Posttraumatic Stress Disorder and Military-Connected Families: The Relevance of a Family-Centered Approach

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Since the September 11, 2001, terrorist attacks, military service in the United States has been linked to a range of behavioral health and physical injuries in a significant number of the almost three million service members who have returned from wartime deployment. These injuries have occurred in the larger context of wartime military service, which is characterized by an array of stressors that have been associated with increased risk for behavioral health problems not only for service members but also for their family members. For the past 15 years, military-connected (defined as active-duty, reserve component, and veteran) family members have shared their own experiences of military service, including multiple deployments in the context of danger, high operational stress within their communities, and living with the physical and behavioral health injuries and ongoing care needs of a loved one. This article provides an overview of the evolving research on the specific impact of posttraumatic stress disorder (PTSD) and other war zone—related behavioral health problems among families in the context of contemporary warfare, as well as research on the impact of family adjustment on veteran recovery and care. We propose an empirically supported, family-centered framework to inform a continuum of prevention and care for veterans with PTSD and their families. Gaps in the current continuum of behavioral health services for veterans with PTSD are identified, as well as efforts underway to develop trauma-informed, family-centered screening, prevention, and treatment approaches. Future research recommendations are provided.

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Since the September 11, 2001 (9/11), terrorist attacks, military service in the United States has been linked to a range of behavioral health and physical injuries in a significant number of the almost three million service members who have returned from wartime deployments (1-3). Unlike previous eras in U.S. military history, about half of post-9/11 service members have been married and about 41% have been parents during their active-duty service, with more becoming parents after service. Even before the possibility of service members' returning with behavioral health problems, they and their families have often weathered a range of challenges specific to wartime military service. The longest war in U.S. history has presented many unique challenges: multiple and sometimes prolonged deployments by an allvolunteer military; a higher proportion of deploying female service members as well as dual-career military couples; increased use of Reserve component personnel; higher survival rates among severely injured service members; and increased, cumulative wartime service exposures for military-connected family members (4, 5). Technological advances have facilitated more immediate and ongoing communication between family members and service members, resulting in greater opportunities for both positive and problematic connections at a distance. Current warfare techniques have also included increased use of Special Forces and new combat modalities such as drone warfare with poorly understood implications for both service members and their families (6). Both the context and the characteristics of contemporary military service provide a foundation for understanding the cumulative impact of wartime service not only on service members but on their families as a whole. Specifically, increasing evidence has shown that wartime military service has implications not only for the mental health of service members but also for the well-being of their spouses, children, and other family members, particularly those in dependent relationships or caregiving roles (7–12).

In the context of these wartime service experiences, returning service members are at increased risk for a range of behavioral health problems, including posttraumatic stress disorder (PTSD), depression, and substance use disorders, as well as traumatic brain injury (TBI). About one third of service members returning from combat deployment in Iraq and Afghanistan will have PTSD, TBI, or depression, which are often referred to as the signature injuries of the recent wars, and 5% will meet the criteria for all three conditions (1, 13, 14). More than 50,000 service members have had physical injuries severe enough to require medical evacuation, and a much greater number have sustained lesser injuries that nonetheless affect their postservice physical health. These injuries are often termed *visible wounds* because observers can directly see their impact. Both visible and invisible wounds may affect multiple generations of family members—parents of

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those who serve, their intimate partners, siblings, and dependent children—through a number of pathways, including ongoing demands of treatment and rehabilitation care, possible exposures to invasive procedures, and sustained need for caregiving support. Describing research to guide effective approaches to supporting veterans with PTSD and their families, this article focuses on the impact of behavioral health injuries, specifically PTSD, on families, as well as the influence of family adjustment on veteran well-being and care. We provide recommendations for the inclusion of a familycentered framework for prevention and clinical approaches for veterans with PTSD.

