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Educating Military Personnel and Their Families about Post-Deployment Stress

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Educating Military Personnel and Their Families about Post-Deployment Stress

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Abstract

Military personnel returning from the conflicts in Iraq and Afghanistan face a number of challenges. Exposure to traumatic events, such as witnessing death or handling human remains, is common among this group, and such experiences may lead to Post-Traumatic Stress Disorder (PTSD), depression, or other consequences such as substance abuse. Injury from improvised explosive devices can lead to traumatic brain injury (TBI).

We developed and evaluated new communication materials for military personnel and their families that addressed post-deployment stress often triggered by traumatic experiences. Our review of existing resources identified 169 resources (as of June 18, 2007) for military personnel, their families, and veterans, regarding PTSD, TBI, depression, and other related issues. Our review identified important information gaps: we found relatively little material addressing treatment seeking and communication, compared with signs and symptoms, available treatments, and social support. Only 14% of resources were considered "exemplary." We drafted educational booklets to address these gaps, vetted them in 10 focus groups with 51 individuals (37 military personnel; 14 spouses), and incorporated feedback from the focus groups into the final booklets. These educational booklets may provide a useful resource for military personnel who return from current conflicts and their families.

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Introduction

Exposure to stress and violence can trigger psychological and cognitive consequences for military personnel deployed to Iraq and Afghanistan (Hoge, Castro, & Messer, et al., 2004, Hoge, Auchterlonie, & Milliken, 2006; Hoge, Terhakopian, Castro, et al., 2007; Seal, Bertenthal, Miner, Sen, & Marmar, 2007). The most common conditions are post-yraumatic stress disorder (PTSD), depression, and traumatic brain injury (TBI). Milliken, Auchterlonie, and Hoge (2007) found prevalence estimates over 10% for symptoms of depression and over 16% for symptoms of PTSD, and recent research suggests that prevalence of PTSD is increasing across multiple segments of the military population (Tanielian & Jaycox, 2008; Rosenheck & Fontana, 2007).

TBI has been identified as a signature wound of the current conflicts in Iraq and Afghanistan usually as a result of pressure blasts from the newer types of weapons used today. Many symptoms of these disorders overlap, complicating appropriate diagnosis. Hoge et al. (2008) suggest that the effect of mild TBI on physical health is mediated by depression and PTSD. For example, mild TBI in the combat environment, especially with loss of consciousness, is associated with intense traumatic experiences and psychiatric symptoms, and particularly with a significant increase in the risk of PTSD (Tanielian & Jaycox, 2008).

The transition from deployment to home (known as redeployment reintegration) can be challenging for both service members and their families. The challenge may be magnified if a service member is suffering from psychological or cognitive difficulties that can arise from PTSD, depression, or TBI (Hoge et al., 2004; Milliken et al., 2007). Fortunately, early identification and treatment for these problems can minimize symptoms and facilitate recovery.

However, data indicate that positive screenings do not adequately result in treatment for post-deployment stress. Only a minority of those who screen positive for symptoms of psychological distress (e.g., PTSD, depression) are referred for treatment (Hoge, Auchterlonie, & Milliken, 2006) and only about 60 percent of military personnel who are referred for mental health services after deployment actually receive treatment (Milliken, et al., 2007). Indeed,

nearly three-quarters of military personnel seeking post-deployment mental health treatment have not received a referral (Tanielian & Jaycox, 2008; Milliken, et al., 2007). A possible reason for low health care seeking rates is the many barriers that hinder getting treatment including concerns about confidentiality and consequences for military careers (Tanielian & Jaycox, 2008). These data suggest that those suffering from PTSD and depression would benefit from increased information about the signs and symptoms of post-deployment stress, treatment options, and pathways to receiving treatment.

As in other medical situations (e.g., cancer; Van Der Molen, 1999), information can play a key role in helping service members and their families cope with post-deployment stress (Brashers, Goldsmith, & Hsieh, 2002). For example, health information can facilitate positive health behaviors (Cayton, 2006). There is no shortage of health information available to the public. The Internet is the tool most commonly used to locate information, even though health care providers are a more trusted source (Hesse, Nelson, Kreps, et al., 2005). However, much of the health information on the Internet may not be useful. For example, although the average reading level for adults in the United States is 6th grade, most health information on the Internet is written at a 12th grade level. In addition, non-guided Internet searches (i.e., entering simple terms into common search engines) rarely produce helpful results (Berland, Elliott, Morales, et al., 2001).

