Curr Treat Options Psych (2017) 4:241–253
DOI 10.1007/s40501-017-0117-x

Post-Traumatic Stress Disorders (K Chard and T Geracioti, Section Editors)

Relevance of Attachment Theory to Parenting Concerns Among Veterans With TBI

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Published online: 24 July 2017

This article is part of the Topical Collection on *Post-Traumatic Stress Disorders*

Keywords Traumatic brain injury · Parenting · Veterans · Service members · Attachment theory · Interventions

Opinion statement

Traumatic brain injury (TBI) is considered the signature injury of the Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn (heretofore referred to as OEF/OIF/OND) US military conflicts. TBI can result in a myriad of cognitive, emotional, behavioral, and social-relational symptoms that can negatively influence one's ability to parent. Additional factors can negatively impact the well-being of military families facing TBI, further increasing child-parent relationship strain: (1) high base rates of comorbid psychiatric conditions; (2) unique demographic characteristics of OEF/OIF/OND veterans; and (3) deployment stress that negatively impacts the emotional functioning of the veteran and their family. There remains a paucity of scientific literature supporting clinical interventions for improving parental functioning among veterans with TBI. With its focus on adaptive interactions and building a healthy child-parent bond, attachment theory offers a

conceptual framework to consider when child-parent relationship ruptures occur after a parent has sustained a TBI.

Introduction

Traumatic brain injury (TBI) is considered the signature injury of the Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) US military conflicts (heretofore referred to as OEF/OIF/OND) [1]. Prevalence data indicate that 361,092 medical diagnoses of TBI have occurred in the military from 2000 through 2016, with 82.4% of these being mild traumatic brain injuries (mTBI) [2]. A longer-term impact for veterans sustaining TBI, particularly moderate-to-severe TBI, is the myriad of cognitive, affective, behavioral, and lifestyle challenges that would reasonably be expected to negatively influence parenting abilities, skills, and relationships [3], as well as intensify the stressors and exigencies already associated with parenting [4, 5]. TBI may also result in impairments in emotional responsivity to facial expressions and in the perception of nonverbal affective cues (in both visual and auditory modalities) with perception of negative emotions more impaired than that of positive emotions [6]. Clearly, these impairments in emotion perception may also negatively impact parenting by hindering a parent's capacity to accurately read and respond to their child's emotional and behavioral cues, especially in terms of interpreting subtle signals, as well as overt signals of emotional distress.

Three other factors in areas of parenting and child development can negatively impact the well-being of military families facing TBI. First, the symptoms of conditions that often co-occur with TBI, such as depression and PTSD, may disrupt a parent's ability to engage in healthy parenting behaviors. Second, unique characteristics of OEF/OIF/OND veterans (to be described later) increase risk of child-parent relationship strain. And third, deployment stress and multiple separations and reunions can negatively impact the general emotional coping of the veteran, their spouse or significant other, and their children, exacerbating child-parent relationship strain. All of the aforementioned may result in suboptimal and at-risk family attachment patterns. Attachment theory has direct relevance to understanding the impact of TBI on parenting, as well as the additional factors that place OEF/OIF/OND veterans at risk for increased parenting difficulties.

The purposes of this paper, therefore, are threefold. First, to illustrate how TBI symptoms among affected OEF/OIF/OND veterans may impact parenting. Second, to discuss attachment theory and its promise as a scientifically informed framework to guide parenting interventions for veterans who have sustained TBI. Examples of evidence-based attachment interventions will be described. Third, to discuss future directions for research and evidence-based interventions using an attachment-based theoretical framework for veteran parents with TBI.