PTSD AND COUPLES

Research from multiple eras of military conflict has indicated an association between a service member's exposure to traumatic events, the development of PTSD, the presence of comorbid behavioral health problems, and their partner's well-being (15). Veterans diagnosed with PTSD are also at increased risk for experiencing an array of relationship difficulties, including divorce and separation (16, 17). These findings are consistent with studies of veterans from previous wars that indicated that the negative effects of military-related PTSD on family adjustment extend to marital relationships, including increased risk for infidelity, intimacy problems, and impaired communication (18-20). Furthermore, a systematic review of domestic violence demonstrated a consistent finding that PTSD symptom severity is associated with increased risk for intimate partner violence among veteran populations (21). Studies have also shown that veterans with PTSD are especially likely to experience long-term difficulties in establishing and maintaining intimate relationships (19).

A recent meta-analysis has indicated that not only are veterans with PTSD at greater risk for marital dissatisfaction, but their partners are at risk for increased psychological distress (22). Notably, partner perceptions of veterans' PTSD symptoms and combat experiences have been associated with partner relationship and psychological distress (23). For example, in a study of 206 National Guard service members, when partners perceived that the veteran experienced a low level of combat exposure, higher veteran-reported reexperiencing symptoms were related to higher partner psychological distress and hyperarousal, and numbing and withdrawal symptoms were associated with lower partner-reported relationship satisfaction (24). In addition, discrepancies between spousal and veteran reports of PTSD symptoms have been related to increased spousal distress (25).

The link between PTSD and couple functioning is complex and dependent on many interactive processes (26). Studies examining reciprocal relations between PTSD symptomatology and couple distress have been inconsistent, with some finding that couple distress can exacerbate PTSD symptomatology (16, 27) and others identifying PTSD symptoms as a predictor of subsequent couple distress (28). Other studies have indicated that couples living with PTSD demonstrate greater hostility in

the context of disagreements (29) and increased anger, anxiety, and physiological reactivity (30) than couples not living with PTSD. In this context, a focus of recent research has moved from examining the associations between PTSD and couple outcomes to elucidating the underlying processes that increase risk for couple distress, particularly those that might be linked to opportunities for intervention.

When examining processes that explain the complex associations between PTSD symptoms and couple distress, several findings are notable for guiding treatment. Established associations between emotional numbing and couple distress in both partners (17, 31) have been explained by less disclosure of deployment-related experiences (32, 33). In addition, veteran self-disclosure explained the association between having a supportive intimate partner and a lower level of PTSD symptoms (34). Recent studies examining the impact of PTSD symptoms on communication have indicated specific pathways leading to reduced satisfaction and support within the couple's relationship (35, 36). Military couples living with a service member's PTSD are more likely than military couples not living with PTSD to experience greater hostility and less bonding during conflicts, and both partners have been found to engage in these problematic communication behaviors (29, 37). To shield one another from distress, veterans and their partners often avoid talking about stressful situations, a pattern identified as protective buffering. Although intended to spare the partner from distress, this type of buffering has been linked to negative mental health outcomes, whereas greater disclosure within the couple has been associated with increased sense of support and satisfaction (38, 39).

PTSD AND CAREGIVING

An estimated one million individuals, many of them family members, have been unexpectedly placed into the role of caregiver for veterans returning from war (40). Family caregivers are typically regarded as extensions of a veteran's health care and often manage adherence to complex medical and therapeutic tasks. Although there are many similarities to caregiver roles in other medical contexts, post-9/11 veteran caregivers are significantly younger (40% are between the ages of 18 and 30), and many have dependent children (40, 41). These caregivers are usually spouses, parents, adult children, or other extended family members who have unexpectedly been drawn into long-term caregiving roles, with implications for their own well-being over time.

In the context of larger demands on caregivers, the particular impact of PTSD has been identified in research with veteran populations. Compared with partners of veterans seeking help for non-PTSD behavioral health problems, partners of veterans with PTSD reported higher caregiver burden (42). PTSD symptom severity has also been strongly associated with higher caregiver burden in veterans' partners (42-45). Emerging research has identified important factors affecting veterans' caregivers that may guide care. A recent study by Waddell and colleagues (46) found that in

a sample of female partners of male veterans, there was a strong sense of social disconnection and invisibility, particularly derived from actions of the government and health care providers. The authors noted that there is a need to educate government officials and health care providers about the needs of caregivers and the important role that they play in supporting their partners. An added conclusion to this study might also involve educating caregivers to seek more advanced treatments for their partner's PTSD if they are witnessing ongoing, unaddressed symptoms.