Another important consideration for effective communication with service personnel and their families is the unique cultural context of the military. To ensure success, the armed forces proliferates values and attitudes of toughness, independence, strength, and mastery under stress. While these attitudes and values serve to strengthen a fighting force, they are often in conflict with admitting personal problems such as experiencing mental health symptoms or difficulty with cognitive functioning (Tanielian & Jaycox, 2008). Such discordance can pose barriers to health care seeking (PCCWW, 2007).

These gaps between how information is provided and what information is needed suggest the potential value of interventions such as educational booklets that present information at an accessible reading level and offer guidance on ways to find additional sources (e.g., the Internet). Early intervention is key to preventing significant mental health problems among veterans returning from Iraq and Afghanistan (Seal, Bertenthal, Miner, et al., 2007), and education may promote earlier engagement with care. Further, because significant post-deployment stress may not appear until several months after service members return from deployment (Milliken, et al., 2007), information interventions should also contain content that applies to individuals at several stages of readiness for treatment.

The objective of this study was to design and produce educational materials to raise awareness of common post-deployment stress problems, identify options for addressing the barriers to care (including confidentiality concerns), and motivate service members and their families struggling with post-deployment stress to engage with the health care system and get the treatment that they need. We aimed to motivate primary, secondary, and tertiary prevention: our materials described strategies for preventing post-deployment stress, for judging the severity of post-deployment stress, and for obtaining treatment. However, education alone is unlikely to motivate service members and their families to engage with the health care system. Successful health communication must also address practical considerations stemming from specific features of military structure and culture, e.g., concern about whether seeking care for psychological and cognitive injuries will be kept confidential. Therefore, we also sought to include in our materials specific information and resources to promote engagement with services provided for this population through the military health care system, the VA, and community health care systems.

The study had three components. We first conducted a systematic review of existing public resources available to educate military personnel and their families about post-deployment stress, and we classified the resources on multiple dimensions in order to identify

gaps in coverage. We then developed two educational booklets—one for military personnel and one for families—addressing gaps identified in the resource review and providing references to existing exemplary materials. Third, we conducted focus groups with military personnel and military spouses to evaluate and refine the draft educational booklets. The booklets will be disseminated in conjunction with national educational outreach campaigns currently being planned to highlight information about common forms of post-deployment stress and to suggest how and where military personnel and their families can seek care and support for PTSD, TBI, and depression.

Conceptual Framework

To inform our work, we employed a conceptual framework from the attitude change and persuasion literature in social psychology (Petty & Cacioppo, 1986; Petty & Wegener, 1998; Petty, Wegener, & Fabrigar, 1997). The framework focuses on five key communication variables (source, message, medium, recipient, and context) that influence how individuals feel, think, and behave. **Source** variables include credibility of the information (expertise and trustworthiness), attractiveness, and visual appeal. **Message** variables concern the topic, position, style, content, and organization of the communication. **Medium** is the form of communication (e.g., text, audio/visual, face-to-face, interactive). **Recipient** variables include demographics as well as attitudinal aspects such as issue-relevant knowledge and personality factors. Finally, **contextual** variables can affect attitudes, including what the recipient of the message is expecting to hear and whether messages are repeated. These factors influence whether attitude change is likely to occur. Attitude change, in turn, influences health care seeking and health decision making. Thus, to affect the health care seeking and decision making behaviors of military personnel and their families, we addressed all of these factors in our review of existing outreach materials, development of new educational booklets, and design of the focus group protocol.

We also used health behavior theories to inform the development of the content for both of the booklets. Specifically, the Transtheoretical Model (DiClemente & Prochaska, 1982; Prochaska & DiClemente, 1983; Prochaska, DiClemente, & Norcross, 1992) was employed to shape the booklet content so that the messaging contained within each version would be appropriate for individuals across all stages of change as they relate to seeking professional or informal help for post-deployment stress. Additionally, we drew upon the Risk Perception Attitude Framework (Rimal & Real, 2003) which stipulates that individuals are most likely to take action to prevent adverse health outcomes when they are both aware of health risks and feel equipped to take action to reduce risks.