The impact of TBI on parenting

Few studies have specifically examined the impact of TBI on parenting. The limited research available suggests a negative impact of TBI-related cognitive, emotional, and neurobehavioral sequelae on child-parent interactions [7]. Negative changes in parental behavior of the parent with TBI have been reported, such as increased negative behavior towards the child, decreased positive behavior towards the child [4], as well as less goal setting, encouragement of cognitive competence development, promotion of achievement, emphasis on obedience, nurturing, and less active involvement [5]. Injured parents have also reported that TBI-related physical, cognitive, emotional, and behavioral sequelae were associated with decreased participation in parenting activities, changes in the child-parent relationship and parental role, reduced transportation or traveling ability, and financial difficulties

that impacted parenting [8]. Positive changes were also noted though, such as a greater appreciation for life and children, and having more time to participate in their children's lives [8]. A preliminary conceptual model of parenting for fathers with acquired brain injury includes five interacting parenting challenges: brain injury impairments, changes in family functioning, erosion of self-efficacy, negative self-perceptions of parenting, and limited parenting knowledge [9].

The scientific literature is similarly sparse regarding developmental outcomes in children who have a parent with TBI [10]. Regarding the mental health of such children, those with a parent with TBI have reported "posttraumatic" symptoms (i.e., intrusion, avoidance, and hyperarousal) that were significantly higher and warranting referral to counseling [11] and higher rates of depressive symptoms [5] than children of parents without TBI. With regard to child behavior, in one study, parents reported increased acting out, emotional problems, and relationship problems [4]; however, another study found no differences in parental ratings of child behavioral problems based on presence of parental TBI [5]. Interestingly, more recent research suggests that the impact of parental brain injury on child outcomes is influenced by the level of functioning in the non-injured parent, wherein stress in the non-injured parent resulted in increased stress and behavioral and emotional problems in the child; injury-related incapacities had no noticeable impact on child problems [10].

Impact of TBI comorbid conditions on parenting

Most veterans who have experienced TBI also have comorbid psychiatric diagnoses, with PTSD being among the most common [12], especially if TBI was acquired in a combat scenario secondary to blast [13]. Other comorbidities associated with TBI that can each potentially impact parenting include chronic pain, substance abuse, and depression [14]. While a description of how each psychiatric comorbidity might impact parent functioning is beyond the scope of this manuscript, a brief mention of PTSD is offered given the particularly high rates of co-occurrence with TBI. PTSD symptoms can negatively impact parenting via reduced engagement in family activities, reduced involvement with children [15, 16], reduced monitoring of children, emotionally volatile and dysregulated parent-child interactions [15], and increased child misbehavior and disagreement [16]. PTSD symptoms have also been associated with decreased parenting satisfaction [17], poorer parenting alliance [18], lower levels of perceived effective parenting [15], poorer parental functioning (e.g., involvement and cooperation between partners), and poorer parental satisfaction in the parenting role and parent-child relationship [19]. Related to child outcomes, PTSD symptoms have been associated with child reports of poorer parent-child problem-solving, communication, and affective involvement [20]. Given the scope of PTSD-related disruptions to the child-parent relationship, as aforementioned, when there has been a documented TBI and those symptoms co-occur and also disrupt healthy child-parent relational patterns, there is an argument to be made that the symptoms from both conditions combined increase risk of unhealthy child-parent attachment patterns.

Characteristics of military population

Though TBI is considered the signature injury of OEF/OIF/OND operations, there are also other characteristics of OEF/OIF/OND veterans that are worth

considering in the context of their parenting after TBI. For example, demographically, OEF/OIF/OND veterans are younger than in previous US military conflicts, with a proportionally greater representation of women, and more parents of young children [21, 22]. Children of OEF/OIF/OND veterans tended to be young, with the majority (37.5%) under 5 years of age, 31.3% between 6 to 11, 24.2% between 12 to 18, and 7.0% between 19 to 22 years of age [21].

OEF/OIF/OND veterans as a cohort may have a disproportionately higher rate of pre-military trauma, having experienced one or more traumatic events prior to their military experience. Rates of prior abuse among active duty, reserve forces members, and veterans vary, with 25–46% reporting a history of physical abuse or assault, 2–22% reporting a history of sexual abuse or assault, 25% reporting experiencing both physical and sexual abuse, and 33% reporting a history of emotional abuse [23–25]. This, combined with the prevalence of these veterans experiencing additional trauma in the context of military service, places them at significantly higher risk in terms of experiencing distress in relation to multiple traumas, proneness to emotion-behavior dysregulation, vulnerability to disorganized thinking and speech in relation to trauma memories and emotionally intimate experiences, and difficulty accurately reading others' emotional and behavioral signals.