PTSD AND PARENTS

Given that almost half of service members are unmarried, parents frequently serve as a primary emotional and instrumental support for many service members, and many return to live with their parents after deployment (47). As noted earlier, parents frequently serve as caregivers for their injured veteran children and may be responsible for navigating complex treatment and rehabilitation needs, leading to growing concern about caregiver burden (40). Despite this, research on the experiences of parents of service members is limited, and all of the studies have had relatively small samples. The few studies conducted with these parents have not examined their psychological adjustment but have focused on issues of service member postdeployment stress symptoms and communication within the family system. Many parents report being hesitant to talk with their adult children about their military experiences, citing worries about triggering stress reactions (48). Other research has suggested that supportive and direct communication about military experiences is associated with greater emotional connectedness between military children and their parents (47). Furthermore, information about PTSD, such as diagnostic and psychoeducation, was identified as helpful for both service members and parents in generating communication opportunities about challenges (47).

PTSD AND CHILDREN

Just as for couples, military-connected families with children function as interdependent relational units, with the impact of visible or invisible injuries affecting multiple attachments within the family system (49, 50). The behavioral health of the injured service member and his or her coparent may influence both of them, each parent's adjustment influences their dependent children, and children's emotional and behavioral adjustment may affect parental and family adjustment. Notably, disruptions in important family relationships have been found to contribute to increased PTSD symptomatology among returning service members. Leen-Feldner et al.'s (51) comprehensive review of the psychological and biological correlates of parental PTSD, although not specific to military parents, suggested increased risk for psychological problems among the children of parents with PTSD, including internalizing and externalizing problems as well as alteration in the functioning of the hypothalamic-pituitary-adrenal axis. They posited that parenting behaviors, genetics, and epigenetics may each play a role in the impact on child functioning.

Compared with the number of studies examining the relationship of military PTSD to spousal outcomes and family interactions, less is known about associations of parental PTSD with child outcomes. PTSD symptoms in veterans of prior military conflicts, however, have accounted for the impact of combat exposure on family violence and aggression, lower parenting satisfaction, and more child behavior problems (19, 52–55). Specifically, an association between parental war-related PTSD avoidance symptoms and disrupted parenting and family dysfunction has been identified (27, 56).

A growing literature on parenting in recent-era militaryconnected families has helped to illuminate the impact of wartime service, and specifically PTSD, on parenting, parent-child relationships, and child adjustment. Creech et al. (57) found that the impact of military deployment and reintegration on children and parenting highlighted that parental wartime deployment is associated with higher rates of child health care visits for psychological problems and that parental PTSD and depression symptoms may be associated with increased child symptoms and parenting challenges that extend long after reintegration. Both selfreport and observational studies have indicated that increased PTSD symptoms in parents are associated with child emotional and behavioral symptoms (8, 58), as well as with reduced adaptive parenting behaviors such as positive engagement, parent-child connectedness, and effective monitoring and discipline (59, 60).

Gewirtz and Davis (50) provided a research-based model for military family stress that indicated that both mothers' and fathers' PTSD symptoms are associated with a child adjustment variable derived from parent, child, and teacher reports. This study indicated that mothers' but not fathers' PTSD symptoms were associated with parent-child attachment and parenting behaviors and that these parenting behaviors were then also associated with child adjustment. Snyder et al. (60) investigated school-aged child internalizing and externalizing symptoms in association with paternal service member PTSD symptoms. They noted reciprocal cascades among fathers' and mothers' PTSD symptoms and both types of child symptoms, with child internalizing symptoms associated with parental PTSD and positive parenting engagement and externalizing behaviors linked with coercive parenting.