Methods

Resource Review Procedures

Resource Identification. To inform the development of new educational materials, we first identified gaps in existing information addressing post-deployment stress. We focused on materials available to military personnel, veterans, and their families, but we also catalogued materials targeting providers since these materials represent resources designed to reach military personnel or their families through their providers. We began by cataloguing educational and outreach materials that were available on the Internet. From March 2007 to August 2007, we systematically located online resources related to mental health and military personnel. Search techniques included entering relevant terms (e.g., deployment, brain injury, trauma, posttraumatic stress disorder, PTSD, depression, traumatic brain injury, TBI, combat stress, readjustment, readjustment, reintegration, reunion, National Guard, Reserve, Operation Enduring Freedom/OEF), and Operation Iraqi Freedom/OIF) into search engines and following resource links in identified materials that addressed post-deployment stress. We also identified resources by reading articles and press releases and by talking with experts.

Resource Coding and Cataloguing. We catalogued resources in an Excel spreadsheet that included the hyperlink and date of access. We coded each resource

according to *type of media* (text, audio/visual, interactive), *psychological problem* addressed (PTSD, TBI, depression, other), *target audience* (military personnel, families, veterans, providers), *organizational source* (military, VA, civilian), and whether the information was focused on a *post-deployment* time frame (yes, no). We also coded the content on five key *concepts* were addressed by each cataloged resource (symptoms, treatment, health care seeking, communication, social support). Table 1 provides examples of each concept. Generally, these categorizations were not mutually exclusive: a single resource could have multiple identifiers (e.g., both family and veteran target audiences; both symptoms and treatment information).

To narrow the 169 resources to a subset of exemplary materials, members of the research team (LM, AP, SG, and MT) each rated 25% of the resources on two characteristics. *Depth* characterized each resource on a scale from 0-2: resource list (e.g., hyperlinks only), short brochure (1-2 pages), or a more in-depth resource (including videos, print materials longer than 2 pages, and interactive websites). *Quality* characterized each resource as the sum of three criteria – citing credible sources (e.g., from known reputable sources), good organization (e.g., layout is easy to follow), and effective communication (e.g., communicated in the appropriate voice and reading level for the audience from 0-3.

Analysis. We conducted simple descriptive analyses of the findings from the resource review. In particular, we examined the frequency of different source characteristics (source, medium, message, and recipient) in order to identify gaps in coverage. We also created two-dimensional tabulations of (a) depth by quality ratings and (b) target audience by concepts coded.

Booklet Development

We designed both booklets (military and family member versions) to address gaps in existing resources. We used information acquired from the resource review to inform the content and tone of the booklets. A communications analyst on the research team (MV)

conducted several rounds of booklet review to ensure that the text was written at an appropriate reading level and that the content was clearly presented.

Focus Group Procedures

After we developed drafts of the educational booklets, we convened 10 focus groups with participants who represented the intended audiences: military personnel and spouses of military personnel. Our goal was to test the suitability and utility of the educational material with potential users.

Participant Recruitment. We recruited focus groups participants primarily from the list of participants in a larger study from the targeted recruitment locations and who agreed to be re-contacted (n=161) (Tanielian & Jaycox, 2008). We supplemented this list of potential participants with individuals who responded to flyers (n=9) distributed by military and military family member organizations in the areas surrounding Camp Pendleton, California, and Fort Hood, Texas. We also recruited a group of reservists and guardsmen with assistance from RAND military fellows.

Design. To maximize homogeneity of the focus group participants and, in turn, their comfort with discussing the sensitive topic, we balanced groups by three characteristics: 1) *component* (Active vs. Reserve) and *branch of service* (Army, Marine--including corpsmen who are part of the Navy, and Reserve/Guard), 2) *rank* (junior enlisted/E1-E6 vs. senior enlisted/E7-E9 and officers), and 3) *audience* (military personnel or military spouse). All of the focus group participants had to have served in Iraq or Afghanistan and most were on active duty at the time though a few service personnel had left service. This strategy emphasized obtaining data from those populations most affected by the current deployments: soldiers and marines are most likely to be deployed for combat duty in Iraq and Afghanistan. The 10 focus groups included four Marine groups (n=22, stratified by rank and audience), four Army groups (n=17, also stratified by rank and audience), one group of Army reservists and guardsmen (n=4), and one discussion/feedback group comprised of RAND military fellows (n=5), including officers from the

Army, Air Force, and Marine Corps. Although not all members of this group were OIF/OEF veterans, these officers provided valuable information because of their analytical expertise and insights into military culture.

Group Process. Each of the groups lasted up to two hours and had three to eight participants. Groups were co-moderated by two members of the research team, with one moderator taking detailed notes on a laptop computer. Participants gave verbal informed consent before beginning the formal discussion. We audio taped the group discussion to ensure the accuracy of the notes. We destroyed the tapes after the discussion was documented and vetted by the research team.

