

Adaptive Disclosure: An Open Trial of a Novel Exposure-Based Intervention for Service Members With Combat-Related Psychological Stress Injuries

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We evaluated the preliminary effectiveness of a novel intervention that was developed to address combat stress injuries in active-duty military personnel. Adaptive disclosure (AD) is relatively brief to accommodate the busy schedules of active-duty service members while training for future deployments. Further, AD takes into account unique aspects of the phenomenology of military service in war in order to

address difficulties such as moral injury and traumatic loss that may not receive adequate and explicit attention by conventional treatments that primarily address fear-inducing life-threatening experiences and sequelae. In this program development and evaluation open trial, 44 marines received AD while in garrison. It was well tolerated and, despite the brief treatment duration, promoted significant reductions in PTSD, depression, negative posttraumatic appraisals, and was also associated with increases in posttraumatic growth.

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APPROXIMATELY 10–20% OF THE 2 MILLION U.S. troops who have served in the wars in Afghanistan and Iraq experience significant mental health

difficulties including PTSD, depression, and anxiety (e.g., Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004). Because PTSD and other mental health problems among veterans of war are pernicious and disabling (e.g., Dohrenwend et al., 2006), a major public health challenge is to identify ways to intervene as soon as feasible to prevent spiraling dysfunction, premature discharge, and chronic problems (Litz & Bryant, 2009).

While limited, evidence-based mental health treatment (cognitive-behavioral therapy; CBT) may be available to some service members while deployed (see Cigrang, Peterson, & Schobitz, 2005), for most service members the most viable and prudent time to provide early treatment is postdeployment, while individuals are in garrison (i.e., at their home base). During this time, however, service members continue to be busy with demanding training regimens and preparations for subsequent deployments that absorb a good deal of attention and mental effort. Consequently, service members' needs and availability may differ from that of patients receiving trauma-focused CBT in civilian and veteran outpatient settings. Service members' time is limited and their inclination to focus on emotional and psychological matters is constrained by the understandable need (and social and occupational pressures) to "carry on."

Although there is ample evidence that CBT strategies such as prolonged exposure (PE) and cognitive-processing therapy (CPT) are effective PTSD treatments (see Foa, Keane, Friedman, & Cohen, 2009), these approaches do not explicitly consider the unique cultural and contextual elements of military trauma, the phenomenology of combatants or the clinical issues that arise from combat and operational stressors, losses, traumas, and experiences that are morally compromising. Although there have been no controlled clinical trials of CBT among active-duty service members, the effect sizes in PTSD treatment trials targeting veterans with chronic PTSD are consistently smaller relative to civilian trials (e.g., Monson et al., 2006; Ready et al., 2008; Schnurr et al., 2007). In our opinion, this may, at least in part, be attributed to the fact that there are significant missing elements in the current CBT care models with respect to treating war-related traumatic stress responses.

When considering possible limitations in the application of current CBT treatment models, several factors become apparent. First, we posit that clinical trials of CBT for complex war-related PTSD may be disappointing, in part, because these models of treatment are primarily based on the fear conditioning model, which conceptualizes trauma as a high fear-inducing, life-threatening event (e.g.,

Friedman, 2006). We argue that existing CBT may not sufficiently address the needs of war veterans because the fear conditioning and learning model does not sufficiently explain, predict, or address the diverse psychic injuries of war (e.g., Maguen et al., 2010; Nash, 2007). Service members not only face life-threatening, high fear-based trauma; they are also exposed to horrific losses and morally injurious experiences (Nash, 2007).

Loss as a result of violence has phenomenology, course, and maintaining factors that are distinct from life-threat-related traumas (Prigerson et al., 2009). Complicated or prolonged grief reactions stemming from traumatic losses share some symptomatic and etiological features with PTSD, but have been shown to be distinct in a number of ways that have important implications for treatment. Specifically, although avoidance is prominent in PTSD and is central to exposure-based treatment approaches, complicated grief reactions are often characterized by seeking out reminders of the deceased and ruminative tendencies (Prigerson & Jacobs, 2001). In fact, avoidance symptoms have been found to be only modestly predictive of traumatic loss-related distress (see Lichtenthal, Cruess, & Prigerson, 2004, for an excellent review of these issues). If, as preliminary studies suggest, individuals suffering primarily from complicated grief and loss reactions are not especially avoidant, a treatment utilizing an unadulterated, conventional exposure approach may not be optimal for such individuals. Conventional exposure therapy is the treatment of choice for service members who experience life-threat-related fear and anxiety-based symptoms. We argue that for service members suffering from traumatic loss (in addition to or instead of PTSD), exposure-based techniques need to be augmented with techniques designed explicitly to target other variants of posttraumatic and loss-related distress.

