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The Impact of Military Deployment and Reintegration on Children and Parenting: A Systematic Review

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Abstract

Hundreds of thousands of children have had at least 1 parent deploy as part of military operations in Iraq (Operation Iraqi Freedom; OIF; Operation New Dawn; OND) and Afghanistan (Operation Enduring Freedom; OEF). However, there is little knowledge of the impact of deployment on the relationship of parents and their children. This systematic review examines findings from 3 areas of relevant research: the impact of deployment separation on parenting, and children's emotional, behavioral, and health outcomes; the impact of parental mental health symptoms during and after reintegration; and current treatment approaches in veteran and military families. Several trends emerged. First, across all age groups, deployment of a parent may be related to increased emotional and behavioral difficulties for children, including higher rates of health-care visits for psychological problems during deployment. Second, symptoms of PTSD and depression may be related to increased symptomatology in children and problems with parenting during and well after reintegration. Third, although several treatments have been developed to address the needs of military families, most are untested or in the early stages of implementation and evaluation. This body of research suggests several promising avenues for future research.

Keywords

military; veterans; deployment; parenting

There are approximately 1.4 million children in the United States, each of whom have a parent in the military (United States Department of Defense, 2010b); 43.9% of the Nation's total military force has children (United States Department of Defense, 2012), and approximately 23% of living veterans (population 20 million) have at least one minor child living with them (United States Department of Defense, 2010a; United States Department of Veterans Affairs, 2010). Though published reports of the number of children who have had parents deploy to Iraq or Afghanistan vary, a recent report to congress indicated that 2.1

million service members have deployed as part of Operation Iraqi Freedom (OIF), Operation New Dawn (OND), and Operation Enduring Freedom, (OEF), and about 1 million of those service members are parents (DOD, 2010b). Unfortunately, the impact of deployment on parenting and children in military families is not well understood. A recent meta-analysis of 16 studies found that deployment was not associated with improvement or detriment in internalizing behaviors, externalizing behaviors, or academic adjustment of children (Card et al., 2011). However, the meta-analysis examined deployments from earlier eras (e.g., pre-9/11), which may be a considerable confound for the current study, given that a hallmark of deployments to Iraq and Afghanistan is the likelihood of repeated deployment.

Although numerous reviews have recently been published on this topic (e.g., Esposito-Smythers et al., 2011), the only systematic review focused exclusively on educational outcomes (De Pedro et al., 2011). Therefore, this review will systematically examine the existing literature in three areas: (a) the impact of parental deployment to OEF/OIF/OND on children's outcomes; (b) the impact of deployment-related mental health problems on children and parenting during and after reintegration; and (c) currently available treatments for families. Finally, we discuss the limitations of the reviewed literature and provide recommendations for future research and for clinical practice.

Sample of Studies¹

Consistent with DeVoe and Ross (2012), we define deployment as beginning when a service member departs for an overseas combat mission and ending at the service member's stateside return, and reintegration is defined as beginning when the service member has rejoined the family, and extending well beyond the weeks and months following reunification. Deployment lasts for a specified period of time, whereas reintegration is a subjective process, the length of which is determined by each family system and each family member's ability to adapt to the deployed service member's return. To identify research on the impact of deployment and reintegration on children and parents, we searched the PsycINFO and PubMed databases combining the terms military, deployment, children, and parent. Articles published between 2001 (the start of OEF) and August, 2013 were eligible for inclusion. In addition, we also employed ancestry (examining bibliographies of articles) and descendancy (obtaining articles that cited other articles addressing deployment and parenting) approaches.

¹TABLE 1: APQ, AL Parenting Questionnaire – Short Form (Elgar, Waschbusch, Dadds, & Sigvaldason, 2007); AUDIT, The Alcohol Use Disorders Identification Test (Saunders, Aasland, Babor, De La Fuente, & Grant, 1993); BASC-2, Behavioral Assessment System for Children – Revised (Reynolds & Kamphaus, 2004); BDI-II, Beck Depression Inventory (Beck, Steer, & Brown, 1996); BSI, Brief Symptom Inventory (Derogatis & Melisaratos, 1983); CBCL, Child Behavior Checklist (Achenbach, 1991); CCSC-R1, Children's Coping Strategies Checklist—Revision (Ayers, Sandier, West, & Roosa, 1996); CDI, Children's Depression Inventory (Kovacs, 1983); EATQ-R, Early Adolescent Temperament Questionnaire—Revised (Ellis & Rothbart, 2001); Iowa Youth Survey (Iowa Collaboration for Youth Development); MASC, Multidimensional Anxiety Scale for Children (March, Parker, Sullivan, Stallings, & Conners, 1997); MINI, Mini-International Neuropsychiatric interview (Sheehan et al., 1998); PAI, The Parenting Alliance Inventory (Richard R. Abidin, 1988 as described in; Richard R. Abidin & Brunner, 1995); PCL, Posttraumatic stress disorder checklist, Weathers (Weathers, Litz, Herman, Huska, & Keane, 1993); PHQ-9, PHQ Depression Scale (Kroenke, Spitzer, & Williams, 2001); PSC, Pediatric Symptom Checklist (Jellinek, Murphy, & Burns, 1986); PSI, Parenting Stress Index (Richard R. Abidin, 1990; R. R. Abidin & Wilfong, 1989); PSS, Perceived Stress Scale – 4 (Cohen, Kamarck, & Mermelstein, 1983); SDQ, Strengths and Difficulties Questionnaire (Goodman, 1997); Washington State Healthy Youth Survey (Washington State Department of Health, 2008); YQOL, Youth Quality of Life Survey (Topolski, Edwards, & Patrick, 2002).