Focus Group Content. The focus group discussions had three sections. First, we explained the study objectives and focus group procedures, including oral consent and rules. We then allowed for brief introductions so that people would feel more comfortable. We elicited and then summarized the different signs and symptoms associated with each of the key disorders (PTSD, TBI, and depression) to familiarize participants with the subject matter. We asked participants where they would typically seek care if they were experiencing these signs and symptoms of stress, or where they would recommend that someone else seek care. We probed for where they would go for information (e.g., the Internet, the VA, etc.), whether they would seek services on-base or within the civilian sector, and how they would pay for care. We asked them about the types of services that would be helpful to them and what types of barriers, if any, they might face in obtaining services. We also asked what materials they had received post-deployment and whether the materials included anything about mental health services. Finally, we showed participants drafts of the educational booklets and asked for their feedback. In particular, we asked them if the materials were helpful, if they would keep/use them, and if they liked the content and format. The focus group discussion guides were the same for groups with military personnel and with military spouses except for slight adaptations to reflect the different audiences.

Focus Group Analysis. Following each focus group, the note taker listened to the audiotape to supplement notes. The moderator then reviewed the notes and added any information necessary to produce final documentation of the discussion. Once all groups were completed and documented, the qualitative team reviewed the notes to identify both common themes that prevailed, regardless of group characteristics, and unique themes that pertained only to particular groups. The findings offered guidance on how to modify the content and format of the draft educational brochures; this feedback was incorporated into the final products. The booklets and associated resources are available for download at http://veterans.rand.org.

Results

Resource Review

A canvassing of online and offline sources produced 169 existing information resources for military personnel, their families, veterans, and providers regarding PTSD, TBI, depression, and other consequences of post-deployment stress. Table 2 presents basic characteristics of these resources, categorized by source, medium, message, recipient, and context. Of the 169 resources, 46% came from military sources, 33% from civilian sources and 25% from the Veterans Administration (VA). Most of the materials were text-based (75%), followed by interactive (20%) and audio/visual resources (12%). In terms of type of post-deployment stress addressed, the largest focus was on PTSD (36%) and as much as 49% while not specifically addressing PTSD, depression, or brain injury, included materials and resources that more generally addressed benefits and resources (n=28), transition to home (n=27), coping (n=17), and non-specific mental health (n=11). Only two of the resources addressed PTSD, depression, and TBI. More than half of the resources dealt with social support issues (59%), with sizeable minorities dealing with symptoms (37%) and treatments (27%). None of the materials we reviewed covered all five key concepts. Key concepts appeared to be similarly distributed for each target audience. The audience focus was fairly evenly distributed across military personnel, families, and veterans. Nearly 60% of all resources covered post-

deployment. We further categorized resources according to the research team's judgment about depth and quality described above (Table 3). Overall, 34 resources were rated highest in quality; 23 of those were also rated as in-depth.

Table 4 shows the 23 high-quality, in-depth resources by target audience and key concept. Resources were well distributed across target audiences (rows), but the key concepts of symptoms, treatment, and social support received greater coverage than did health care seeking and communication. Within rows, this difference was particularly marked for providers, and to a lesser extent, military personnel. Within columns, symptom and treatment resources were fairly well distributed across audiences. Also of note (not shown) is the preponderance of high-quality and high-depth resources for PTSD (n=14) relative to TBI (n=2) and depression (n=2).

In summary, from this resource catalogue aimed at a population with documented needs, only 45% were rated as "in-depth," only 20% were rated as "high-quality," and only 14% were rated as both. PTSD was targeted in more of the cataloged resources than were either TBI or depression; health care seeking and communication concepts were less commonly represented. Given these results, we set out to develop an in-depth, high-quality resource that would address the most common post-deployment stress issues faced by military personnel and their families.

Development of Communication Materials

Our two parallel educational booklets (one for military personnel; one for military family) were designed to: 1) increase awareness of post-deployment stress, including symptoms of PTSD, TBI, and depression, 2) normalize the experience of post-deployment stress, thereby decreasing stigma associated with seeking treatment, and 3) offer guidance on ways to cope with stress and receive help.

We used three profiles of fictional veterans as part of our effort to de-stigmatize and demystify the psychological and cognitive injuries addressed for this population. These profiles

describe “real” people in “real” situations, each of whom had recently returned from Iraq or Afghanistan and was experiencing symptoms of PTSD, TBI, or depression. After the profile description, the booklet briefly notes the symptoms experienced with the disorder, symptoms are reviewed, and resources are provided. We aimed to represent sociodemographic characteristics and branch of service.

