140	.104	.353
General health					-.052	.504	-.004	.960
Resilience					-.095	.252	-.093	.248
Service Member Need								
PTSD symptom severity							.241	.026
Resistance to care							-.042	.576
Care difficulty from injury							.159	.062
R^2	.011	.699	.027	.771	.093	.101	.162	.003

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

[a] N = 212

Support for Spouses of Post Deployment Service Members

Abstract

Spouses/significant others of service members who served in Iraq or Afghanistan (n = 228) enrolled in three study arms. Telephone support groups and education webinars (attention control) met 12 times during six months. They were compared to usual care. Outcomes included depression, anxiety symptoms, resilience, personal/family coping, and family communication. Participants in all three study arms improved despite dealing with care challenges for an injured service member, or not yet being adjusted to the service member's return in some way. All participants attributed benefit to improved self-efficacy. Findings suggest multiple avenues can be used to support families post deployment.

KEYWORDS

Telephone support, depression, online education, mixed models, reintegration, post deployment, military, veterans, families

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Post deployment, service members from Iraq (Operation Iraqi Freedom – OIF and Operation New Dawn – OND) and Afghanistan (Operation Enduring Freedom – OEF) report mental health concerns such as depression, anxiety and posttraumatic stress disorder (PTSD) symptoms and these problems increase post deployment (Hoge, Auchterlonie, & Milliken, 2006). They report interpersonal conflict, divorce, separation or problems getting along with relatives or children (Eaton et al., 2008). Multiple deployments increase the likelihood of acute stress, depression, anxiety, and use of mental health medications (Chretien & Chretien, 2013; Hazle, Wilcox, & Hassan, 2012). Service member depression can impede personal relationships and cause emotional and financial stress in the family (Hazle et al., 2012).

Deployment effects on the military spouse include increased loneliness, anxiety, depression, sleep disorders, adjustment disorders, stress, and family dysfunction (Link & Palinkas, 2013; Mansfield et al., 2010). Although spouse rates are similar to those of service members (Eaton et al., 2008), spouses are more likely to report that stress or emotional problems impact work or other activities (Hoge, Castro, & Eaton, 2006). Additionally, spouses who are more anxious have lower levels of social support and worse health (Fields, Nichols, Martindale-Adams, Zuber, & Graney, 2012).

Service member, spouse, and family mental health concerns make reintegration stressful (Blow et al., 2012). However, there are other risk factors associated with relationship breakdown and difficult post-deployment readjustment. These include younger age, childlessness, increased deployment length, unhelpful behavior by partners, relationship uncertainty, family violence, problems resuming sexual relationships, PTSD, other mental health problems, and alcohol misuse (Knobloch & Theiss, 2011; Rowe, Murphy, Wessely, & Fear, 2013).

Post deployment communication can also cause reintegration difficulty. For example, adaptive deployment behaviors, such as avoiding sensitive topics, may be counterproductive at home (Knobloch & Theiss, 2011). Another reintegration difficulty is re-negotiating changed roles and responsibilities (Blow et al., 2012; Faber, Willerton, Clymer, MacDermid, & Weiss, 2008; Segal & Segal, 2006).

Assisting families with reintegration (Booth et al., 2007) includes education about deployment's effects on service member and family, support from others with similar experiences, and practical skills building including problem solving, communication, stress reduction, and cognitive/mood management. These building blocks of successful caregiver interventions (Belle et al., 2006; Gottman, Gottman, & Atkins, 2011; Schulz et al., 2003) are consistent with health-stress models that explain how individuals cope with stress (Lazarus & Launier, 1978). However, many families do not use available resources (Di Nola, 2008). Work and childcare are common barriers to accessing care (Hoge, Castro, et al., 2006), but barriers can be structural, financial, personal, social and cultural (Basham, 2012).

Because they are not on base, National Guard/Reserve families may lack resources found on active-duty installations. Families may seek care in the community, so providers need to be trained in military specific care (Chretien & Chretien, 2013), and resources need to be available, particularly in rural areas (Hazle et al., 2012). However, community mental health and primary care providers report uncertainty about their ability to provide best care for military families, often unsure if their patients had been in the military (Kilpatrick, Best, Smith, Kudler, & Cornelison-Grant, 2011).

