

Postdeployment PTSD and Addictive Combat Attachment Behaviors in U.S. Military Service Members

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“Lance Corporal A” was a 21-year-old unmarried male infantry marine with no history of serious childhood adversities who deployed to Afghanistan for 7 months. Heavy combat exposure included several close-proximity blast explosions and witnessing multiple deaths and serious injuries of team members. Eight months after his return, LCpl A presented to the Concussion Clinic, Naval Hospital Camp Pendleton, with postconcussive symptoms and severe symptoms of posttraumatic stress disorder (PTSD) and depression. Over 9 months of treatment, he received evidence-based individual trauma-focused psychotherapy, medications (escitalopram, zolpidem), and an 8-week intensive outpatient combat-related PTSD program. Traumatic events and moral injury (defined as perpetrating, failing to prevent, or witnessing acts that transgress deeply held moral beliefs and expectations [1]) were addressed and the patient’s distress decreased, but he remained persistently hyperaroused and depressed, with a total score of 71 on the PTSD Checklist (DSM-IV version; range, 17–85) on completion of the intensive outpatient program.

Further questioning revealed that LCpl A was reliving stimulating, rewarding combat-related events accompanied by an “adrenaline rush” for long periods—which he described as “getting amped up.” Bored at work, he engaged in lengthy animated combat-related discussions with other veterans. When off-duty, he played the video game *Call of Duty* for hours; watched war documentaries, sometimes with knife in hand; looked at his deployment photos; and watched combat videos (his own and online), stimulating feelings of being back in Afghanistan.

He daydreamed about combat frequently—for example, imagining that he was going on patrol when putting his boots on in the morning. In daily 2-hour workouts, he played music from deployment and relived combat scenes; he felt that by doing so he could lift more weight. Overall, he estimated spending 10 or more hours a day with combat-related memories accompanied by an “adrenaline rush,” and he felt depressed and withdrawn when not engaging in these activities. He reported that his most exciting event was a firefight in which his unit took no casualties; he felt “invincible, on top of the world, powerful, like Superman!”

The interdisciplinary team discussed LCpl A’s case and agreed that his combat attachment behaviors should be a specific treatment focus, which the team addressed with a combination of modalities, including motivational interviewing (2) and eye-movement desensitization and reprocessing. This treatment ultimately resulted in reduction in hyperarousal responses to combat thoughts and memories and improvement in all spheres of functioning. LCpl A’s PTSD Checklist score 3 months later, at completion of treatment, was 52, and he reported that it felt “weird” to think about combat and not get “amped up,” but this no longer interested him. He left the military 2 weeks after completing this treatment.

The treating psychologist (M.S.C.) observed that LCpl A’s attachment to combat-related behaviors was not unique, and she received permission from the Naval Medicine West Institutional Review Board to collate clinical data on a sequential case series of active duty personnel with combat-related PTSD to systematically explore characteristics of combat attachment behaviors.

Discussion And Case Series

Studies have shown that about half of U.S. veterans who served in Iraq or Afghanistan report significant postcombat stress symptoms (3), and the prevalence of posttraumatic stress disorder (PTSD) averages 12%–13% in infantry personnel (4). Unfortunately, utilization of mental health services by combat veterans is relatively low (5). While evidence-based

treatments exist, treatment dropout significantly reduces efficacy. Even among veterans who complete treatment, significant PTSD symptoms often remain, and there are high rates of comorbidity and chronicity (6).

We hypothesize that the phenomenon of “combat attachment” represents a hidden, underrecognized variable in treatment outcomes. We define combat attachment as a pattern of habitually engaging in combat-related

See related features: **Clinical Guidance** (Table of Contents), **CME course** (p. 1253), and **AJP Audio** (online)

TABLE 1. Items on the Modified PTSD Checklist Rated at “Moderately” or Above by the PTSD Group (N=64)^a