We also aimed to address gaps in existing materials based on what we learned from the resource review. Specifically, given that very few of the existing materials included information about PTSD, TBI, and depression, we wanted the booklets to explicitly address all three problems. We also wanted to cover all five content areas, which none of the existing resources had done. We thought that the materials should provide a “roadmap” to the various resources (phone numbers and Web sites) that would be helpful for the target audiences. Accordingly, we interspersed resource lists throughout the booklets with general resources at the beginning and end and disorder-specific resources in the middle (Table 5.)

The content of the mtwo booklets were very similar; the greatest differences occurred in the Coping and Treatment Options sections. For military personnel, these sections emphasized strategies for dealing with post-deployment stress and symptoms of PTSD, TBI, and depression, and identified channels of health care available in the Department of Defense (DoD) and VA systems. For family members, the booklet addressed stress related to reorganizing family roles and responsibilities after a military member returns from deployment, and provided suggestions for addressing the challenge that family members face when navigating the DoD and VA health care systems.

Focus Groups

Participant Characteristics. Forty-six military personnel and spouses of personnel participated in nine focus groups (65% of those 71 recruited). The tenth group of five RAND military fellows resulted in a total of 51 participants. Table 6 shows characteristics of each

group. Because of the greater difficulty in recruiting military spouses, groups with service members were larger.

Feedback on Educational Materials: Content, Tone, and Organization. Generally, the participants were receptive to the draft educational materials, and had a positive reaction to the booklets' content. A few participants felt that the new information was similar to what was already available; however, they also noted that the study material provided more detail. Most of the participants thought the materials would be helpful. Some of the positive remarks were, "I wish I had this when I came back" and "I would keep this around the house." Some of the groups discussed and appreciated the importance of materials for family members but were also concerned about the single service member.

The title "Post-Deployment Stress: What you should know, what you can do" was the preferred title for the military personnel booklet. Other title options offered were: "Thinking about Getting Help for Post-Deployment Stress?", "Help for Post-Deployment Stress", "What You Can Do about Post-Deployment Stress", and "Dealing with Post-Deployment Stress." Nearly all groups and participants were comfortable with the term "stress" in the title. However, a few spouses of junior enlisted Marines and some military fellows preferred a title without the word "stress," noting that it might highlight perceived stigma if someone saw them pick-up the booklet. We asked whether the perceived stigma could deter service members from using the booklet. In response, some group members noted that it would be more off-putting to promote the expectation of a general post-deployment booklet by removing "stress" from the title, only to find that it is about psychological and cognitive problems.

In terms of images, we learned that patriotic photos were least desirable over all. Military personnel preferred images in the battlefield; family members preferred images of reunion and of not having weapons in images. One Marine spouse commented, "The last thing they may want to see is a gun."

Finally, participants found the tone of the writing appropriate; one person noted that it was “reader friendly.” They also liked the three profiles, each of which described a fictional character afflicted with one of the problems we focused on (PTSD, TBI, and depression). One Marine spouse participant said, “I liked the stories; they helped me relate.”

Feedback on Educational Materials: Resource List. Participants were pleased to see a comprehensive list of resources included in the booklets, and they appreciated that the resources were organized so that they could easily identify which resources might be useful. For example, one participant said he would like to know which resources were specifically for individuals with TBI because this condition did not apply to him. However, participants thought the presentation of the resource lists could be improved. Specifically, they recommended that URLs be presented as succinctly as possible (i.e., provide a short link in the booklet to a web page containing the complete list of resources and links). In addition, they suggested providing phone numbers wherever possible, given the dynamic nature of the Internet. We incorporated these suggestions in the final version of the booklets.

Other suggested improvements focused on images and content. Candidate images for the booklets were included in the drafts reviewed by the focus groups. Participants asked that more positive images of family reunions be included and fewer images of weapons and American flags. Finally, participants suggested adding a section addressing self-blame to the Coping section of the family booklet. As family members often experience significant psychological distress when caring for a military member dealing with post-deployment stress, we added text encouraging family members to be patient and not to blame themselves when family difficulties arise as part of post-deployment stress.