To ease some of the constraints in community providers caring for military families, telephone support groups circumvent obstacles such as lack of local services, access, and travel and have been shown to be a resource for stressed and/or isolated populations (Nichols, Martindale-Adams, Graney, Zuber, & Burns, 2013; Nichols et al., 2014). For OEF/OIF spouses, telephone support groups have shown significantly improved depression, anxiety and social support. Also, spouses report decreased concern about reintegration effects on their social life, family, service member, and themselves. Spouses of service members with injuries causing care difficulties were more burdened and had a stronger intervention response than spouses with no care difficulties (Nichols et al., 2013; Nichols et al., 2014).

Based on these findings, the current study goal was to determine whether spouses/significant others could be helped to cope with concerns after their partner's return from deployment. We hypothesized that telephone support groups, compared to attention control education webinars or usual care, would more effectively improve depression, anxiety, resilience, personal/family coping strategies, and family problem solving communication and that education webinars would be more effective than usual care.

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 and managed by the US Army Medical Research and Materiel Command (USAMRMC), Military Operational Medicine Research Program. Participants were spouses/significant others of OEF/OIF/OND service members/veterans who were at least 1 month post-deployment, had been a spouse throughout the deployment period, and who lived with the service member when not deployed. Recruitment occurred through mailed brochures, online materials, social media, and contact with military bases, VA facilities, and family readiness programs.

The study was conducted under the oversight of VA Medical Center (VAMC) Memphis Institutional Review Board (IRB) and USAMRMC Human Research Protection Office. Per IRB instruction, the spouse obtained service member/veteran assent for participation. After assent, a consent form was mailed to the potential participant for an informed consent call. Randomization occurred after baseline data collection.

Intervention

The telephone support and webinar interventions were grounded in a stress and coping health process model. Individuals evaluate whether environmental stressors pose a threat and whether they have coping capabilities (Lazarus & Launier, 1978). Through didactic presentation, support group and webinar members had opportunity to learn skills directed toward reintegration difficulties. Support group members had skills building practice and support through interactions with group members. To manage emotional and cognitive responses (Lazarus & Launier, 1978), spouses had opportunities to strengthen psychosocial resources through recognizing and changing negative thoughts and using assertiveness, relaxation techniques, and intrapersonal coping strategies.

Telephone Support Groups. 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 based on spouses' availability. Participants could join another group to allow for schedule changes or missed sessions.

Each participant had a one-on-one introduction call about group logistics and rules and problem solving basics. Session topics included social support, communicating, emotional intimacy, family roles, commitment, mental health and resilience, asking for help from community and others, navigating the system, strengthening your relationship, taking care of you, and TBI and PTSD. A Workbook provided session materials plus “red flags" for spouse or service member – things that may exacerbate problems, add difficulty or distress, and/or indicate a need for referrals (e.g., unsafe behaviors, substance abuse, spouse abuse, depression). At each session, participants were encouraged to commit to a concrete topic-related strategy to try between sessions. Each session included a review of member commitments from previous sessions, a brief didactic presentation followed by discussion, coping skills practice, and discussion of commitments. Participants had an ending one-on-one call including topic review and lessons learned.

Format and structure of the one-hour sessions included strategies of successful caregiving interventions: education, coping skills training and practice (e.g., problem solving, communication), cognitive restructuring (identifying and re-shaping negative and destructive thoughts), and support (Belle et al., 2006; Gottman et al., 2011; Schulz et al., 2003). Groups were structured with scripted talking points, but also incorporated participant input and direction of discussion.

Education Webinars (Attention Control) and Usual Care. Twelve half-hour education webinar sessions on the support group topics during six months served as attention control. These participants received the same Workbook as telephone support participants. However, no interaction/support (i.e., participants listened but did not interact) or active skills building were included. Sessions were recorded so spouses could watch if they missed a session.

Usual Care participants received no contact during the study except for data collection and alert calls (follow-ups for any participant if data collection identified dangers such as suicidal or homicidal ideation, domestic abuse, increased alcohol/drug use, clinical depression, or psychotic symptoms). At study's end, they were offered a Workbook and workshop covering topics targeted to individual needs.