In an observational study that provided insights into the relationship of PTSD and family processes that may influence child outcomes, Brockman et al. (61) explored the relationships among military service members' deployment trauma, PTSD symptoms, and experiential avoidance on family engagement during reintegration. Avoidance in the postdeployment parent was associated with less positive engagement, more withdrawal, and more distress avoidance, suggesting that addressing both traumatic stress symptoms and avoidant parenting behaviors could enhance parent-child interactions. Sherman and colleagues (62) also found that parenting challenges clustered around the PTSD symptoms, for example, not feeling able to attend a child's activities because of avoidance, reactivity, and hyperarousal, leading to angry outbursts at home or hypervigilance, and negative cognition and mood, including feeling shame about their level of functioning. In addition, veterans identified painful negative emotional reactions in their children such as fear, confusion, hurt, and behavioral withdrawal. They also identified the ways in which their child tried to protect or care for them and provided emotional or practical support.

Assessing the impact of a parent's invisible injuries on parenting and child emotional health is complicated by the low percentage of veterans with PTSD who seek care; only 23%—40% of those who screened positive for a mental health disorder sought treatment (63). Underscoring the public health relevance of parental PTSD for veterans' children, Janke-Stedronsky et al. (64) examined more than 36,000 post-9/11 veterans in a Veterans Health Administration (VHA) database review and found that veterans with dependent children were 40% more likely to have a diagnosis of PTSD than a demographically matched peer group without children. This association was even stronger for men than for women (64). Although parenting concerns are identified as a stressor in the context of PTSD (65, 66), it is important to note that the parenting role may also serve as a powerful motivator for seeking care (67).

FAMILY WELL-BEING ALSO INFLUENCES VETERAN BEHAVIORAL HEALTH AND RECOVERY TRAJECTORIES

Just as studies of veterans with PTSD have indicated increased risk for family members' adjustment, the well-being of any individual family member (spouse, sibling, parent, child) and the relational functioning within the family (marital, parent-child, etc.) may all have an influence on veterans with PTSD and their recovery. For example, research has indicated that disruptions in family adjustment may negatively influence veteran well-being, and positive family adjustment may buffer the impact of PTSD and enhance treatment engagement (27, 68, 69). Given the research indicating a bidirectional reciprocity between family member and veteran well-being, we propose a framework for the routine inclusion of family members in the prevention, engagement, and treatment of PTSD in veteran populations.

FAMILY-CENTERED INTERVENTION RESEARCH IN MILITARY AND VETERAN SYSTEMS OF CARE

Considerations of cumulative longitudinal and contextual exposures to adversity in family members of veterans with PTSD are relevant to clinical practice and suggest an opportunity to enhance traditional individual treatment modalities and improve early identification and reduction of risk in family members. Both public health prevention approaches and novel behavioral health treatment programs

for military and veteran populations with PTSD have increasingly begun to incorporate family-centered practices, including the development of intervention and treatment approaches that address the family as a whole, target parenting or couples functioning, or include family members as supports in PTSD couples-based treatments.

Foundational to treatment efforts to target couple and psychological distress, assessment of PTSD symptoms and trauma experiences via both veteran and spousal report can help to clarify families who are at risk for greater distress and form the foundation for personalized psychoeducation to partners and other family members. The inclusion of families in evaluation and intervention pathways provides a foundation for greater understanding and effective communication during the course of PTSD treatment. Although individual treatments for PTSD have the potential to reduce individual distress related to traumatic events, interventions designed to also promote adaptive communication processes and enhance supportive interactions, which are often exacerbated by PTSD, are warranted. Clinical decision making regarding the treatment or sequence of treatments requires careful assessment of both individual and family-level functioning (70), veteran preferences, and readiness to engage.

Early engagement of the family system in veterans' PTSD care leverages research indicating that improvements in one individual or family unit have potential to improve functioning for other units or open the door for additional care, as has been demonstrated by several emerging comprehensive PTSD treatment programs providing care that engages and evaluates not only the veteran but also individual family members, the entire family unit, and the couple (71). When a comprehensive program is unavailable, there would ideally be close coordination between treatment providers and acknowledgment of the interaction between PTSD symptoms and family-level distress in all treatments.