Combat also poses unique moral and ethical challenges, some of which have been hypothesized to create lasting psychological harm (Litz et al., 2009). "Moral injury" is a term used to describe a syndrome of shame, self-handicapping, anger, and demoralization that occurs when deeply held beliefs and expectations about moral and ethical conduct are transgressed. It is distinct from PTSD insofar as it is also not inherently fear based; rather, during war, moral injury can arise from killing, perpetration of violence, betrayals of trust in leaders, witnessing depraved behavior, or failing to prevent serious unethical acts (Nash, 2007). Separable from life-threat trauma and complicated grief reactions, moral injury also requires a shift in thinking about care.

To this end, we created and pilot tested an intervention that would extend existing well-established treatments for life-threat-related fear-based events to directly target complications related to moral injury and traumatic loss in active-duty service members. In the treatment development process, we needed to consider different mechanisms of change, treatment targets, and intervention strategies. Another challenge was to accommodate the exigencies of active-duty military life, and the unique phenomenology of war trauma among service members, who may be struggling yet preparing for their next deployment.

WHAT IS ADAPTIVE DISCLOSURE?

Adaptive disclosure (AD) is a manualized therapy that we developed specifically for active-duty service members (Steenkamp et al., 2011). We selected the term “adaptive disclosure” for two reasons. First, we wanted a name for the approach that did not employ the terms “treatment” or “therapy” because of concerns that this would deter some service members who are reluctant to medicalize their problems. Second, the term “adaptive disclosure” captures a core goal of the therapy, namely, sharing and processing memories of war-zone experiences in a therapeutic manner. In this sense, the approach is a hybrid of existing CBT strategies, namely, a form of exposure therapy (imaginal emotional processing of a seminal event) that also incorporates some techniques used in other cognitive-based treatments (e.g., CPT). However, AD also extends these strategies by packaging and sequencing them specifically to target the three most injurious combat and operational experiences, namely, life-threat trauma, loss (principally traumatic loss), and experiences that produce moral injury (i.e., distress related to violation of one's moral code) and inner moral conflict.

The therapy consists of six 90-minute weekly sessions, considerably shorter than standard CBT, in order to accommodate service members' time constraints and potential for deployment or relocation. Because active-duty military personnel in garrison are at various stages of preparing for their next deployment, conventional treatments that typically last several months may be counter-indicated. This is especially true to the extent that there are delays in recognizing the need for or accessing mental health services upon returning from deployment. Accordingly, although we recognized from the outset that optimal therapy for many marines would entail more than six sessions, we were charged with the task of developing a brief treatment that could be delivered in garrison for active-duty personnel readying for deployment and

therefore unable to receive an intervention of longer duration.

The first session is used to evaluate service members' current status, establish the event to be targeted (the most currently distressing, haunting, and impairing), educate the patient about AD, and establish realistic goals. The middle four sessions incorporate an imaginal exposure exercise and are devoted to emotionally processing the war memory, unearthing various elements and associations, as well as helping veterans to articulate their raw uncensored beliefs about the meaning and implication of the experience (e.g., shame, self-loathing, perceptions that one will forever be defined by a single egregious act). If the core event is life-threat based, these sessions are very similar to PE. However, in cases of moral injury or traumatic loss, after the raw emotional processing of the event, separate “experiential breakouts” are employed. In these “breakouts,” participants are encouraged to engage in imaginal conversations with a key “relevant other” such as the deceased person being grieved or a respected and caring moral authority (explained below). The last session is used to review experiences, underscore positive lessons learned, and to plan for the long haul in light of what was learned or at least touched upon.

FOUNDATIONAL ASSUMPTIONS FOR ADAPTIVE DISCLOSURE

AD was predicated on a number of core assumptions. First, we based our approach on the premise that when treating active-duty troops in garrison, the goal of the therapy should be to create a foundation for recovery by presenting the treatment as an introduction or trial of a different way of dealing with the psychological, behavioral, and spiritual legacy of combat and operational events, rather than an end-point or an exhaustive treatment. We believe that the complexity of the life-course challenges related to exposure to war, traumatic loss, and moral injuries and the extensive treatment necessary to fully address these issues would be difficult to sustain while service members are training or preparing for future deployments.

Second, we assumed that active-duty service members are not well versed in disclosing their experiences. We expected that their narratives might be disorganized, limited, or that there may be shame- or guilt-based aspects of their experience that may take time to acknowledge, especially without a trusting therapeutic relationship. Yet, we also knew that we did not have a lot of time to do the preparatory relationship and trust building. We hoped that honoring, respecting, and understanding the military ethos, utilizing a “no-nonsense, let's

get right to it” experiential approach, and targeting issues that would resonate deeply with stress-injured service members would create a trust that would otherwise take much longer to cultivate.