Data

Quantitative data collection, via telephone by trained and certified research associates, occurred at baseline, 6 and 12 months (full), and 3 and 6 months (outcomes only). Qualitative data included Group Leader notes charting group member progress and commitments. Qualitative 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 problem solving communication. The Patient Health Questionnaire (PHQ-9), used to assess depression (Kroenke, Spitzer, & Williams, 2001) has 9 items based on DSM-IV diagnostic criteria, scored from *not at all* (0) to *nearly every day* (3) with summed scores ranging from 0 to 27; higher scores indicate greater depression.

The Generalized Anxiety Disorder-7 (GAD-7) (Spitzer, Kroenke, Williams, & Lowe, 2006), used to assess anxiety, is a 7-item symptom checklist. Scoring for each item ranges from *not at all* (0) to *nearly every day* (3) for a summed score of 0 to 21; higher scores indicate greater anxiety.

The Connor-Davidson Resilience Scale (CD-RISC) 25 items assesses past month resilience, with responses from *not true at all* (0) to *true nearly all of the time* (4) (Connor & Davidson, 2003). Higher scores indicate greater resilience. The scale has Cronbach's alpha of 0.89 with intraclass correlation coefficient of 0.87.

Personal/family coping behaviors are from the 1991-1992 Survey of Army Families II in USAR-EUR (Durand, Larison, & Rosenberg, 1995; Pittman, Kerpelman, & McFadyen, 2004). Fourteen items measure day-to-day activities management, from household tasks to coping with loneliness. Six items are child care related, eight relate to personal coping. Each item is rated from *very poorly* (1) to *very well* (5); summed scores are 8 to 40 (personal scale) and 6 to 30 (family scale).

The 10-item Family Problem Solving Communication scale (FPSC) assesses aspects of family communication used to cope with stress and difficulties (McCubbin, Patterson, & Glynn, 1996). Each item is scored from *completely false* (0) to *completely true* (3). Summed scores range 0 to 30; higher scores indicate better communication. The FPSC has an alpha of 0.89, test-retest correlation is 0.86, and the scale has good concurrent validity (McCubbin et al., 1996).

Independent Measures

Independent measures were selected to characterize the sample and to assess factors that affect outcome measures and/or the reintegration process. Demographics included age, gender, race/ethnicity, years married, employment, children, income, and service member's age, military branch, rank, and previous deployments.

Health status is assessed with a scale from poor (0) to excellent (4) (Ware et al., 1995). The six-item Quality of Marriage Index (QMI) assesses marital quality (Norton, 1983). Five items (attitudes and behaviors) have responses from *very strongly disagree* (1) to *very strongly agree* (7). Overall happiness is rated from *very unhappy* (1) to *perfectly happy* (10). Summed scores are 6 to 45; higher scores indicate greater relationship satisfaction. QMI has an alpha coefficient of 0.97 and excellent convergent and discriminant validity (Heyman, Sayers, & Bellack, 1994).

Personal stress is assessed with items from The Social Readjustment Rating Scale (SRRS), a list of 43 stressful life events that can contribute to illness (Holmes & Rahe, 1967). Twelve of these events that were apt for this age cohort (e.g., pregnancy or change in financial state) were measured. Occurrence in the last six months is scored as *no* (0) or *yes* (1). Each event has points assigned according to how stressful it is. Points for all events present are summed for a score from 0 to 437; higher scores indicate greater stress.

Spouse perceptions of past month PTSD symptoms of the service member/veteran are assessed with the 17-item Partner PTSD Checklist (PCL-P) (Gallagher, Riggs, Byrne, & Weathers, 1998), that correlates (r = 0.71) with the PTSD Checklist (PCL) (Weathers, Litz, Herman, Huska, & Keane, 1993). For both instruments, items are scored from *not at all* (1) to *extremely* (5), with a summed score of 17 to 85; higher scores indicate more symptoms or greater severity.

The Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet, & Farley, 1988) assesses social support with 12 questions focusing on family, friend, and significant other support. Items are scored *very strongly disagree* (1) to *very strongly agree* (7) and summed to 12 to 84. Higher scores indicate greater support. The measure has a Cronbach's alpha of 0.91 (Dahlem, Zimet, & Walker, 1991).

Data Analysis

The main quantitative data analysis strategy was intention-to-treat, with participants analyzed according to initial arm assignments. Baseline characteristics were compared between participants in each arm using chi-squared tests or analysis of variance (ANOVA), as appropriate. Outcomes were treated as independent of the others. Randomized arms were compared using repeated measures mixed linear models to estimate group by time interaction. Because mixed linear model analysis accommodates missing data without loss of subjects, no imputation strategy was necessary. Linear regression was used to analyze relationship between two continuous variables. Secondary analysis of outcomes within subgroups used these same strategies. *P* values $\leq .05$ were considered statistically significant, and those between .05 and .10 to document trends approaching statistical significance. The study was designed to provide statistical power of 0.80 to document as statistically significant a true population difference in intervention effect equal to at least 0.25 *SD* of a primary outcome variable.

Each qualitative data source was reviewed 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). A separate researcher matched caregivers' quotes with themes to compute a kappa reliability statistic (Cohen, 1968).

Results

Participants

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

- Insert Table 1 about here -

Service members, on average, were in their late 30s and 75% were employed (Table 2). 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 military years, they had 3.6 total deployments, with 2.1 OEF/OIF/OND deployments. 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. They had been back almost two years. By spouse report, service members took 4.5 months to adjust to return although 46.8% had not adjusted.

- Insert Table 2 about here -

Dosage

Among support arm participants, 40.8% participated in six or more of twelve sessions and 21% participated in none. Among education arm participants, 34.2% participated in six or more sessions and 30.3% participated in none. Discontinuation and lost to follow-up was 24 education arm participants, compared to ten support arm participants and four in usual care (Figure 1). Total sessions missed might have been more if not for 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 analysis. During twelve months there were significant time effects with participants in all arms improving for all outcomes except resilience (Table 3). There were no significant randomization group effects or group by time interaction effects.

Secondary analysis. We also analyzed differences in outcomes by post deployment stressors (adjustment since service member's return, difficulty providing care after injury), stressful life events, which are related to physical and psychological problems (Dohrenwend, 2006), and dosage. Here, also, participants tended to improve.

- Insert Table 3 about here -

Adjustment since service member's return. Participants who reported that they, the service member, or the relationship had (n = 83) or had not adjusted (n = 121) since return were separately analyzed. For those who had not adjusted, there were significant time effects for improved anxiety ($p < .001$), depression ($p = .001$), and personal coping ($p < .001$) and a trend for family coping ($p = .058$) but no randomization group or group by time interaction effects. For those who were adjusted, there was a significant time effect for improved personal coping ($p = .008$) but no randomization group or group by time interaction effects.

Little outcome variance was explained by time since service member's return from deployment. Only family coping was statistically significant (n = 120, $R^2 = .035$, $p = .040$), with spouses of recently returned service members doing better than spouses of those who returned earlier.

Care difficulties. Participants with injured service members with care difficulties were analyzed separately from those not experiencing care difficulties. For spouses experiencing care difficulties (n = 114) there were time effects for improved anxiety ($p = .002$), personal coping (p

= .001), and family coping (p = .019), but no randomization group effect or group by time interaction effect for any outcome. For those who without care difficulties (n = 113) there were time effects for improved anxiety (p < .001), depression (p < .001), and personal coping (p < .001) and randomization group effects for anxiety (p = .001) and depression (p < .001) but no group by time interaction effects.

Stressful life events. Presence of stressful life events explained little variance in outcomes. Statistically significant variance explained was found for anxiety (n = 183, R^2 = .060, p = .012), depression (n = 182, R^2 = .088, p = .001), resilience (n = 181, R^2 = .023, p = .041), and personal coping (n = 185, R^2 = .115, p < .001) and a trend was found for family coping (n = 118, R^2 = .065, p = .053).