These procedures generated 243 manuscripts. Articles were excluded if they did not measure child functioning in relationship to parental deployment or child functioning or parenting in relationship to a mental health disorder in a post 9/11 veteran or military population ($n = 142$), review papers ($n = 41$), commentaries or editorials ($n = 13$), case studies ($n = 4$), and studies that were not available in English ($n = 1$). Therefore, 42 empirical studies met inclusion criteria for our review on deployment ($n = 28$), reintegration ($n = 4$), and intervention ($n = 10$). Two studies fit into more than one category (Reed, Bell, & Edwards, 2011; Wilson, Wilkum, Chernichky, MacDermid Wadsworth, & Broniarczyk 2011).

Deployment and the Emotional and Physical Health of Children

The literature on deployment and its sequelae offers several useful insights into the stressors that military families face during the absence of a loved one. To facilitate interpretation of this broad (28 studies) literature, we divided the studies that measured emotional and behavioral outcomes related to deployment into 3 age groups: early childhood (ages 0–5), school age (ages 6–12), and teens/adolescents (ages 11–18), as well as a mixed-age group. We also highlight two emerging areas of focus: the impact of deployment on children's substance use and child maltreatment.

Early childhood (ages 0–5; $n = 3$)

This research has primarily measured behavioral and emotional problems as reported by the nondeployed caretaker (one study examined health care records during deployment). In a cross-sectional survey, parents of children between the ages of 3 and 5 years reported higher levels of internalizing, externalizing and total psychiatric symptom scores for their children if their spouse was deployed compared with nondeployed spouses, even after controlling for parenting stress and depression (Chartrand, Frank, White, & Shope, 2008). A subsequent retrospective study of 27 nondeployed spouses found increased behavior problems for children between the ages of 0–47 months during deployment (Barker & Berry, 2009). This study also found increased problematic attachment behaviors (i.e., ignoring the parent or extreme difficulty separating) at reunion as reported by a sample of 26 returning service members and non-deployed spouses. Although findings from this study are limited by a small sample size and the use of nonstandardized measures, it is one of the few to measure attachment behaviors when young children are reunited with the deployed parent. Both studies suggest that younger children may evidence higher internalizing and externalizing symptoms in relation to deployment of a parent.

Parental deployment has also been associated with childrens' hospital visits. A sample of approximately 170,000 U.S. children under the age of 2 found that overall outpatient visits increased by 7% and well-child visits increased by 8% during periods of deployment (Eide, Gorman, & Hisle-Gorman, 2010). However, the authors of this study found that a more fine-grained examination of these visits indicated increased rates of both types of visits for children of married parents, yet decreased rates for children of single parents while the parent was deployed. Furthermore, children of younger single parents who were deployed were seen less frequently. The authors concluded that these findings either reflect an increase in actual need for medical attention, or represent increased risk to young children

who may be cared for by an older relative or other family member with less ability to attend to their health-care needs.

School age (ages 6–12; $n = 2$)

Research with families of school-age children also relies primarily on caregiver report. In a study of 272 children between the ages of 6 and 12, children with a deployed or recently returned parent demonstrated anxiety symptoms that were significantly above community norms (Lester et al., 2010). Furthermore, girls with a currently deployed parent had significantly higher externalizing scores than girls with a recently returned parent. Anxiety and depression symptoms in caregivers were also predictive of internalizing and externalizing symptoms, whereas, for the active duty parents, depression symptoms significantly predicted internalizing and externalizing symptoms but anxiety only predicted internalizing symptoms. Cumulative length of deployment during the child's lifetime independently predicted their depression and externalizing symptoms. A similar trend was found in a sample of 116 Army spouses with children between the ages of 5 and 12: 32% of children in the sample demonstrated clinically significant psychosocial problems, with parenting stress and perceived stress predicting higher self-reported psychosocial morbidity (Flake, Davis, Johnson, & Middleton, 2009).

Teens/Adolescents: (ages 11 to 18; $n = 8$)

Research with this age group often included not only caregiver reports but also children's self-report of measures of mental health. Unfortunately, both sources indicate similar degrees of impairment resulting from deployment. For example, phone interviews conducted with a large sample ($n = 1,507$) of children ages 11–17, as well as, their home caregivers revealed that older age of the child, deployment length, and the mental health of the nondeployed caregiver were associated with caregiver report of increased child difficulties during deployment, and that children in the sample had greater emotional difficulties when compared with national samples (Chandra, Lara-Cinisomo et al., 2010).

