Impact of Parents' Wartime Military Deployment and Injury on Young Children's Safety and Mental Health

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Objective: Children are at risk for adverse outcomes during parental military deployments. We aim to determine the impact of parental deployment and combat injury on young children's postdeployment mental health, injuries, and maltreatment.

Method: This is a population-based, retrospective cohort study of young children of active duty military parents during fiscal years (FY) 2006 to 2007, a high deployment period. A total of 487,460 children, 3 to 8 years of age, who received Military Health System care, were included. The relative rates of mental health, injury, and child maltreatment visits of children whose parents deployed and children of combat-injured parents were compared to children unexposed to parental deployment.

Results: Of the included children, 58,479 (12%) had a parent deploy, and 5,405 (1%) had a parent injured during deployment. Relative to children whose parents did not deploy, children of deployed and combat-injured parents, respectively, had additional visits for mental health diagnoses (incidence rate ratio [IRR] = 1.09 [95% CI = 1.02–1.17], IRR = 1.67 [95% CI = 1.47–1.89]), injuries (IRR = 1.07 [95% CI = 1.04–1.09], IRR = 1.24 [95% CI = 1.17–1.32]), and child maltreatment (IRR = 1.21 [95% CI = 1.11–1.32], IRR 2.30 = [95% CI 2.02–2.61]) postdeployment.

Conclusion: Young children of deployed and combat-injured military parents have more postdeployment visits for mental health, injuries, and child maltreatment. Mental health problems, injuries, and maltreatment after a parent's return from deployment are amplified in children of combat-injured parents. Increased preventive and intervention services are needed for young children as parents return from deployments. Child health and mental health providers are crucial to effective identification of these at-risk children to ensure effective care provision.

Key Words: child mental health, child maltreatment, parental injury, military deployment

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US military deployments and combat injuries among parents can present significant mental health challenges for families with children. Children experience more mental health problems during parental deployment,[1-8] including parent-reported increased internalizing and externalizing behaviors[1-4,7] and increased use of mental and behavioral health services, despite decreased health care service use overall.[5] These children are also more likely to be diagnosed with a mental health problem,[8] and adolescents experience a higher rate of psychiatric hospitalization during parental deployments.[6] Children's mental health difficulties are among the most significant issues facing military families during deployment separations and place a significant burden upon children and the military's health care delivery system.

In addition, child maltreatment and child injuries, which can indicate undetected child maltreatment,[9,10,11] increase during periods of parental deployment in families with known maltreatment histories.[9,12,13] Children's use of mental health care services and reports of substantiated maltreatment increase, and primary preventive health care use decreases, during deployments.[14,15]

Study designs of previous research comparing children of currently deployed parents to children of currently nondeployed parents imply that periods of parental nondeployment are times of family health.[1,2,4-8,10-14] Many studies, however, have not examined pre- and postdeployment periods, which may themselves be times of increased stress. Returning veterans perceive decreased warmth from,[16] and involvement with, their children.[17] Parental absences, of any type, during childhood are associated with decreased childhood happiness,[18] increased child illness,[19] and childhood mental health issues.[20]

Many parents return from deployments with physical and/or mental health injuries that could magnify the effect of deployment absence itself. A small study of children with combat-injured fathers suggests high levels of child distress in the first few months postinjury.[21] Posttraumatic stress disorder (PTSD) in parents has been linked to increased child internalizing[22-24] and externalizing[23] behaviors, impaired parent–child bonding,[23] general behavior problems,[24] and increased child neglect.[25] In addition, children of parents with non–combat-related chronic physical and mental illness experience more emotional[26,27] and mental health problems,[28,29] somatic complaints, and

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problem behaviors,[30,31,32] and use less preventive health care.[33]

We aimed to study the impact of combat injury and parental military deployment on young children's use of physical and mental health care service after a parent's return from war. Using a Family Systems perspective,[34] we hypothesized that parental deployment would be associated with higher need for and use of mental health care services, along with increased prevalence of childhood injury and child maltreatment, than in nondeployed parents, and that the need would be even greater in children of deployed parents with combat injury.

METHOD

This study used a retrospective cohort design using health care data from the Military Health System (MHS). The sample was limited to children 3 to 8 years of age because this age range captures 37% of military-connected children, has a stable frequency of recommended preventive health care visits, and uses mental and behavioral health care.[35]

Children's health care use data and records of parent combat injuries were obtained from the TRICARE Management Activity (TMA), which provides health care for military service members and their families domestically and abroad. The TMA maintains records of all inpatient and outpatient visits for military family enrollees, including care received from military and civilian providers; approximately one-half of all health care provided to military dependents is provided at civilian facilities.[5] Children 3 to 8 years of age who were enrolled in the MHS in fiscal years (FY) 2006 to 2007 were identified from the Defense Enrollment Eligibility Reporting System (DEERS), and demographic information was extracted. Participants without an electronic data interchange patient number (EDIPN), a unique identifier common to Department of Defense[36] databases, were excluded, along with children who could not be linked to parents' health or military records and children of National Guard or Reservists, as they would not have been eligible for care in the MHS throughout the entire study period.

Ambulatory care visit data were extracted for included children between October 1, 2005, and September 30, 2007. Age was determined at the end of the fiscal year. Each health care visit was categorized by primary diagnostic codes; mental and behavioral health and injury visits were classified using Healthcare Cost and Utilization Project (HCUP) Clinical Classification Software (CCS).[37] Injury visits were limited to new injuries; follow-up visits for the same *International Classification of Disease–9th Edition (ICD-9)* code were excluded if they occurred within 1 week, or 1 month for fractures. Visits for child maltreatment were identified by *ICD-9* code; diagnostic codes used by the Family Advocacy Program (FAP) in medical records were identified by the Pentagon FAP office. Child maltreatment events were limited to new incidents; visits for the same maltreatment diagnostic code within 1 month were excluded. Visits categorized as injuries and mental and behavioral health were subcategorized by *ICD-9* code to compare group differences in visit subtypes. Subcategories and *ICD-9* codes are shown in Appendix A of the *ICD-9*.

Data on parental injury were extracted from the TMA database of ill, injured, and wounded warriors. This database includes records of mental and physical injuries associated with combat in Iraq and Afghanistan, including fractures, PTSD, traumatic brain injury, burns, spinal injury, vision loss, battle injuries, shrapnel injury, and amputations, as well as other mental health issues. Parents who suffered 1 or more injuries during a FY 2006 deployment were identified.

The Defense Manpower Data Center supplied data on start and stop dates for all military deployments and demographic information on military parents. The parent's EDIPN was used to link children's ambulatory care, parental deployment, and parental injury records. A sufficiently long postdeployment period of at least 1 year was needed to examine ongoing effects of parental deployment. FY 2007 was considered the postdeployment period; all children whose parents experienced a combat deployment during any portion of FY 2007 were excluded. Three groups of children were identified: children of parents who did not deploy at all during FY 2006 to 2007; children whose parents deployed in FY 2006 and returned uninjured; and children of parents injured during a FY 2006 deployment. During 2006, US military forces were engaged in Iraq and Afghanistan, deployments were long, and casualties and deaths increased.[38] The postdeployment period for children of injured and uninjured deployed parents began on the date that parents returned from their final deployment of 2006;

FIGURE 1 Included children by parental deployment and injury during fiscal year (FY) 2006.