Dosage. When support (n = 31) and education (n = 26) participants who had six sessions or more and usual care (n = 75) were compared, there were time effects for improved 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* support and education participants who had at least six sessions, there were group by time interaction effect trends for improved resilience (p = .075) and family coping (p = .052), and significant time effects for improved anxiety (p = .002), personal coping (p = .014), and a time effect trend for improved depression (p = .053).

Participant Benefit

For participant responses about benefit (Table 4), kappa was 0.95, indicating high agreement among researchers on themes (Landis & Koch, 1977). For support participants, connecting with others was important: *"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."* Guard/Reserve spouses and those who 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 4 about here -

Self-efficacy was important, including skills building in self-care, problem solving, stress reduction, 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."* One critical area of 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's just reassuring to know that people are still out there fighting for military families."*

Education participants' benefits were similar. The most mentioned was self-efficacy, including self-reflection, a new perspective, and learning skills: *"… it really got me to think about when my husband's emotions would go from one side to the other… 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."* Related to learning and self-efficacy was improved relationships: *"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 benefits were 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…" "I'm really thankful for people like you who take the time to do this."*

Although education participants could not interact within their group, they voiced a sense of connecting with others: *"So listening in on the calls and…knowing that there's other spouses that are listening at the same time really benefitted me personally."*

Usual care participants emphasized self-efficacy and self-reflection. Specifically, participants said assessment battery questions prompted them to think about and modify behavior, including improving their relationship with the service member: *"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 made me look at certain things that I wouldn't have made a connection about."*

Usual care participants also mentioned that someone cared: *"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."*

Discussion

In this study of telephone support and webinar education for spouses coping with service member reintegration, we hypothesized that participants would improve. This was the case, although the support arm had no greater improvement than the education arm. We did not hypothesize that usual care participants would improve. However, there were significant improvements over time for participants in all arms and for all outcomes except resilience. These improvements occurred for participants who were dealing with care challenges for an injured service member, who experienced more serious life events, who reported not yet being adjusted to the service member's return in some way, and regardless of time since deployment return.

The amount of benefit over time for participants in all study arms was unexpected because the design and content of telephone support and education webinars could 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 risk areas targeted to individual concerns have been shown effective for caregivers (Belle et al., 2006; Gottman et al., 2011; Kansagara, Goy, & Freeman, 2010; Schulz et al., 2003).

Explanation of participants' improvement in the three arms can be found in their comments about benefit. Self-reflection and self-efficacy were important themes for participants in all three randomization arms. Support group 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 participants ascribed benefit to self-reflection, skills building, and resources available. Without access to resources, skills building techniques, or support of others, usual care participants used what they had and highlighted how the assessment battery made them question and modify thoughts and behaviors.

The phenomenon of assessment battery as a source of education, normalization, and validation is known, with 82% of control group dementia caregivers also reporting these benefits (Nichols et al., 2012). However, usual care participants' emphasis on internalizing information in the questions, and modifying actions, was surprising: *"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, other factors may help explain why all participants improved. Nonspecific factors such as attention or positive regard by staff influence control group improvement (Beal, Stuifbergen, Volker, & Becker, 2009; Jensen, Weersing, Hoagwood, & Goldman, 2005; Nichols et al., 2012) and these benefits were mentioned, although they were not the most frequent benefit mentioned.

Other researchers have postulated time since deployment as a factor in improvement for service member and family distress, with mental health and reintegration difficulties improving on their own with greater time from combat and deployment. However, our results did not support 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 average time since deployment return was 21.8 months and median time since deployment return was 13 months, with the range of time since deployment being 1 to 120 months.

Several limitations may have influenced these findings. One thought was that distressed spouses would more likely benefit from the intervention (Nichols et al., 2013). Spouses were not screened for distress at study entry, and this may have been a limitation because they did not exhibit high levels of anxiety or depression or low levels of resilience at baseline. In an attempt to determine if the most stressed had more benefit from the intervention, spouses who had more stressful life events, or were caring for a service member whose injuries caused care difficulties were examined by randomization arm. However, these spouses also improved across all three arms during the study. A limitation may have been the percentage of participants who discontinued (3.5%) or were lost to follow up (13.2%). Coupled with this loss were individuals who did not fully participate, with less than half of support participants attending at least six sessions. Busy participant lives is a factor that may have contributed to lower participation.