Youths (ages 11–16) with a deployed parent also reported significantly more psychosocial internalizing symptoms, externalizing symptoms and school problems than did those who did not have a deployed parent (Aranda, Middleton, Flake, & Davis, 2011). In contrast, in a sample of 65 military youth, there were no differences in emotional symptoms or conduct problems between teens with and without a recent parental deployment (Morris & Age, 2009). That said, teens in the overall sample evidenced elevated conduct problems compared with clinical norms. Finally, one unique study combining adolescent self-report and physiological measurement found increased PTSD symptoms in 20 teens with a deployed parent as well as significantly higher heart rates (reflecting sympathetic nervous system arousal) than teens without a deployed parent (Barnes, Davis, & Treiber, 2007). Large self-report surveys also consistently indicate that parental deployment is associated with a range of psychological symptoms. For example, a survey of 10,606 adolescents in the 8th, 10th and 12th grades (Reed et al., 2011) revealed that adolescents in deployed families reported more thoughts of suicide, lower quality of life and depression than adolescents in civilian and nondeployed military families. In addition, boys in all grade levels of deployed families experienced significantly higher odds of reporting lower quality of life and thoughts of

suicide. In contrast, female 8th graders in deployed families were more likely to report depressed mood and thoughts of suicide compared with civilians, whereas for female 10th and 12th graders, parental deployment was not associated with depressed mood or thoughts of suicide but was associated with increased odds of reporting lower quality of life when compared with civilians.

The small body of qualitative research mirrors those using self-report measures, with teens expressing common themes of changes in roles and responsibilities while a parent was deployed and concerns with caregiver stress, and some studies indicating that teens expressed difficulties with emotional distress (Huebner, Mancini, Wilcox, Grass, & Grass, 2007; Knobloch, Pusateri, Ebata, & McGlaughlin, 2012; Mmari, Roche, Sudhinaraset, & Blum, 2009). Focus groups with adolescents, school staff and parents at 8 different military bases revealed increases in stress and anxiety for adolescents (Mmari et al., 2009). Specifically, school staff suggested that boys had the most trouble with their emotions and with externalizing behaviors. Adolescents also expressed concern about the well-being of the deployed parent and the stress level of their at home caregiver, in addition to difficulty with added responsibilities at home.

Mixed-age groups ($n = 11$)

Research with mixed age group samples indicate that deployment is consistently and significantly associated with the functioning of children throughout childhood. First, the deployment of a parent is a correlate of increased emotional and behavioral difficulties when compared with a community sample or nondeployed group of children. For example, 77 National Guard parents of children (ages 3–17) reported significantly greater behavioral difficulties both during and after deployment in their oldest child compared with community norms (Wilson et al., 2011). Second, there are increased behavioral and emotional symptoms during deployment (Pfefferbaum, Houston, Sherman, & Melson, 2011). A sample of 18 children ages 6–17, who were assessed before, during and after National Guard deployment of a parent reported increased behavioral and emotional symptoms during deployment relative to the pre and postdeployment periods (Pfefferbaum et al., 2011).

Third, the caregiver's mental health is associated with children's response to deployment. In a survey of 300 active duty couples experiencing a recent deployment, past-year stress levels among nondeployed wives were associated with higher levels of children's internalizing and externalizing symptoms (Allen, Rhoades, Stanley, & Markman, 2011). In a study of 97 recently deployed National Guard soldiers, the majority of participants who were parents reported they were concerned about child rearing practices and that parenting was more stressful after deployment (Khaylis, Polusny, Erbes, Gewirtz, & Rath, 2011). Across a series of focus groups with teachers and school staff at 12 schools serving US Army children in active duty, reserves and National Guard, families indicated that school staff felt that some students were resilient but others were negatively impacted with respect to school functioning, especially when the nondeployed caregiver had mental health issues and with repeated deployments (Chandra, Martin, Hawkins, & Richardson, 2010). Increased adolescent home responsibilities and difficulty with reintegration were other indicators of poor functioning. In another qualitative study of 71 military fathers' experiences with

reintegration, fathers expressed difficulty in knowing how to resume their role and how to reconnect after deployment (Willerton, Schwarz, Wadsworth, & Oglesby, 2011).

Fourth, family communication may be an important protective factor for children's response to deployment. A study of children ages 8–18 ($n = 26$) with a deployed National Guard parent found that predeployment family communication was related to better child-reported personal adjustment, whereas communication with a deployed parent before and during deployment was associated with increased parental report of child-internalizing symptoms (Houston, Pfefferbaum, Sherman, Melson, & Brand, 2013). Findings also suggest that sibling relationships may bolster postdeployment adjustment, as the quality of postdeployment communication with siblings was associated with decreased parent report of externalizing and behavioral symptoms and increased adaptive behaviors, as well as child report of decreased problems with inattention or hyperactivity. Although this study was limited by a small sample size ($n = 26$) and the use of nonstandardized measures of communication frequency and quality, results underscore the importance of family communication to child deployment outcomes, and perhaps reflect the impact of parental stress on communication that occurs before and during deployment.