Item	N	%
1a. Repeated exciting memories, thoughts, or images of combat	59	92.2
2a. Repeated exciting dreams involving combat	33	51.6
3a. Suddenly acting or feeling as if a positive/exciting combat experience were happening again (as if you were reliving it)	36	56.2
4a. Feeling excited when something reminded you of a combat event	50	78.1
5a. Feeling “a rush” of physical reactions (e.g., heart pounding) when something reminded you of a positive/exciting combat event	49	76.6
6a. Deliberately thinking or talking about positive/exciting combat experiences	47	73.4
7a. Seeking out activities or situations because they reminded you of positive/exciting combat experiences	27	42.2
8a. Remembering exciting combat events in especially vivid detail	42	65.6
1b. Repeated distressing memories, thoughts, or images of a stressful combat experience	57	89.1
2b. Repeated disturbing dreams of a stressful combat experience	44	68.7
3b. Suddenly acting or feeling as if a stressful combat experience were happening again (as if you were reliving it)	41	64.1
4b. Feeling very upset when something reminded you of a stressful combat experience	46	71.9
5b. Having distressing physical reactions (e.g., heart pounding, trouble breathing, sweating) when something reminded you of a stressful combat experience	51	79.7
6b. Avoiding thinking or talking about a stressful combat experience	51	79.7
7b. Avoiding activities or situations because they reminded you of a stressful combat experience	38	59.4
8b. Trouble remembering important parts of a stressful combat experience	43	67.2
	Mean	SD
Sum of raw scores for items 1a–8a (score range, 8–40)	25.3	6.7
Sum of raw scores for items 1b–8b (score range, 8–40)	26.4	6.3

^a The instructions were as follows: “Below is a list of behaviors that combat veterans may experience after deployment. Use the below scoring to indicate how much you experienced each item in the past month: 1–not at all, 2–a little bit, 3–moderately, 4–quite a bit, 5–extremely.”

experiences for considerable amounts of time, accompanied by feelings of excitement or euphoria and physiological hyperarousal, with impairment in social or occupational functioning.

Descriptions of this behavioral pattern exist from previous conflicts. Solursh (7), who interviewed 100 Vietnam veterans diagnosed with chronic PTSD, observed that these veterans experienced a cyclical pattern of reexperiencing memories of the exciting “high” or “rush,” followed by periods of feeling down, guilty, or emotionally numb; he termed this phenomenon “combat addiction.” Ninety-four of these veterans reported combat-related flashbacks or nightmares as exciting, powerful, arousing, or intensely pleasurable; 81 reported engaging in hunting, maintaining loaded weapons, or reenacting combat outdoors. Solursh suggested that this phenomenon may contribute to PTSD chronicity and treatment resistance.

Grigsby (8) used the label “combat rush” to describe the phenomenon of intense, pleasurable arousal that combat veterans experience when recalling exciting combat memories. Nadelson (9) found that a group of combat veterans diagnosed with PTSD experienced “positive excitement when reliving memories of mortal risk and killing,” which he called “attachment to killing.” These researchers postulated that noradrenergic hyperarousal and endorphin activation mediate these behaviors.

Considerable research supports the biological plausibility of these observations. Solomon’s (10) opponent-process theory posited that the “development of addictive behaviors, whether initiated by pleasurable or by aversive events,” includes

tolerance and withdrawal syndromes, likely mediated by endorphins. Pitman et al. (11) showed that pain tolerance was significantly increased in Vietnam veterans when they watched war movie clips compared with neutral clips; 15 minutes of war footage produced endorphin-mediated analgesia equivalent to 8 mg of morphine. Van der Kolk (12) referenced endorphins in explaining the compulsion to repeat traumatic scenarios, which he termed “addiction to trauma.” An increasing number of studies have demonstrated overlapping neurocircuitry and neurotransmitters involved in stress and addiction (13–16).

Vietnam veteran and author Karl Marlantes observed that “the least acknowledged aspect of war today is how exhilarating it is” and, furthermore, that “combat is the crack cocaine of all excitement highs—with crack cocaine costs” (17). Combat, an intense experience accompanied by extreme physiological arousal, may include both distressing and rewarding experiences. Clearly, the experience of helplessly watching a team member die is dramatically different from the experience of vanquishing the enemy in a firefight and saving a buddy’s life. Veterans report feeling fully alive and experiencing intense feelings of competence, leadership, and brotherhood during deployment.