This study has clinical implications, although it did not show decisively that one intervention provided superior benefit. Providing spouses/significant others with post deployment resources and education, access to skills building, and peer support or caring professionals increased self-efficacy and ability to manage concerns and improved spousal relationship. Spouses reported improved anxiety, depression, personal and family coping, communication, and perceived benefit. From our findings, these factors cut across all types of spouses, providing benefit to distressed individuals who are facing challenges brought on by deployment and service member injury.

These findings are important because providing education and mental health resources to families can reduce caregiver burden, which positively affects patient health (Bernhardt, 2009; Monson, Taft, & Fredman, 2009). Patients' chance of injury is greater when caregivers have higher levels of depression, anxiety, or physical health problems (Carlson et al., 2012). Service members returning with TBI make less treatment progress if the family unit is distressed (Dausch & Saliman, 2009). Conversely, PTSD symptoms often decrease as family and social support increases (Frain, Bishop, & Bethel, 2010).

Our findings suggest multiple avenues can be used to support military families post deployment, depending on the capacity and staffing of the military, veteran, or community organization providing service. Telephone or in-person support groups, pre-recorded education webinars with the capability of discussion among participants, or webinars that could be watched when convenient for participants followed by monitored chat rooms or scheduled discussions, are all options that organizations could provide. The important factor is being there with help. . "*Because even though it's something that they volunteer for* [being in the military], *it's something so unique that I don't feel like there's enough resources out there for military families."* As one of the spouses in the education arm said: *"I would have ridden these last few months out in rougher waters if I hadn't gone through it."*

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Table 1

Baseline Characteristics of READI Spouses

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					
Female	98.7	97.4	98.7	100.0	.775
Age, years	36.5 ± 8.6	36.4 ± 8.6	38.0 ± 8.3	35.1 ± 8.7	.123
Years married	9.0 ± 6.9	8.6 ± 7.4	8.7 ± 6.1	9.7 ± 7.0	.525
Children, number	1.6 ± 1.3	1.5 ± 0.2	1.3 ± 0.2	1.2 ± 0.1	.947
Race					.160
Caucasian	79.3	80.3	78.9	78.7	
African-American	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	11.9	13.2	9.2	13.3	.675
Education, years	15.2 ± 2.1	15.1 ± 2.1	15.3 ± 2.3	15.1 ± 1.7	.769
Employed, full-time or part-time	55.9	46.1	64.5	57.3	.070
Household income, monthly, US $	5056 ± 2657	5132 ± 2382	5277 ± 2852	4759 ± 2741	.497
Had military service	16.3	11.8	18.4	18.7	.435
Deployment					
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	.563
SP not yet adjusted to SM’s return	42.4	43.3	36.8	47.1	.470
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	.069
Relationship not yet adjusted to SM’s return	46.8	35.8	48.5	55.9	.061
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	.515
Children not yet adjusted to SM’s return	33.3	31.0	25.6	42.2	.253
Clinical					
General health (0-4)	2.4 ± 1.0	2.3 ± 1.1	2.5 ± 0.8	2.4 ± 1.1	.340
Depression (0-27)	6.2 ± 5.3	6.6 ± 5.8	5.8 ± 5.2	6.4 ± 4.7	.648
Anxiety (0-21)	7.6 ± 5.1	7.9 ± 5.5	7.1 ± 5.1	7.9 ± 4.8	.537
Quality Marriage Index (6-45)	33.9 ± 9.0	33.6 ± 10.3	33.7 ± 8.2	34.5 ± 8.4	.777

Social support (12-84)	65.5 ± 12.4	65.5 ± 13.8	66.6 ± 10.2	64.5 ± 12.8	.583
Family communication (0-30)	20.9 ± 5.6	20.1 ± 6.7	21.1 ± 4.9	21.7 ± 5.1	.235
Personal coping (8-40)	32.5 ± 4.7	32.3 ± 5.2	32.7 ± 4.6	32.4 ± 4.4	.870
Family coping (6-30)[a]	26.3 ± 3.2	26.9 ± 2.8	25.8 ± 3.7	26.3 ± 2.9	.175
Social readjustment (0-437)	149.2 ± 79.4	154.9 ± 81.3	143.4 ± 77.0	149.4 ± 80.6	.676
Resilience (0-100)	77.0 ± 10.1	75.8 ± 10.0	78.8 ± 10.6	76.4 ± 9.5	.163