The review of literature examining associations between PTSD and family functioning highlights the importance of treating the veteran's PTSD in the context of the family relationships. A range of empirically supported family-centered interventions has been developed to reduce the risk for posttraumatic stress symptoms among the family, to treat PTSD in the veteran, and to augment individual treatment for PTSD by enhancing family well-being and support. Many of those developed for couples focus on intervention skills that improve effective communication, increase self-disclosure, promote understanding, and enhance intimacy and support. Depending on the individuals' and couples' needs as well as their readiness to engage, treatment options may include a combination of psychoeducation, individual trauma-focused treatment (e.g., prolonged exposure, cognitive processing therapy), couple skill building for military families (e.g., Families OverComing Under Stress; 72), and couples therapies (e.g., integrative behavioral couples therapy [73]; emotionally focused therapy [74]) that have been adapted to military couples (75, 76). Sherman and colleagues (77) reviewed PTSD symptom clusters and their impact on couple functioning and provided a useful

and comprehensive overview of treatment elements designed to address relationship challenges with each cluster.

For couples interested in targeting the veteran's PTSD symptoms as well as the impact of PTSD on the couple, cognitive-behavioral conjoint therapy (CBCT) for PTSD (78) and structured approach therapy (SAT) for PTSD (79) are evidence-based treatments that demonstrate promise in reducing PTSD symptoms and couple distress concurrently (80, 81). Both CBCT and SAT incorporate evidence-based treatment elements designed to target PTSD and couple distress consistent with those identified in this review. Although CBCT incorporates additional components designed to address maladaptive couple and trauma cognitions, SAT incorporates stress inoculation strategies designed to target hyperarousal and mood dysregulation (e.g., mindfulness, distress tolerance).

Family-centered interventions that address parenting and family adjustment as a whole have emerged to address the needs of veterans with PTSD who have children. Increased awareness of the needs of military and veteran families has led to the development of a number of family-centered interventions across a continuum of behavioral health prevention and care (e.g., MacDermid Wadsworth et al. [49], Cigrang et al. [82], DeVoe and Paris [83], Gewirtz et al. [84]). The most widely implemented preventive intervention for military and veteran populations is Families OverComing Under Stress (FOCUS: 58). This intervention includes a Web-based family assessment and personalized feedback, family psychoeducation and developmentally informed parent guidance, creation of narrative timelines to enhance understanding and communication, and development of individual and family-level cognitive-behavioral skills (emotional regulation, communication, goal setting, problem solving, and managing trauma and loss reminders). FOCUS has shown effectiveness with active-duty families with children, including increased positive coping, prosocial behaviors, and improved family functioning, as well as improved parent and child behavioral health outcomes that are sustained over longitudinal follow-up (85, 86).

After Deployment, Adaptive Parenting Tools (ADAPT) is a multisession parenting intervention adapted from the evidence-based parent management training model for post-deployment service members and their spouses that assists with reintegration parenting challenges and has been shown to improve parenting self-efficacy and psychological health outcomes (87). Parent-child interaction therapy is a manualized evidence-based intervention designed to enhance parenting skills and parent-child relationships for parents of children aged two to eight years that focuses on teaching warm positive parenting engagement and consistent limit-setting skills. Pemberton et al. (88) asserted that the adoption of this intervention in the VHA would be feasible and beneficial.

RESEARCH RECOMMENDATIONS

The recent surge in the military family literature demonstrates a commitment by researchers, clinicians, national

and philanthropic funding agencies, and the Department of Defense to improve military and veteran family outcomes, particularly in the context of PTSD. However, longitudinal data on the impact of wartime military service and related injuries on military and veteran families remain limited. For families affected by war-related injuries such as PTSD, little is known about how best to develop and sustain marital relationships and parent-child relationships, support child development, and maximize quality of life for the injured service member over time. Longitudinal research examining how specific family-level risk and protective processes may mediate PTSD outcomes over time is needed. For example, research clarifying the influence of coparenting interactions on the management of posttraumatic reactivity and traumatic reminders on parent-child relationships and child well-being could help to illuminate the process of potential spillover within military-connected family systems (89). Ultimately, a better understanding of individual and family differences will enable clinicians and other professionals who work with military and veteran families to provide timely, high-quality evidence-based assessment, intervention, and recommendations that are tailored to each family's unique needs. Other key areas of future research include an examination of what mediates relationships among cumulative traumatic exposures, PTSD, and other behavioral health problems and family disruptions, including caregiver burden.