Clinical Case Series. The case series of service members with PTSD was derived from 120 consecutive active duty marines and sailors in Camp Pendleton, California, who presented to the Concussion Clinic from April 2012 to April 2014 and were referred to the embedded clinical psychologist for evaluation and treatment of coexisting mental health symptoms. Of these patients, 14 had experienced concussions in

TABLE 2. Responses of the PTSD Group on the Combat Attachment Behavioral Worksheet^a

Item	Percent Endorsing	Hours per Day	
		Mean	SD
Page 1 ^b			
1. Daydreaming or thinking about combat when bored or when performing routine, everyday activities (daily chores, waiting for appointments, boring tasks at work)	100.0	2.6	1.5
2. Thinking about combat while driving	98.1	1.6	1.2
3. Talking with combat veterans about deployments	100.0	2.4	1.9
4. Going through your own combat photos/videos, or those online (Facebook or YouTube)	90.4	1.6	1.0
5. Playing combat-related video games (<i>Call of Duty</i> , <i>Battlefield</i> , etc.)	55.8	2.5	1.2
6. Watching war movies, combat-related TV shows, or reading books about war	92.3	2.4	1.3
7. Cleaning or operating weapons, going to the shooting range, or hunting	61.5	2.6	1.7
"When you add up the amount of time that you spend in each activity above, items 1–7":			
About how much total time did you spend on an average day during the week reexperiencing the adrenaline "rush" and exciting/positive feelings associated with combat?	100.0	5.5	3.2
About how much total time did you spend on an average day on the weekend reexperiencing the adrenaline "rush" and exciting/positive feelings associated with combat?	100.0	4.8	3.3
Page 2 ^c			
For a typical day that you had distressing experiences, about how much total time did you spend on an average day reexperiencing distressing physical reactions and distressing thoughts/images/memories of combat?	100.0	1.2	1.1

^a Percentages are based on a sample N of 52 or 53, except for the last item, which had a sample N of 50. Values for mean hours per day are based on data only for those patients who endorsed that activity.

^b Instructions for page 1: "For each of the listed behaviors, please indicate how many days out of the past 30 days you engaged in each behavior and reexperienced the adrenaline 'rush' and exciting/positive feelings associated with combat. Then, mark the average amount of time you engaged in that behavior on a typical day."

^c Instructions for page 2: "In order to get a balanced view of post-combat reactions, the following items refer to distressing events. Please indicate how many days out of the past 30 days that you reexperienced distressing physical reactions (heart pounding, trouble breathing, sweating, etc.) and distressing thoughts/images/memories about combat. Then, for the days that you had distressing memories, indicate the average amount of time a typical experience lasts as well as the total amount of time you spent having these experiences on a typical day."

civilian settings, and five did not complete the initial assessment with the embedded psychologist. The remaining 101 patients included 64 who were diagnosed with PTSD per electronic medical records (the focus of this series). These 64 patients, of whom 60 were marines and four were Navy medics embedded with marine units, all of whom returned from Iraq and/or Afghanistan, were comparable to other clinical populations of personnel deployed in Iraq and Afghanistan (4). Their mean age was 28 years, they had a mean of 2.4 deployments, and their mean high score on the PTSD Checklist was 64.

Patients completed a modified version of the PTSD Checklist, which included an additional eight questions mirroring the first eight questions referencing a "stressful" experience but reworded to refer to "positive/exciting" combat experiences (Table 1). Additional structured clinical worksheets, developed organically to better understand the clinical phenomenon, asked patients about time spent engaging in activities involving stimulating, rewarding combat-related experiences combined with an "adrenaline rush" (Table 2) and to explore whether these behaviors shared characteristics with substance dependence (Table 3), using items adapted from the DSM-IV-TR criteria for substance abuse or dependence and gambling disorders. The sample of patients who completed the clinical worksheets was somewhat smaller (N=50–54) than the sample of those who completed

the modified PTSD Checklist (N=64), because of the later development and evolution of these worksheets over time.