The parenting challenges of veterans and service members with TBI also need to be considered within the context of military deployments. Relative to previous US conflicts, the troops that engaged in military operations as a part of OEF/OIF/OND conflicts have deployed on average more than once [26], for extended deployments [27], and with shorter intervals at home between deployments [22]. Military deployments create a cycle of separations and reunions that impact the family and parenting. Please see Table 1 for a summary of the stages of deployment.

Among service members, prolonged and multiple deployments have been linked with increased likelihood of developing a diagnosable mental health condition [29]. Deployment stress has also been associated with higher rates of mental health distress of spouses or partners of service members compared to non-military spouses, evidenced by increased diagnoses of depression, anxiety, sleep disturbance, acute stress reaction, and adjustment disorders [30, 31]. Such findings also have implications for increased reports of parenting stress within military families. Parental distress, dysfunctional child-parent interactions, and parent perceptions of their child as "difficult" were high among military spouses following the recent deployments of their service members [32].

Compared to non-military families, children of deployed parents have been found to be at higher risk of psychosocial problems, such as anxiety, depression, somatic complaints, attention difficulties, and aggression [33–35] across various age ranges. Research suggests that military deployment is also associated with increased risks of child maltreatment [36–38], including physical abuse, sexual abuse, emotional abuse, other abuse, and neglect [39]. Further, deployment poses a unique challenge in young children's ability to develop and maintain a consistent relationship with their service-member parent during critical developmental periods [40].

TBI is a chronic health condition that can result in a myriad of cognitive, emotional, and neurobehavioral symptoms that can affect the quality of relationships for all family members. Premorbid risk factors, pivotal life events, and deployment stress can also disrupt the formation of healthy relationships and

Table 1. Stages of deployment (adapted from Pincus, House, Christensen, & Adler, 2001 [28])

Stage	Timeline	Emotional challenges
Pre-deployment	Varies; warning order for deployment through actual deployment	-Anticipation of loss vs. denial -Train-up and long hours away -Getting affairs in order -Mental/physical distance -Arguments
Deployment	1st month	-Mixed emotions -Communication; stabilization of reconnection vs. stress of cost and frequency of communications
Sustainment	Months 2–18	-Establishing new sources of support and new routines -Age-dependent response of children
Re-deployment	Month before service member is scheduled to return	-Anticipation of homecoming -Excitement vs. apprehension -Burst of energy/nesting -Difficulty making decisions
Post-deployment	3–6 months after arrival to home station	-Honeymoon period -Loss of independence -Need for own space -Renegotiating routines -Reintegrating into family

these variables warrant full consideration when conceptualizing parenting within a military family system. There is risk for assumption that TBI alone is responsible for parenting difficulties when other, potent, premorbid, and contextual influences may contribute to attachment-related difficulties.

Relevance of attachment theory to military families

As defined by John Bowlby, "Attachment behavior is any form of behavior that results in a person attaining or maintaining proximity to some other clearly identified individual who is conceived as better able to cope with the world" [41]. Attachment theory posits that an infant's instinctual responses integrate into attachment behavior during the first year of life [42], and that the infant's connection with the primary caregiver is essential in the development of cognitive, affective, social-emotional, neurological, and behavioral functioning [41].

Based on her extensive research using the Strange Situation as a standardized method for assessing the infant-caregiver attachment relationship, Mary Ainsworth [43] identified three different patterns of attachment: Secure, Anxious-Avoidant, and Anxious-Ambivalent. Main and Solomon [44] later identified a fourth pattern: Disorganized. Children with Secure attachments view their caregivers as available and responsive in meeting their needs [45] and easily use their caregiver as a secure base for exploration and haven of safety [46]. Child-caregiver interactions are smooth and anxiety-free, and disruptions or separations within the dyad are easily repaired.