Note. SP = Spouse, SM = Service Member; Depression = PHQ-9; Anxiety = GAD-7; Social support = MSPSS; Family communication = FPSC; Personal/Family coping = questions from the 1991-1992 Survey of Army Families II in USAR-EUR; Social readjustment = SRRS; Resilience = CD-RISC.

[a] *N* = 156 and *n* = 48, 52, 56 for Support, Webinar, and Usual Care 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	.472
Employed, full-time or part-time	75.3	78.9	76.3	70.7	.484
Branch of service					.468
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					.723
Non-commissioned officer	42.7	42.5	45.2	48.5	
Commissioned officer	20.3	20.5	20.5	23.5	
Senior non-commissioned officer	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					.536
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	.977
Deployment					
Deployments ever, number	3.6 ± 3.0	3.5 ± 2.7	3.6 ± 3.3	3.7 ± 3.0	.956

OEF/OIF/OND deployments, number	2.1 ± 1.3	2.2 ± 1.6	1.9 ± 1.0	2.1 ± 1.3	.421
Months since return	21.8 ± 22.6	20.0 ± 19.5	23.3 ± 24.0	22.0 ± 24.0	.653
Months of last deployment	11.1 ± 4.7	12.0 ± 6.1	10.2 ± 4.1	10.9 ± 3.5	.056
Injured	62.1	63.2	59.2	64.0	.810
Months for SM to adjust to return	4.5 ± 6.5	3.9 ± 3.9	6.1 ± 9.0	3.4 ± 5.0	.190
SM not yet adjusted to return	46.8	43.3	45.6	51.5	.616
PTSD severity (17-85)[a]	42.9 ± 20.0	43.1 ± 20.2	40.5 ± 20.1	45.1 ± 19.6	.361
Met criteria for PTSD Diagnosis[a]	43.6	43.4	38.2	49.3	.383

Note. SM = Service Member, OEF = Operation Enduring Freedom (Afghanistan), OIF = Operation Iraqi Freedom (Iraq), OND = Operation New Dawn (Iraq), PTSD = Post traumatic stress disorder.

[a] Assessed with the Partner PTSD Checklist (PCL-P)

Table 3

Mixed Model Analysis of Outcome Variables

Variable	Baseline	6 Months	12 Months	Group	Time	Group by Time
	M ± *SD*	*M* ± *SD*	*M* ± *SD*	*p*-value[a]	*p*-value[a]	*p*-value[a]
Anxiety (0-21)				.340	<.001	.674
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)				.488	<.001	.544
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)				.675	.588	.242
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)				.766	.030	.567
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)				.775	<.001	.667
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[b] (6-30)				.493	.012	.353
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. Anxiety = GAD-7; Depression = PHQ-9; Resilience = CD-RISC; Family communication = FPSC; Personal/Family coping = questions from the 1991-1992 Survey of Army Families II in USAR-EUR.

[a] Mixed model analysis also included measurements at 3 months and 9 months.

[b] *N* = 156 and *n* = 48, 52, 56 for Support, Webinar, and Usual Care respectively. This scale is only assessed with participants who have children living in the home.

Table 4

Project Benefit Themes by Randomization Arm

Theme	n (%)[a]
Support	
Connecting with others	33 (34.3)
Self-efficacy	22 (22.9)
Great resources/workbook/wonderful staff	22 (22.9)
Improved relationship	8 (8.3)
Gap in services	6 (6.3)
Someone cares	5 (5.2)
Webinar	
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)
Usual care	
Self-efficacy	46 (73.0)
Someone cares	10 (15.9)
Improved relationship	7 (11.1)

[a] Percentages are calculated from number of responses for each randomization arm.

Figure 1. Sampling and Flow of Participants Through READI