Similar, but opposite, responses were demonstrated for reexperiencing and avoidance items and corresponding exciting, positive items (Table 1). For example, 89% endorsed "repeated distressing memories, thoughts, or images of a stressful combat experience," while 92% endorsed "repeated exciting memories, thoughts, or images of combat"; likewise, 80% endorsed "avoiding thinking or talking about a stressful combat experience," while 73% endorsed "deliberately thinking or talking about positive/exciting combat experiences." Cronbach's alpha values were 0.86 for the eight modified exciting/positive items (items 1a–8a) and 0.79 for the eight original items (items 1b–8b).

As shown in Table 2, patients spent a large amount of time engaged in activities that produced stimulating, rewarding feelings associated with combat. Patients reported a mean of 2.5 hours per day engaged in combat-related video games, 2.4 hours watching war-related movies or TV shows or reading about war, and 2.4 hours talking with others about combat, accompanied by the "adrenaline rush." Overall, these patients reported a mean of 5.5 hours/day during the work week, and 4.8 hours/day on weekends, engaged in combat attachment behaviors. In contrast, they reported a mean of 1.2 hours/day reexperiencing distressing combat-related memories (or, as several patients said, "as little as possible").

TABLE 3. Responses of the PTSD Group (N=51–54) on the Combat Attachment Impact Worksheet^a

Item and Summary	Endorsed at "Moderately" or Above		Endorsed at "Quite a Bit" or Above	
	N	%	N	%
Items				
1. Difficulties fulfilling obligations in your career/occupation/schoolwork (e.g., missing days, being late, not motivated, concentration problems, not completing tasks)	38	71.7	26	49.1
2. Difficulty fulfilling obligations in your family/home life (e.g., conflict with family members, irritability or neglect of spouse/children, withdrawal)	39	73.6	28	52.8
3. Continuing to engage in exciting/positive combat-related activities despite negative consequences (e.g., arguments, mood swings, isolation)	43	82.7	31	59.6
4. Having to spend more time or increase the intensity (up the ante) of exciting/positive combat-related activities to experience the same "high"	41	75.9	22	40.7
5. Finding that the same amount or intensity of exciting/positive combat-related activities doesn't produce the same (desired) result	39	76.5	20	39.2
6. Feeling restless, irritable, or depressed when unable to engage in exciting/positive combat-related activities, or when trying to cut down or stop engaging in them	46	85.2	32	59.3
7. Finding substitutes if you couldn't spend time engaging in exciting/positive combat-related activities (e.g., excessive working out, speeding in your vehicle, picking a fight)	42	77.8	29	53.7
8. Trying to cut down or stop engaging in exciting/positive combat-related activities	18	34.6	8	15.4
9. Spending a great deal of time engaged in or preoccupied with exciting/ positive combat-related activities	37	69.8	12	22.6
10. Covering up or keeping secret the amount of time you spend engaged in exciting/ positive combat-related activities	37	69.8	28	52.8
Summary				
Endorsed five or more items from items 1–10	47	88.7	29	54.7
Endorsed at least one physiological dependence item, either a tolerance or a withdrawal item (from items 4–7)	53	98.1	45	83.3
Endorsed at least one tolerance and at least one withdrawal item (from items 4–7)	44	81.5	24	44.4

^a The instructions were as follows: "Below is a list of statements that may be related to engaging in exciting/positive combat thoughts and activities, accompanied by the 'adrenaline rush.' Please rate each item according to how you experienced each in the last 12 months (or since returning from combat, if less than 12 months) because of engaging in exciting/positive combat thoughts and activities. (1—not at all, 2—a little bit, 3—moderately, 4—quite a bit, 5—extremely)." Items 4 and 5 were tolerance items, and items 6 and 7 were withdrawal items. Percentages are based on Ns for each item.

There was also high endorsement of items related to addiction to combat attachment behaviors (Table 3) (Cronbach's alpha=0.69), mostly ranging from 70% to 85%. More than 98% of patients endorsed at least one item of dependence (either tolerance or withdrawal), and more than 88% endorsed five or more of the 10 items. Percentages remained high when endorsement ratings were restricted to 4 (quite a bit) or 5 (extremely) on the 5-point scale.