Discussion

We used a systematic approach to reviewing existing materials designed to educate military personnel and their families about the stress that often accompanies homecoming. Our review focused on PTSD, TBI, and depression. We identified 169 relevant resources, most of

which addressed PTSD; fewer resources focused on depression or TBI in these populations. The main reason that we found fewer TBI resources is because TBI has only become a major problem with the current conflicts in Iraq and Afghanistan largely as a result of better protective gear. Only 23 resources could be rated as both comprehensive and of high quality according to our criteria. Of these 23 exemplars, most covered PTSD. Fewer focused on TBI, and none of them guided the reader toward health care seeking. We attempted to address these gaps in our booklets.

The educational booklets that we developed complement existing materials and could play a key role in helping service members and their families cope with post-deployment stress. A unique characteristic of these booklets is that they include information about PTSD, depression, and TBI, three common psychological and cognitive injuries among OEF/OIF veterans. The booklets describe resources focused on each specific disorder as well as some general resources that our review identified as particularly useful for the intended audience and purpose. The booklets also incorporate all five content areas (symptoms, treatment, health care seeking, communication, social support) that are important for educating people about these conditions and suggesting how to address the problem. Social support, symptoms, and treatment have been frequently addressed in existing materials; few of the materials also included health care seeking and communication. Finally, the new materials provide a roadmap to useful resources spanning the audiences and disorders, making the booklets particularly comprehensive.

Our study had several limitations. Although our resource review was systematic, it was not comprehensive. We intentionally bounded the review based on the key criteria for subject matter and audience, and we focused on information publicly available on the Internet. We note that more information about these three conditions is rapidly becoming available, but we ended our search in accordance with our study time constraints (June, 2007). Thus, there may be additional material circulating that we did not capture in our review. We wanted to conduct

focus groups with participants representing all branches of service and across rank categories as well as to include a balanced representation for some characteristics. Because of resource and time limitations, we emphasized soldiers and Marines, the services most highly represented in OEF/OIF. We cannot comment on whether focus groups with airmen and sailors would have had similar reactions to the study materials. However, the Marine groups did include a few corpsmen (Navy) and the RAND military fellow group did include the Air Force perspective. We were unable to recruit any women in the soldier and Marine groups, so the generalizability of our results to women in the military is limited to only one woman who served in the Army National Guard and a RAND military fellow. Further, all of the spouses included in the family member groups were women, so we do not represent military spouses who are men. The family booklet is intended for a larger audience that could include not only spouses but parents and siblings but we did not obtain feedback from family members other than spouses. Another limitation is that we did not collect information about the number and timing of recent deployments to the region which could have influenced responses. However, the majority of the junior enlisted groups talked about having been deployed more than once, suggesting that many had recent deployments.

In developing the final booklets, we attempted to include all of the feedback from focus group participants as well as from military and mental health experts. However, several practical challenges made it difficult to address all of the issues. For example, several groups wanted more locally tailored materials, or versions tailored for the various services or even for an individual service member. Such customization was beyond the study scope. We did try to use imagery that was either generic or where specific at least included both soldiers and Marines who are the largest services affected by OEF/OIF.

Another important limitation was the lack of a formal evaluation. The goal of the focus groups was to improve the appropriateness and usefulness of the booklets for the intended audiences. We did not evaluate their effectiveness in changing attitudes and behavior. The

next step should be formal evaluation of how the materials increased awareness and treatment-seeking behavior.

Our 3-step approach to developing effective educational materials began with systematic review to inform material development and was followed with a qualitative evaluation to determine audience receptivity. Future research is recommended to go beyond this 3-step process to conduct a formal evaluation to assess the effectiveness of an educational intervention for post-deployment stress.

Conclusion

The resulting educational booklets (available at http://.veterans.rand.org) should provide a useful resource to military service personnel who have served in OEF/OIF as well as for their families. Booklet development was grounded in the communication literature, addressed the gaps in existing materials, and incorporated feedback from the target audiences. Therefore, the booklets have potential to: 1) *raise awareness* of these growing psychological and cognitive problems, 2) *increase knowledge* about the specific symptoms and impact of untreated disorder, 3) *reduce perceptions about stigma* and demystify these conditions by "normalizing" the effects, 4) *increase self-care* by communicating actions that people can take to ameliorate the health consequences of traumatic experiences (e.g., by providing ways to cope and strengthen social supports), and 5) *facilitate health care seeking* through provision of tangible resources for individuals to contact for help when ready.