The Anxious-Avoidant and Anxious-Ambivalent patterns are considered to be "Insecure" patterns of attachment; they are associated with caregiver insensitivity and a lack of responsiveness in meeting the child's needs [45]. In these patterns, children and caregivers miscue each other about their emotional needs [46]. For example, in the Anxious-Avoidant pattern, early caregiver rejection of infant attachment behavior results in children being unable to use their caregiver as a safe haven for security in times of distress and instead diverting their attention defensively to a focus on exploration [46]. In the Anxious-Ambivalent pattern, early caregiver inconsistency and lack of responsiveness results in children being unable to use their caregivers as a secure base for exploration, resulting in an over-dependence of the caregiver [46]. In the Disorganized attachment pattern, children fail to develop a coherent strategy for relying on their caregiver [47] and tend to exhibit a mix of behaviors associated with Avoidant and Ambivalent patterns, such as fear, freezing, stilling, and/or stereotypical behaviors [45].

Attachment theory has clear relevance to how deployment may contribute to parenting difficulties. First, the quality of the child-parent relationship in terms of attachment and caregiving bonds, especially for children under 5 years old, is pivotal in terms of establishing a blueprint for the child's developmental trajectory and the majority of military children are under the age of 5. Second, though attachment bonds are fairly stable across the lifespan [48, 49], there is evidence that severe traumas, such as war, tragedy, and abuse, disrupt attachments and negatively alter adult internal working models of intimate emotions and relationships [50]. Third, the deployment cycle, with its separations and reunions, naturally activates one's neurologically based attachment system. Deployment can be viewed as a potential threat to the family's sense of safety as the secure base and safe haven of a child's primary attachment figure becomes abruptly inaccessible, and this threat is heightened when the military parent is sent to a combat zone and may experience trauma and/or neurological injury, such as TBI [51]. Riggs and Riggs [51] proposed a Family Attachment Network model of military families during deployment and reintegration, grounded in both Attachment Theory and Family Systems Theory. They suggest that individual differences in attachment organization impact non-deployed parents' psychological functioning, which then impacts family processes. How children respond to their parent's deployment will be based on their developmental level, their attachment bonds to their parents, and the overall functioning of the non-deployed parent who remains at home [51]. Further, deployment poses a challenge to a young child's ability to develop and maintain a consistent relationship with their service-member parent during critical developmental periods [40]. For the deployed parent, there is a challenge achieving a comprehensive developmental understanding of their child, potentially leading to later challenges accurately reading their child's signals and, in turn, being able to meet their child's emotional needs.

Insecure patterns of attachment present a vulnerability to maladaptive responses, which are increasingly likely to occur during periods of elevated stress [52]. For example, an insecure attachment pattern present in the parent who remains at home during a deployment with children is correlated with less than ideal parenting strategies, which impacts the children's attachment patterns [53]. Several studies have indicated that emotional distress of partners at home during deployment is positively correlated with insecure attachment styles and

family disruption during separation [54, 55]. According to Cafferty et al. [54], a secure pattern of attachment can support adaptive responses during reintegration.

From an attachment perspective, the cognitive difficulties that can accompany history of TBI in the domains of attention and concentration, learning and memory, cognitive processing speed, executive functioning, and self-awareness may inhibit a parent's ability to think about, and make sense of, one's own internal processes (e.g., thoughts and feelings) and behavior, as well as the internal processes and behavior of others (e.g., their child, spouse, etc.). This sensitivity and responsiveness is strongly associated with secure attachment and positive developmental outcomes [56, 57]. Within a TBI context, only one study has examined attachment styles. Sela-Kaufman and colleagues [58] examined how premorbid personality characteristics and attachment style moderate the effect of injury severity on occupational outcomes among 61 Israeli civilians and veterans with moderate to severe TBI. They reported an interaction between attachment style and injury severity, in that for individuals scoring low on avoidant attachment, reduced injury severity was associated with improved occupational functioning [58]. Though not focused on parenting, this study sheds some preliminary light on how veteran's TBI recovery may be impacted by their own attachment internal working models. More research is needed to better understand the role of attachment in parenting after TBI.