An increasing number of promising preventive and treatment intervention programs for military-connected families already exist, including a growing body of research on the lessons learned from advances in family-centered public health approaches to program implementation (5, 90). Future research would benefit from the identification of specific targets for intervention based on individual strengths and weaknesses to provide a more tailored approach to care for all military families. Although many promising family-centered interventions have been adapted from civilian evidence-based interventions, most published reports are either descriptive or present feasibility or nonexperimental outcome data for military and veteran populations. Both randomized controlled trials and rigorous attention to implementation research design will help to advance the field toward specific interventions that are effective in promoting family well-being as well as guide rigorous dissemination processes. Research needs to include a focus on systems-level innovations, such as community-level and VHA settings, that are required to ensure appropriate identification of, engagement with, access to, and support of military and veteran families with high-quality family-centered care.

The care of veterans and their families would benefit from research that identifies and evaluates effective strategies for family engagement across service settings. There is extensive literature on family-centered and community-based prevention and intervention efforts and what it takes to engage families across systems of care that has identified family-centered approaches as more likely to be positively received (compared with individual treatments) among culturally diverse families (91, 92).

CONCLUSIONS

Challenges remain with transforming military and veteran care systems to reflect this growing body of research supporting the relevance of family-centered approaches to veterans with PTSD, including administrative, policy, and financial barriers. Furthermore, the development of family-centered systems requires both logistic and cultural changes in adult mental health treatment settings, such as creating environments that are welcoming to families, including children of all ages, and training adult mental health providers to work effectively with families. Treatment settings need to include attention to protecting family members, particularly children, from avoidable exposure to distressing experiences, such as witnessing patient distress, as well as providing a safe and comfortable place for families to rest and recover (93).

High-quality clinical care of veterans and their family members cannot be achieved by the military or veteran health systems alone. Civilian health care systems must step up to serve those who have served the nation. Multiple academic medical center-affiliated programs and additional freestanding and linked clinics have recently been established to address the mental health needs of veterans and their family members. The provision of empirically supported treatments to parents and children in specialized clinics and expansion of community providers' skill sets is also needed. Integrated models for veteran behavioral health outpatient and intensive treatment programming that include attention to individual family treatment as well as family-centered interventions have also emerged through philanthropic support. Other hybrid models have been undertaken to address these challenges, incorporating families into veteran treatment through colocated community mental health with VHA clinic settings.

Despite these innovations, broad system-level reforms will likely be required if military and veteran families are to have adequate access to and coverage for family-centered services (49). Many challenges remain to engaging veterans and their families that have resulted from the fragmentation of veteran-serving and civilian health care systems, as well as from administrative and regulatory barriers to serving families. Current systems of care often require veterans and their families to navigate a series of complex steps to gather information and engage multiple service systems and providers. These potential barriers can be particularly challenging to navigate in the context of behavioral, emotional, and cognitive symptoms associated with PTSD, TBI, and associated mental health problems. Stigma and low care-seeking also continue to be significant barriers to the effective provision of services to military and veteran families (94). Limited access to providing family-centered care in VHA settings suggests the need for high-quality training programs designed to prepare civilian clinicians for military and veteran culture, behavioral health problems affecting veterans and their families, and empirically supported practices known to address these problems.

The nature of modern warfare places additional and new burdens on military-connected families. The prolonged nature of recent conflicts requiring multiple deployments and facing new forms of injury all add to the burdens faced by families. Society has been slow to recognize the impact of military service on parents, partners, spouses, and children of veterans, and this has come at a significant cost. Only by acknowledging these needs and expanding access to evidence-based modalities of care can this nation fulfill its promise to veterans and their families.

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