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References

Berland, G. K., Elliott, M. N., Morales, L. S., Algazy, J. ., Kravitz, R. L., Broder, M. S., Kanouse, D. E., Muňoz, J. A., Puyol, J., Lara, M., Watkins, K. E., Yang, H., & McGlynn, E. (2001). Health Information on the Internet: Accessibility, Quality, and Readability in English and Spanish. Journal of the American Medical Association, 285, 2612-2621.

Brashers, D. E., Goldsmith, D. J., & Hsieh, E. (2002). Information Seeking and Avoiding in Health Contexts. Human Communication Research, 28, 258-271.

Calhoun, P. S., Beckham, J. C., & Bosworth, H. B. (2002). Caregiver Burden and Psychological Distress in Partners of Veterans with Chronic Posttraumatic Stress Disorder. Journal of Traumatic Stress, 15, 205-212.

Cayton, H. (2006). The flat-pack patient? Creating health together. Patient Education and Counseling, 62, 288-290.

DiClemente, C. C. & Prochaska, J. O. (1982). Self-change and therapy change of smoking behavior: A comparison of process of change in cessation and maintenance. Addictive Behaviors, 7, 133-142.

Hesse, B. W., Nelson, D. E., Kreps, G. L., Croyle, R. T., Arora, N. K., Rimer, B. K., & Viswanath, K. (2005). Trust and Sources of Health Information: The Impact of the Internet and Its Implications for Health Care Providers: Findings from the First Health Information National Trends Survey. Archives of Internal Medicine, 165, 2618-2624.

Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat Duty in Iraq and Afghanistan, Mental Health Problems, and Barriers to Care, New England Journal of Medicine, 351, 13–22.

Hoge, C. W., Auchterlonie, J. L. & Milliken, C. S. (2006). Mental Health Problems, Use of Mental Health Services, and Attrition from Military Service After Returning from Deployment to Iraq or Afghanistan, Journal of the American Medical Association, 295, 1023–1032.

Hoge, C. W., Terhakopian, A., Castro, C. A., Messer, S. C., & Engel, C. C.. (2008). Association of Posttraumatic Stress Disorder with Somatic Symptoms, Health Care Visits, and Absenteeism among Iraq War Veterans, American Journal of Psychiatry, 164, 150-153.

Hoge, Charles W., Dennis McGurk, Jeffrey L. Thomas, Anthony L Cox, Charles C Engel, & Carl A Castro, (2008). Mild Traumatic Brain Injury in U.S. Soldiers Returning from Iraq, New England Journal of Medicine, 358, 453–463.

Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W.. (2007). Longitudinal Assessment of Mental Health Problems Among Active and Reserve Component Soldiers Returning from the Iraq War, Journal of the American Medical Association, 298, 2141–2148.

Petty, R. E., & Caccioppo, J. T. (1986). Communication and persuasion: Central and peripheral routes to attitude change. New York: Springer-Verlag.

Petty, R. E., & Wegener, D. T. (1998). Attitude change: Multiple roles for persuasion variables (pp. 323-390), In, The Handbook of Social Psychology, Fourth Edition, D. T. Gilbert, S. T. Fiske & L. Gardner (Eds.). Boston, MA: McGraw-Hill.

Petty, R. E., Wegener, D. T., & Fabriqar, L. R. (1997). Attitudes and attitude change. Annual Review of Psychology, 48, 609-647.

President's Commission on Care for America's Returning Wounded Warriors (PCCWW). (2007). Serve, Support, Simplify: Report of the President's C omission on Care for America's Returning Wounded Warriors, Washington, DC: The President's Commission on Care.

Prochaska, J. O. & DiClemente, C. C. (1983). Stages and processes of self-change in smoking: Toward an integrative model of change. Journal of Consulting and Clinical Psychology, 51, 390-395.

Prochaska, J. O., DiClemente, C. C., & Norcross, J. C. (1992). In search of how people change: Applications to addictive behaviors. American Psychologist, 47, 1102-1114.

Rimal, R. N., & Real, K. (2003). Perceived risk and efficacy beliefs as motivators of change: Use of the risk perception attitude (RPA) framework to understand health behaviors. Human Communication Research, 29, 370-399.

Rosenheck, R.A. & Fontana, A.F. (2007). Recent Trends in VA Treatment of Post-Traumatic Stress Disorder and Other Mental Disorders. Health Affairs, 26(6), 1720-1727.

Seal, K.H., Bertenthal, D., Miner, C.R., Sen, S., & Marmar, C. (2007). Bringing the War Back Home: Mental Health Disorders Among 103 788 US Veterans Returning from Iraq and Afghanistan Seen at Department of Veterans Affairs Facilities. Archives of Internal Medicine, 167, 476-482.