Finally, the overall impact of deployment on mental health symptoms in general may take precedence for treatment over physical health needs in stressed families. Mansfield, Kaufman, Engel, and Gaines (2011) examined medical record data in a sample of 307,520 children ages 5–17 of active duty personnel treated at a US military medical facility or who used military medical insurance for private care between the years 2003 and 2006. Controlling for past medical history, deployment of a parent was associated with increased risk for visits related to diagnoses of acute stress reaction, adjustment disorder, depressive disorders and behavioral disorders, with risk increasing as deployment time increased. Another study analyzed over 400,000 medical records from the military health system between 2006 and 2007 and found that deployment of a parent was related to an 11% increase in the number of outpatient visits for mental and behavioral health care complaints while a parent was deployed, in contrast to an 11% decrease in visits for overall health care in children ages 3 to 8 years old (Gorman, Eide, & Hisle-Gorman, 2010). Furthermore, rates of behavioral and mental health care visits for older children within this age group increased the most. Health care use in 137,000 children (mean age 7 years) and spouses of active duty component service members with a deployment in the last year revealed that deployment was associated with a decrease in primary care visits, but an 8.8% increase in specialist office visits (the majority of which were for mental health), a 17.2% increase in prescriptions of antidepressants, and a 10% increase in antianxiety prescriptions for children (Larson et al., 2012). Interestingly, deployment was also linked to decreases in use of military facility health care, suggesting a shift to civilian providers. One explanation posited for this transition to civilian providers may be that families would not want mental health visits to be reported to unit commanders. Alternatively, this pattern may be a function of families moving away from bases during deployment, or to a decreased availability of services.

Deployment: Impact on Substance Use and Child Maltreatment

Five recent studies have examined the impact of deployment of a parent on two emerging domains of concern: children's substance abuse and child maltreatment.

Substance use ($n = 2$)

Two studies provide preliminary evidence that children experiencing a deployment may be at higher risk for substance abuse, especially if they are cared for by a nonparent during the deployment. A study of adolescents in the 8th, 10th and 12th grades found that adolescents with deployed parents were significantly more likely to report having engaged in binge drinking in the previous two weeks when compared with a civilian sample (Reed et al., 2011). A more recent study of children's substance abuse and parental deployment from a statewide survey of 6th, 8th and 11th graders in Iowa (Acion, Ramirez, Jorge, & Arndt, 2013) indicated that, across all 3 age groups, children of currently or recently deployed service members were significantly more likely to report having engaged in current drinking, binge drinking, prescription drug abuse, marijuana use, and other substance use than were children in nonmilitary families. Further, children of a currently deployed service member were more likely to be living with someone who was a nonparent, and those who were living with a nonparent had nearly 9 times the odds of recent binge drinking and 7 times the odds of recent marijuana use than nonmilitary children.

Child maltreatment ($n = 3$)

Child maltreatment in active duty families may also increase as a result of parental deployment. An examination of the Army Central Registry of 1,771 active duty Army families with at least one reported incident of child mal-treatment indicated that the rate of maltreatment while a parent was deployed was 42% higher than the rate when a parent was not deployed (Gibbs, Martin, Kupper, & Johnson, 2007). Perpetrators of maltreatment were most often civilian female spouses. Similarly, a study of population level rates of maltreatment during a time of large-scale deployments in Texas found that rates of maltreatment doubled during deployment, with parental departure and return particularly risky periods (Rentz et al., 2007). Again, nonmilitary caretakers were the most frequent perpetrators.

Finally, child maltreatment (reported by type of abuse, age and gender of the child) in US Army families revealed an overall decline in maltreatment between the years 1990 and 2004 (McCarroll, Fan, Newby, & Ursano, 2008). However, between 2000 and 2004, emotional abuse increased slightly and physical abuse did not decline as steeply as in previous years, and rates of neglect reached a high point in 2004. Younger boys (under 11) had higher rates of physical abuse and neglect and older girls (over 11) had higher rates of emotional abuse and neglect. As child neglect increased in 1991 and again between 2001 and 2004, both time periods of large national deployments to Iraq, the authors suggested that the increase in neglect during those times may have been deployment-related.

Reintegration: Impact on Mental Health and Parenting ($n = 4$)

To date, research on postdeployment mental health and parenting in the newest generation of veterans has focused almost exclusively on PTSD, with only two studies found to examine the impact of other disorders (Blow et al., 2013; Sayers, Farrow, Ross, & Oslin, 2009).

Increases in PTSD symptoms were associated with self-reported poorer parenting practices in a sample of National Guard fathers 1 year after returning from a combat deployment to Iraq (Gewirtz, Polusny, DeGarmo, Khaylis, & Erbes, 2010). Similarly, PTSD symptoms were associated with significantly decreased parenting alliance (i.e., cooperation and communication among the parenting dyad) as reported by both husbands and wives in a sample of 434 military couples (Allen, Rhoades, Stanley, & Markman, 2010).