Treatment

While not all military families experience the aforementioned risks, there is a demonstrable need for parenting interventions focused on resolution of trauma/coping with brain injury, such that parents can shift patterns of parenting along a healthier trajectory. Strengthening the child-parent relationship may also ameliorate the sequelae of combat stress in military parents [40]. Especially since child-parent relationship difficulties can negatively impact the veteran's own mental health outcomes, treatments that specifically help improve parenting skills "may be vital to the veterans' recovery" [36]. Consider the following everyday parenting situations, keeping in mind the challenges military parents with TBI may face in affect regulation, sleep disturbance, deficits in perspective taking, cognitive ability and executive functioning[1]:

Scenario 1

"Juan, where is Luis?" Juan's wife, Sofia was irritated. Without looking up from his tablet, Juan mumbled, "At Samuel's…some new video game." Exasperated, Sofia shook her head and exclaimed, "You're always on that tablet! We told Luis he couldn't hang out with friends until his homework is done. Why did you let him go?" Juan did not say anything, it was all he could do to not throw the tablet and storm out of the house. "Give me a break," he thought, "I just forgot."

[1] Each scenario is a composite created from the authors' clinical experiences with veteran parents with brain injury.

Scenario 2

Karen was finally settling into a fitful sleep when she heard her daughter, Jill, call out for her. "4:00 am? That cold got worse," she mumbled. Karen brought Jill tissues, water, and medicine. Since Jill was old enough to stay home sick by herself, Karen went on to work later that morning. After work Karen had a voicemail from the school; she had forgotten to call about the absence. "Oh great," she thought, "Now I'm off to see the principal. This stuff just did not happen before the IED explosion. Some sleep and a memory would be nice..."

Attachment-based parenting interventions may offer military parents with TBI an effective way to address parenting challenges that are associated with TBI and that are compounded by comorbidities and prior deployment stress. Attachment-based interventions are grounded in the idea that a safe, secure relationship with the attachment figure, often a parent, promotes healthy development and relational well-being. They emphasize the importance of the attachment figure(s) and their ability to respond in an emotionally attuned and consistent manner. As children develop secure attachment styles, they are able trust that their needs will be met and parents and children are able to have increasingly satisfying interactions. Interventions such as the Attachment and Biobehavioral Catch-up program, Theraplay, and Child-Parent Relational Therapy are evidence-based, endorsed by the Substance Abuse and Mental Health Service Administration (SAMHSA) [59], grounded in theory, and focus on enhancing the parent-child relationship in order to directly address the themes of separation and loss.

Attachment and Biobehavioral Catch-up

Attachment and Biobehavioral Catch-up (ABC) is a manualized program originally designed to be implemented in the home of either foster or birth parents. Focusing on the parents' behavior, ABC addresses the relational dimensions of synchrony, nurturance, stability of care, and commitment. Parents practice following their child's lead during sessions and a variety of video-recorded activities [60]. The ABC program provides an intensive intervention that addresses issues related to separation and interpersonal loss, events frequently experienced by military families and targets important relational dimensions. There is limited flexibility in conducting the intervention and therapists may encounter barriers related to confidentiality, liability, working in families' home, or videotaping sessions. Randomized control trials of this intervention with foster and birth parents referred by the child welfare system have demonstrated enhanced parental synchronous behavior and child attachment [60]. Another study demonstrated that Child Protective Services (CPS)-referred mothers who received the ABC intervention showed enhanced psychophysiological processing of emotional infant faces relative to mothers who received a control intervention [61•]. Previous research has shown the ABC intervention to be effective in enhancing attachment quality and cortisol regulation among children living with their CPS-referred birth parents [62].

Theraplay

Theraplay [63] is an evidence-based intervention focused on the relational dimensions of structure, engagement, nurture, and challenge. The goal is to strengthen attuned parent-child interactions through play, with the parent serving as a safe base for the child to experience security and organization. Enhancing the attachment bond leads to increased self-esteem, trust in others, and positive engagement for children. In Theraplay sessions, the child and the parent engage in playful activities and the parents are coached as they interact [63]. The intervention is flexible in terms of application and location of services.