Tanielian, T. L. & Jaycox, L. H. (Editors). (2008). Invisible Wounds of War: Psychological and Cognitive Injuries, Their Consequences, and Services to Assist Recovery, RAND MG-720-CCF. Santa Monica, CA: RAND Corporation.

Van Der Molen, B. (1999). Relating information needs to the cancer experience: 1. Information as a key coping strategy. European Journal of Cancer Care, 8, 238-244.

Table 1. Key Concepts and Illustrative Examples

Key Concept	Example
Signs and symptoms	Illness signs, screening, identification, recognition, or assessment
Treatment options	Treatment, referral, or choosing a counselor or therapist
Barriers to care and/or finding help	Difficulty finding a provider, perceptions about consequences of getting care, etc.
Communication	Talking with a health care provider and/or family members
Social support	Social support, coping, self-care, or primarily provided lists of resources

Table 2. Medium, Message, and Recipient Characteristics of Existing Sources

Source Characteristic	Percent (N = 169)
Source[a]	
Military	46%
Civilian	33%
Veterans Administration	25%
Medium[a]	
Text	75%
Interactive	20%
Audio/visual	12%
Message: Focal condition[a]	
PTSD	36%
TBI	11%
Depression	9%
Other[b]	49%
Message: Key concept[a]	
Social support	59%
Symptoms	37%
Treatment	27%
Health care seeking	17%
Communication	8%
Recipient: Target audience[b]	
Family members	51%
Veterans	47%
Military personnel	44%

Providers	21%
Context: Post-deployment	58%

[a]Categories are not mutually exclusive; percentages may add to more than 100%.

[b]Other included benefits and resources (n=28), transition to home (n=27), coping (n=17), and general mental health (n=11).

Table 3. Depth and Quality of Resources (N=167)*

	Quality Rating				
Depth Rating	**0**	**1**	**2**	**3**	**Total**
Resource list	0	9	10	3	22
Short brochure	0	16	46	8	70
In-depth resource	1	8	43	23	75
Total	1	33	99	34	167

*2 resources were not rated because they could be accessed only by subscription.

Table 4. In-Depth, High-Quality Resources, by Target Audience and Key Concept*

	Key Concept					
Target Audience	**SX**	**TX**	**HC**	**CO**	**SS**	**Total**
Service member	7	4	1	2	5	10
Family	5	5	3	1	6	14
Veteran	5	4	2	2	2	10
Provider	5	5	0	1	2	7
Total	12	9	4	3	8	23

*Categories are not mutually exclusive, so resources may fall into multiple rows or columns.

SX=symptoms; TX=treatment, HC=health care, CO=communication, SS=social support.

Table 5. Content of Educational Booklets

Booklet Section	Content
Introduction	Information about prevalence of exposure to traumatic events during the current conflicts in Iraq and Afghanistan
Signs and symptoms	Potential impact of post-deployment stress on thoughts, feelings, and behaviors plus general resources
Signs and symptoms; PTSD	Review of PTSD symptoms using a fictional profile, review of symptoms, and specific resources*
Signs and symptoms; TBI	Review of TBI symptoms using a fictional profile, review of symptoms, and specific resources*
Signs and symptoms; Depression	Review of depression symptoms using a fictional profile, review of symptoms, and specific resources*
Comorbidities	Commonly co-occurring symptoms and resources
Substance abuse	Description of warning signs for substance abuse
Coping	Review of positive coping strategies
Communication	Review of communication strategies for family, health care providers, and other military personnel
Treatment options	Description of stages of engaging with treatment (learning about symptoms, about treatment, getting treatment)
Resource list and link	General resources* (plus wallet card for service members and refrigerator magnet for families), including a link to http://veterans.rand.org

*Websites and toll free phone numbers are included.

Table 6. Size and Gender Mix of Focus Groups

Group Description	Number of Participants	Gender Mix
Junior Enlisted (E1-E6)		
Marines	8	All male
Marine Spouses	5	All female
Army Personnel	7	All male
Army Spouses	3	All female
Senior Enlisted (E7-E9)/Officers		
Marines	6	All male
Marine Spouses	3	All female
Army Personnel	7	All male
Army Spouses	3	All female
Reserve, Guard, and Fellows		
Army Reservists/Guardsmen	4	1 female, 3 male
RAND Military Fellows	5	1 female, 4 male
Total	**51**	**16 female, 35 male**