In one of the few studies that assessed other postdeployment mental health disorders beyond PTSD, Blow and colleagues (2013) assessed the impact of hazardous drinking, depression and PTSD symptoms on family functioning in a sample of over 1,143 National Guard members and 674 partners 45–90 days after returning from a deployment. Depression, alcohol use and PTSD symptoms were significantly correlated with parenting stress for both service members and spouses. Further, dyadic analyses accounting for each partner's contributions to regression models revealed that parenting stress was significantly associated with depression for both service members and partners, but drinking and PTSD symptoms were not. Another survey of 202 veterans revealed PTSD symptoms and the psychomotor symptoms of depression were significantly associated with endorsement of their children not acting warmly or acting afraid of them (Sayers et al., 2009). Together, these studies provide preliminary evidence that both depression and PTSD may be related to parenting stress and impact the parent–child relationship in veterans and service members after deployment.

Current Interventions for Military Families ($n = 10$)

Researchers, community and military stakeholders, and government agencies have recognized the need for increased attention to challenges, treatments and practice issues related to military personnel and their families (American Psychological Association, 2007; DOD, 2010b; Ternus, 2010). Historically, this work has been underresearched because of strict policies prohibiting VA researchers from work with children. However, recent legislation has expanded the VA's mission to include family focused care and family therapy (e.g., Caregivers and Veterans Omnibus Health Services Act of 2010; Veterans' Mental Health and Other Care Improvement Act of 2008). As a result, several promising interventions have emerged in the OIF/OEF/OND era that have emphasized improved family functioning and parenting in the wake of a deployment.

Project FOCUS

Project Families Overcoming Under Stress (FOCUS; Beardslee et al., 2011; Lester et al., 2011) was designed to promote resiliency in active-duty military families who experienced a recent deployment. In Project FOCUS, parents and children (ages 3–17) complete eight sessions comprised of parent-only, child-only, and family sessions. Treatment includes

psychoeducation about stress, emotion regulation skills, goal setting, problem solving skills, and family communication skills with an emphasis on creating a family narrative regarding deployment (Lester et al., 2011). Initial posttreatment outcomes (331 families, 466 parents) indicated improvements in child and parent behavioral and emotional health (Lester et al., 2012). An evaluation of 4–6-month outcomes revealed that number of FOCUS sessions attended had a significant and indirect effect on reducing child distress through improved family functioning (Lester et al., 2013). An online version of FOCUS is now available (<http://www.focusproject.org/focus-world-intro>).

Strong Families Strong Forces

Strong Families Strong Forces is a home-based reintegration program for military families with a recent deployment and who have at least one child under 6 years (DeVoe, Ross, & Paris, 2012). The program emphasizes the constructs of parental reflective capacity, attachment and developmental relevance to assist families with young children with postdeployment reintegration. Preliminary qualitative findings are positive, with results indicating improvements in couple communication, coparenting, and parental, self, and couple reflective capacities (DeVoe & Ross, 2013).

ADAPT

After Deployment Adaptive Parenting Tools Program (ADAPT; Gewirtz, DeGarmo, Plowman, August, & Real-muto, 2009; Gewirtz, Erbes, Polusny, Forgatch, & DeGarmo, 2011) is a 14-week group intervention for Guard and reserve families with at least one deployment and one child (ages of 5–12). The program incorporates aspects of the Parent Management Training Oregon Model (PMTO) and has been adapted to military culture to assist military parents to incorporate emotion regulation strategies in their parenting, to better understand the impact of postdeployment adjustment reactions on family functioning, and to address family stress related to deployment. Currently, no outcome data are available.

Passport to Success

Passport to Success (PTS) was created to assist children and adolescents with reintegration when a service member returned from deployment (Wilson et al., 2011). PTS was employed as part of the Department of Defense's Yellow Ribbon Program for returning National Guard and reserve service members in Indiana. Participating youth rotated through three stations addressing emotional, communication, and coping skills based on developmental staging. Though long term outcomes were not reported, adolescents who participated in the program rated it positively, and children who had reported the most difficulty with reintegration before PTS rated the program favorably. The study team is currently engaged in a second phase of the program (Wilson et al., 2011) in which content is being adapted and refined.

Other interventions and resources

Untested interventions and resources are available. Rush and Akos (2007) outlined a 10-section psychoeducational support group to assist adolescents with better understanding of the emotional cycle of deployment, to improve coping skills, and to promote emotional expression. Resources are also available to military families through on-base services and

family readiness groups within the National Guard. For example, Yellow Ribbon events and Strong Bonds programs are offered through the National Guard Family Program, and both types of events often include an emphasis on the impact of deployment on family members. The National Guard family program also offers a number of instructional resources developed for young children as well as programs for older children, and dedicated staff members to assist military families and children with emotional needs during and after deployment. Similar services are available through family centers at active duty military installations. Military One Source, a service available to active duty personnel, and to National Guard and reserve members who are within 180 days of returning from a deployment, offers brief counseling services for military families.

Recommendations for Clinical Practice

An understanding of the unique dynamics of military culture, deployment, and terminology is an essential first step for providers seeking to develop rapport with military clients, improve the accuracy of diagnoses and facilitate treatment planning. Many providers may not routinely ask clients if they or a family member have served in the military, therefore, it is recommended that providers address military history during intake. Fortunately, a number of resources have been developed for community providers. For example, the Department of Veterans Affairs has developed a community-provider toolkit designed to assist clinicians who may be unfamiliar with military culture and experiences (<http://www.mentalhealth.va.gov/communityproviders/index.asp>). In addition, the Center for Deployment Psychology, a Department of Defense Psychology Training consortium, offers an online course on the impact of deployment on families and children, and other relevant training and resources (<http://www.deploymentpsych.org/>).