Theraplay is considered an evidence-based intervention program by SAMHSA, given that peer review studies have been conducted and outcome data supports the benefits of Theraplay [64]. For example, following two intensive, 4-day interventions with Theraplay, children in long-term foster care in Finland who had experienced abuse, neglect, and/or loss showed a decrease of symptoms on the Child Behavior Checklist (CBCL) immediately post-intervention and then again after 6 months [65].

Child-Parent Relationship Therapy

Child-Parent Relational Therapy (CPRT) is an evidence-based therapeutic model based in filial therapy, child-centered play therapy, and attachment theory [66]. The parent-child relationship is identified as the mechanism for change and as an essential component for healthy child development. Goals for the parents are to develop the ability to respond to their children in an attuned, accepting, understanding and empathic manner, to enjoy their child and parenting, to gain confidence, and to better understand child development. A goal for the dyad is to have more satisfying parent-child interaction. Therapists receive training, supervision, and a manual prior to implementing the program [67•].

Knowledge of the impact of TBI and PTSD on parenting, coupled with an attachment framework, can provide a powerful explanatory tool for therapists' and offer a non-blaming way to assist veteran parents' understand their children's important needs for connection and reassurance.

To date, 36 studies, with a total of 1100 participants, have been completed examining CPRT's effects, 19 of which have an experimental design. Overall results demonstrate CPRT's effectiveness in reducing parental stress, improving parental empathy, and decreasing negative child behaviors. These effects have been demonstrated across a wide variety of populations and settings [67•].

Conclusions

Decades of research on attachment have resulted in several attachment-based interventions that can be applied to military families. With its focus on adaptive interaction and the bond between parent and child, attachment theory provides

a framework for repair when ruptures in relationships occur. And, not surprisingly given the epidemiologic knowledge base surrounding TBI, relationship difficulties do occur as a consequence of TBI symptoms. There is no universal or agreed upon therapeutic approach to undertake to address relational difficulties, or parenting difficulties, post-TBI. The attachment theory framework has a clear theoretical orientation and a rich literature that may be considered to develop TBI-specific intervention techniques for parenting difficulties post-TBI. There may be advantage in leveraging the rich scientific history in attachment-based assessment and intervention into parenting psychotherapy approaches that could be developed, taught, and ultimately disseminated.

In the past decade, VHA has sponsored the development and promulgation of a number of evidence-based interventions for conditions ranging from PTSD, to depression, to the Cognitive Behavioral Treatment of insomnia, and beyond [68] suggesting that there may be existing infrastructures to consider family-systems level interventions, grounded in attachment theory. Interventions guided by attachment theory vary in terms of flexibility, preferred location for services, and required family members present thereby offering degrees of flexibility for the clinician and family system. These degrees of freedom may also offer advantages to healthcare systems in terms of ease for professional training and program implementation. There may be promise for future research to explore the feasibility and efficacy of attachment-based interventions for veterans and their families who are challenged with parenting difficulties secondary to the long-term cognitive, emotional, and neurobehavioral symptoms of TBI.

Acknowledgements

The writing of this manuscript was supported in part by the Office of Academic Affiliations Advanced Fellowship Program in Mental Illness Research and Treatment; the Department of Veterans Affairs Mid-Atlantic Mental Illness Research, Education and Clinical Center; and the Hunter Holmes McGuire VA Medical Center.

The views expressed in this manuscript are those of the authors and do not represent the view of the federal government.

The authors wish to acknowledge Robert S. Marvin, Ph.D., and Craig Shealy, Ph.D. for their insightful feedback and guidance, which helped shape this manuscript.

Compliance with Ethical Standards

Conflict of Interest

Lillian Flores Stevens declares that she has no conflict of interest. Jennifer L. Hinesley declares that she has no conflict of interest. Anne Stewart declares that she has no conflict of interest. Kelly Atwood declares that she has no conflict of interest. Treven C. Pickett declares that he has no conflict of interest.

Human and Animal Rights and Informed Consent

This article does not contain any studies with human or animal subjects performed by any of the authors.

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Papers of particular interest, published recently, have been highlighted as:

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