Combat Attachment Phenomenology. Clinical phenomenology consistently observed in this case series included the following:

1. Distressing and rewarding combat-related reexperiencing was intertwined, involving both avoiding distressing experiences and gravitating toward rewarding aspects of combat experiences.
2. Rewarding combat-related reexperiencing varied from memories of extreme bravery and competence to camaraderie and humor; it also included imagining combat-related scenes, such as novel scenarios overseas, or responding to threats in the United States.

3. Activities such as playing video games and watching war movies changed after deployment, with markedly higher physiological arousal; the activities became more frequent, intense, and compulsively serious, with corresponding reductions in social interaction and enjoyment.
4. Most combat veterans appeared to be unaware of the degree to which they engaged in combat attachment behaviors, and they reported difficulty not engaging in these behaviors. They described "drifting" into or "finding" themselves engaged in these behaviors without conscious intention. For example, one patient reported that after finding himself cradling his assault rifle while watching a war movie, he put the rifle down, only to find himself holding it again minutes later.
5. Most patients were unaware of potential consequences of their behaviors and thus had little motivation to decrease them.
6. Combat attachment highs were consistently followed by depressive lows, consistent with Solursh's observations (7).
7. Most importantly, many combat veterans reported feeling confusion and shame for reliving combat events, and questioned their character. One veteran of three deployments stated, "I think about combat all the time. I feel trapped."

These observations may be better understood by considering research findings that extreme hyperarousal gives rise to recurrent and intrusive memories for both “negative” and “positive” events that are involuntary as well as intentional (18, 19). Furthermore, the subjective interpretation of an experience (negative versus positive) often depends on context and perceived control (20, 21). Initially terrifying situations, such as skydiving, become incredibly exciting and enjoyable when individuals repeat the activity and master their fear (10). Although some combat veterans may have premorbid characteristics of sensation seeking, research indicates that risk taking increases significantly after deployment (22); DSM-5 includes this as a PTSD symptom.

Conclusions

In this case and clinical series of combat veterans with PTSD referred from the Concussion Clinic at Naval Hospital Camp Pendleton, we found that many patients reported habitually engaging in stimulating, rewarding combat-related activities, which were accompanied by strong physiological hyperarousal. This was closely associated with distressing reexperiencing of combat events, and it suggests a bivalent nature to combat-related PTSD. Patients reported engaging in combat attachment behaviors for 5 hours/day on average, more frequently than negative reexperiencing symptoms, and it appears to reflect an addictive pattern of behavior that is associated with impairment.

Limitations of these findings include their exploratory nature, based on clinical observations from only one referral source—a concussion clinic; the lack of a control group; and use of nonvalidated worksheets. However, these patients were similar to those from other mental health settings treating combat veterans. Concussion-related symptoms are commonly comorbid with PTSD in combat veterans; many studies have shown that deployment-related concussions are strongly associated with PTSD, likely because of the traumatic context in which these concussions occur (23). Although the worksheets were developed for the purposes of better categorizing the phenomenon of combat attachment, they included modifications to well-validated measures as well as several ways of looking at the phenomenon that showed consistency across responses, including subjective perceptions (e.g., “exciting/positive”), as well as measures of time spent engaging in activities and addictive behavioral patterns.

Combat attachment behaviors may represent a significant variable contributing to suboptimal treatment utilization and outcomes, but barriers may impede exploration of this area, particularly negative judgments concerning these behaviors, by both clinicians and patients. As Solorsh stated, “Our history-taking may discourage the reporting of the intensely pleasurable aspects of our patients’ experiences and behaviors,” which may result from “our own difficulty as clinicians in accepting that aggression and violence might be

(commonly) pleasurable” (7). Findings from this observational series suggest that combat attachment behaviors may be more important than is currently appreciated in understanding the broad dimension of PTSD. While assessment measures for these behaviors require refinement and validation, this report represents a first step in elucidating this potentially important and underrecognized clinical phenomenon, with implications for developing and disseminating more effective treatment strategies.

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