Concerns about confidentiality may be a barrier for families seeking treatment, therefore military and VA providers should address these concerns openly and adjust policies accordingly so that fear of unit commanders or members finding out about psychological treatment does not affect care seeking. As some families may be reluctant to access military or VA care for this reason, community providers represent an alternative avenue.

Findings from this review suggest a number of clinical considerations. First, as caregiver distress was consistently a concomitant of child outcomes, providers should assess for ongoing family stress during and after deployment and consider making evidenced based stress-management strategies part of their treatment plans. Second, child maltreatment and neglect frequently increases during deployment, suggesting that clinicians working with family members of deployed service members should routinely assess for maltreatment. Third, family communication before, during and after deployment emerged as an important protective factor, therefore providers can work with military families to develop positive communication skills and during-deployment communication plans. Fourth, deployment separation and mental health problems after deployment both significantly impacted parental stress, parenting practices and parent– child satisfaction, highlighting the utility of providers conducting routine assessment of parenting domains in mental health evaluations. Finally, preliminary evidence that substance abuse was higher in adolescents with a deployed parent

underscores the need to assess and address substance use in adolescents from military families.

Limitations and Suggestions for Future Research

The deployment literature reviewed provides a foundation for understanding how deployment may broadly impact children's behavioral and emotional health, but indicate several areas where research should continue. For example, the existing literature is limited by the use of retrospective reporting, cross-sectional study design, and variations in the deployment measurement period (current or past deployment). Another limitation to the generalizability of this literature is an overreliance on sampling almost exclusively male service members and female spouses/partners, leaving the field without any information for key demographic segments such as female military personnel, male spouses/partners, and same-sex couples.

In addition, some studies were limited by small sample sizes, lack of a comparison sample and the use of nonstandardized measures. Increased use of nondeployed comparison samples will allow the field to evaluate the role of variables such as socioeconomic status and frequent geographic moves as predictors of child and parenting outcomes in this population. As suggested by other researchers (Card et al., 2011), more research on the types of variables that may influence children's reactions to parental deployment must be conducted. This review indicates that promising candidates for such variables include caregiver mental health, parenting stress, number and length of deployments, relationship to the caregiver (parent vs. nonparent), child gender and age, and family communication. Other variables that should be considered include race, ethnicity, and socioeconomic status. Further study is also needed on the impact of PTSD and deployment separation together on children's behavioral and emotional outcomes.

Results suggesting depression was related to increased parenting stress and impairments to the parent–child relationship during reintegration (e.g., Blow et al., 2013; Sayers et al., 2009) underscore the need to examine and address the impact of other common postdeployment mental health problems such as depression and substance abuse. This is particularly important given that PTSD is rarely diagnosed in isolation (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995) and the high rates of comorbidity between PTSD, depression, and substance abuse in returning veterans (Seal, Bertenthal, Miner, Sen, & Marmar, 2007). To that end, longitudinal study of these variables is also needed, using validated measures and a comparison sample of children not experiencing deployment.

Regarding the specific associations between deployment of a parent and changes in health care, child maltreatment, and substance abuse, further work must also be undertaken to understand the time periods for risk and the link between caregiver mental health and negative outcomes. Consistent findings from qualitative work also suggest that further development and study of treatments that work to decrease caregiver distress during deployment, improve communication, and assist families to effectively negotiate changes in roles and responsibilities would be beneficial. Study of how technology might be used to improve family communication during deployment should also be undertaken. Further

release of outcomes from several of the treatments reviewed (e.g., DeVoe et al., 2012; Gewirtz et al., 2011) would be invaluable, as would treatment development focusing on the predeployment period and during deployment.

In sum, deployment clearly impacts children, and parental psychopathology incurred as a result of the deployment may be related to further distress. That said, little recent work has sought to explicitly determine the impacts of postdeployment psychopathology on specific parenting behaviors such as parent-child communication, either with women or with military families in general. Further exploration within this domain is crucial, as it will be relevant to large numbers of families for many years to come as children age into adolescence and the psychological sequelae of deployment and reintegration manifest themselves in veterans over their life spans.

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Biography

SUZANNAH K. CREECH received her PhD in clinical psychology at Texas A&M University in College Station, Texas. She is now a Research Psychologist at the Providence Veterans Affairs Medical Center and an Assistant Professor (Research) in the Department of Psychiatry and Human Behavior at the Alpert Medical School of Brown University. She studies the relationships between family functioning, health, and mental health in vulnerable veteran populations, and is interested in family focused interventions for military and veteran populations.

WENDY HADLEY received her PhD in clinical psychology from the University of Memphis, in Memphis, Tennessee. She is a Staff Psychologist at the Bradley/Hasbro Children's Research Center and an Assistant Professor (Research) in the Department of Psychiatry and Human Behavior at the Alpert Medical School of Brown University. Dr. Hadley's research focuses on adolescent risk reduction and the impact of parenting and family functioning on these behaviors.

BRIAN BORSARI received his PhD in clinical psychology from Syracuse University in Syracuse, New York. He is a Staff Psychologist at the Providence Veterans Affairs Medical Center, an Associate Professor of Psychiatry and Human Behavior (Research) at the Warren Alpert Medical School of Brown University, and an Associate Professor of Behavioral and Social Sciences (Research) at the Brown School of Public Health and the Center for Alcohol and Addiction Studies. Dr. Borsari's research interests include brief motivational interventions and in-session processes that result in behavior change. Through his work at the Providence VAMC, Dr. Borsari also conducts research on the assessment and treatment of substance abuse and comorbid disorders in returning veterans.

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Characteristics of Included Studies

Table 1

Authors	Year	N	Study design	Comparison sample	Respondent	Measures	Main findings
Infancy-Preschool (ages 0-5)							
1. Barker & Berry	2009	57	Longitudinal	Nondeployed	Spouses; returning soldiers	Observed behaviors and attachment behaviors	Increased behavior problems during deployment and increased attachment behaviors at reunion.
2. Chartrand, Frank, White, & Shope	2008	169	Cross-sectional	Nondeployed	Caregivers	CBCL	Children between ages 3-5 had higher internalizing, externalizing, and total symptom scores if a parent was deployed.
3. Eide, Gorman, Hisle-Gorman	2010	169,986	Longitudinal retrospective records review	Within group	Medical records review	Frequency outpatient and well-child visits	Medical visits increased during deployment. Visits for children of single parents decreased during deployment. Rates increased for children of married parents.
School age (ages 6-11)							
4. Flake, Davis, Johnson, & Middleton	2009	116	Cross-sectional	Community norms	Caregivers with deployed spouse	PSC; PSI; PSS	32% of children met criteria for psychosocial problems. Parenting stress, perceived stress predictive of higher psychosocial morbidity.
5. Lester et al.	2010	500	Cross-sectional	Community norms; currently deployed vs. recently returned	Children, caregivers and service members	BSI; CBCL; CDI; MASC	Anxiety symptoms significantly above community norms in deployed and recently returned parent groups. Psychological symptoms of active duty parents, cumulative length of deployment predicted depression and externalizing symptoms.
Adolescence (Ages 11-18)							
6. Aranda, Middleton, Flake, & David	2011	414	Cross-Sectional	Non-Deployed	Adolescents and parents	PSC	Parents and youths reported more psychosocial symptoms if a parent was deployed.
7. Barnes, Davis, & Trieber	2007	121	Longitudinal	Nondeployed	Adolescents	Heart rate, PCL	Significantly higher heart rate and PTSD symptoms in teens with deployed parent.
8. Chandra et al.	2010	1507	Cross-Sectional	National norm; within group	Adolescents and caregivers	SDQ	Mean SDQ scores higher than national samples. Older children had more difficulty during and after deployment. Girls had more difficulty after deployment. Caregiver mental health, total length of deployment related to increased difficulties during and after deployment.
9. Huebner et al.	2007	107	Qualitative	N/A	Adolescents	N/A	Overall perception of uncertainty, loss, changes in roles, responsibilities and routines (boundary ambiguity) changes in mental health, overall family relationship Stress.
10. Knobloch, Pusateri, Ebata, & McClaughlin	2012	33	Qualitative	N/A	Adolescents	N/A	Adopting more responsibilities, shifts to family roles, routines, traditions, observing caregiver take more responsibility, emotional turmoil, feeling that family was incomplete.

Authors	Year	N	Study design	Comparison sample	Respondent	Measures	Main findings
11. Mimiari, Roche, Sudhinaraset, & Blum	2008	98	Qualitative	N/A	Caregivers, school staff, adolescents	N/A	School staff themes: increased anxiety observed, boys had the most trouble. Adolescent themes: concern about the well-being of the deployed parent, stress level of the at-home caregiver, difficulty with added responsibilities and with reintegration, shifting roles, and reconnecting. Parent themes: difficulty with reintegration, shifting roles and reconnecting.
12. Morris & Age	2009	65	Cross-Sectional	Nondeployed	Adolescents and Parents	EATQ-R; SDQ; CCSC-R1; Social support	No Differences in any measures between deployed in last year and no deployment in last year groups. Teens In overall sample had elevated conduct problems compared to clinical norms.
13. Reed, Bell, & Edwards	2011	10,606	Cross-Sectional	Nondeployed	Adolescents in 8th, 10th, 12th grades	Washington State Healthy Youth Survey; YQOL	Adolescents in deployed families reported more thoughts of suicide, lower quality of life and depression. Adolescents with deployed parents report more binge drinking compared to a civilian sample.
Mixed-age group samples							
14. Allen, Rhoades, Stanley, & Markman	2011	300	Cross-Sectional	Within group	Married dyads	Stress; CBCL	Wives reported stress levels during deployment related to higher levels of children's internalizing and externalizing symptoms.
15. Card Et al.	2011	16 Studies	Meta-Analysis	N/A	N/A	N/A	Revealed small association between deployment and children's adjustment.
16. Chandra, Martin, Hawkins and Richardson	2010b	24 Focus Groups	Qualitative	N/A	N/A	N/A	Some students resilient, others negatively impacted, especially when nondeployed caregiver had mental health issues and repeated deployments, children taking on more responsibility at home, difficulty with reintegration
17. Gorman, Eide & Hisle-Gorman	2010	642,397	Longitudinal Retrospective Records Review	Within group	Frequency of behavioral and mental health visits	Medical records review	Increase In Outpatient Visits For Mental and Behavioral Health During deployment. Decrease In Overall Health Visits In Children Ages 3-8. Behavioral and Mental Health Rates Increased The Most For Older children. Increased Diagnoses of Behavioral and Stress disorders.
18. Houston et al.	2013	26	Longitudinal	Within group	Children and caregivers	Communication frequency and quality; BASC-2; emotional reactions to deployment	Predeployment family communication related to better child adjustment. Communication with deployed parent before and during deployment associated with increased internalizing symptoms. Postdeployment Communication With siblings related to decreased externalizing and behavioral symptoms, increased adaptive behaviors, and decreased problems with inattention or hyperactivity.
19. Khaylis et al.	2011	97	Cross-Sectional	None	36 National Guard soldiers with children	Parenting concern/parenting stress	Endorsed concerns about child-rearing practices. Reported parenting was more stressful after deployment.

Authors	Year	N	Study design	Comparison sample	Respondent	Measures	Main findings
20. Larson et al.	2010	137,000	Longitudinal Retrospective Records Review	Nondeployed	Change in health-care utilization	Medical records review	Deployment associated with decrease in primary care visits, increase in specialist visits, increase in prescriptions of psychotropic medications.
21. Mansfield, Kaufman, Engel, & Gaines	2011	307,520	Longitudinal retrospective records review	Nondeployed group	Change in health-care utilization	Medical records review	Deployment of a parent associated with increased visits related to acute stress reaction, adjustment disorder, depressive disorders and behavioral disorders, with risk increasing as deployment time increased.
22. Pfefferbaum, Houston, Sherman, & Melson	2011	31	Longitudinal	Within Group	Children and caregivers	BASC-2	Children evidenced increased behavioral and emotional symptoms during deployment relative to the pre- and postdeployment periods.
23. Willerton, Schwarz, MacDermid Wadsworth, & Schultheis Oglesby	2011	71	Qualitative	N/A	Military fathers	N/A	Fathers reported difficulty reconnecting after deployment.
24. Wilson et al.	2011	77	Retrospective cross-sectional	Community norms	Caregiver	SDQ	Parents reported significantly greater behavioral difficulties in their oldest child both during and after deployment.
Substance abuse							
25. Acion, Ramirez, Jorge, Arndt (See also no. 12 above)	2013	78,240	Cross-Sectional	Nondeployed	6Th, 8Th, 11Th graders	Iowa Youth Survey	Children of currently deployed more likely to report current drinking, binge drinking, and other substance use than nonmilitary families. Military children living with a nonparent had greater odds of recent binge drinking and recent marijuana use than nonmilitary children.
Child abuse/maltreatment							
26. Gibbs, Martin, Kupper, & Johnson	2007	1771	Retrospective longitudinal chart review	Within Group	N/A	Army Central Registry reports	Rate of maltreatment while a parent was deployed was 42% higher than the rate when a parent was not deployed; consistent effect of deployment on child maltreatment.
27. McCarroll, Fan, Newby, & Ursano	2008	N/A	Retrospective longitudinal chart review	None	N/A	Army Central Registry reports	Maltreatment declined over time; emotional abuse increased slightly between 2000 and 2004, rates of neglect high in 2004; child neglect increased in 1991 and between 2001 and 2004.
28. Rentz et al.	2007	164,239	Retrospective longitudinal chart review	Nonmilitary	N/A	2000-2003 National Child Abuse and Neglect Data System	Rates of maltreatment doubled during deployment, and the time periods of parental departure and parental return were of particular risk.
Reintegration mental health-OEF/OIF/OND							
29. Allen, Rhoades, Stanley, & Markman	2010	434	Cross-Sectional	Nondeployed	Married dyads	PCL; PAI;	PTSD symptoms associated with decreased parenting alliance
30. Blow et al.	2013	1,143	Cross-Sectional	None	Couples	AUDIT; PSS; PCL; BDI-II	Depression, alcohol use, PTSD symptoms were significantly correlated with parenting stress for service members and spouses.

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Authors	Year	N	Study design	Comparison sample	Respondent	Measures	Main findings
31. Gewirtz et al.	2010	468	Prospective longitudinal	Within group	National Guard members	PCL, APQ, parent-child relationship quality	Increases in PTSD symptoms over time associated with self-reported poorer parenting practices.
32. Sayers, Farrow, Ross, & Oslin	2009	199	Cross-Sectional	None	Veterans	PHQ-9; MINI; family difficulties	PTSD symptoms and the psychomotor symptoms of depression significantly associated with "children not acting warmly/acting afraid."