Third, in terms of cognitive therapy approaches, we assumed that we needed to get service members to increase their awareness and insight, and modify problematic beliefs about combat and operational traumas, losses, and moral injuries. We were especially keen on employing strategies to help service members uncover and clarify the meaning and implication of the experiences that haunt them. We wanted them to think about the long-term implications of damning and self-destructive ways of construing the meaning of the events, in terms of their identity and behavior as service members, veterans, husbands or wives, and so forth.

To advance these goals, we developed strategies to promote accommodation of the meaning and implication of combat and operational experiences by facilitating “hot-cognitive (emotional, experiential, provocative) processing” (e.g., Greenberg & Safran, 1989) of injurious events through a combination of imaginal exposure and subsequent cognitive restructuring and meaning making (akin to the postexposure cognitive-restructuring dialogue in PE). We hypothesized that service members would be more open to alternative ways of construing their experience if they were in a highly emotional state as a result of just sharing a poignant and painful deployment experience. In the gestalt therapy tradition, such “hot cognition” allows feelings, desires, and needs to be revealed (e.g., Greenberg & Safran, 1989). It fosters thinking that is motivated, engaged, and focused. In a hot-cognitive frame of mind, a person is less motivated to analyze critically; it promotes emotion-driven evaluations, which we argue are more open to change, as they are not based on reason. This approach also helps to circumvent the defensiveness that may arise when service members are asked to think differently about a situation or event by a caregiver who does not share their experience or background.

Finally, we also assumed that repeated exposure to memories of traumatic loss, acts of moral transgression, or betrayal experiences without a strategic therapeutic frame for corrective and countervailing attributions and appraisals, and without fostering corrective, and especially forgiveness-promoting, experiences inside and outside therapy would be counterproductive at best and even potentially harmful. Our viewpoint was that the most efficient use of time in between sessions is to foster reparation, reengagement, and reconnection. Homework, when feasible to administer, focused on these themes.

There was no precedent to appeal to in the context of trying to heal the wounds of war-related moral injury, such as betrayal by leader decisions with lethal consequences, or perpetrating unnecessary and brutal acts of violence. In our experience working with service members, these experiences are the most problematic and yet, most therapists do not routinely treat perpetration-based moral injury in PE or CPT frameworks. It is likely that if CPT was utilized to target moral injury, the premise would be that it is the distorted beliefs about moral violation events that are the source of the ensuing misery. This, however, may not be the case. In the case of morally injurious combat and operational experiences, there are instances where judgments and beliefs about the transgressions may be quite appropriate and accurate and yet excruciating. Furthermore, attempts to attribute these actions to the “context of war,” even when appropriate, may ring hollow and/or undermine a therapist's credibility to a service member steeped in a culture of personal responsibility. Thus, different techniques must be used to address morally injurious military events.

In our approach, we ask morally injured marines to have a dialogue in imagination with a forgiving and compassionate moral authority. In this therapist-guided conversation, patients disclose what they have done or how they were harmed by betrayal and what they see as the implication of such experiences (e.g., self-handicapping, self-loathing, shame, externalizing behaviors). The goal is to promote new learning in the form of corrective feedback about the appraised implications and related messages about forgiveness, compassion, the possibility of repair, and so forth. The approach is designed to facilitate perspective taking and to shift beliefs from blameworthiness, which may be objectively true, to forgiveness and compassion and to accommodate the potential for living a moral and virtuous life going forward. Stated differently, the modal approach to cognitive restructuring is to challenge irrational thoughts that may be giving rise to distress. In the case of moral injury, appraisals about the reprehensibility of the act and the degree to which it violates acceptable moral standards may be entirely accurate. Cognitive work in AD differs in that the primary focus is promoting self-forgiveness and moving forward rather than disputing the rationality of appraisals about the nature of the act.

CLINICAL DEMONSTRATION OF AD

The development and initial clinical demonstration of AD was funded by the Navy Bureau of Medicine and Surgery. The funding was provided by the

Department of Defense to stimulate novel interventions designed to promote psychological health, not for research purposes but rather, program development and evaluation in an established clinical setting. Below we report the results of this initial clinical feasibility and proof of concept project. Our goal was to discern whether AD is associated with symptom improvement, is well accepted and tolerated by marines, and can be implemented in an active-duty context given the constraints and practical limitations of garrison life. Accordingly, this investigation was an uncontrolled, open clinical demonstration of AD. Promising results would justify empirical evaluation of AD. We received internal review board approval to analyze and publish the anonymized program evaluation results.

Method

PARTICIPANTS

Participants were 44 active-duty marines and Navy Corps personnel stationed at Camp Pendleton in California. Participants were referred by Camp Pendleton mental health clinic staff (psychiatrists, psychologists, and licensed clinical social workers) on the basis of putative PTSD. Forty-two patients were male and two were female. The majority (58%) were Caucasian, 15% of patients were Hispanic, 8% were African American, 4% were Asian/Pacific Islander, 4% were Native American, and 11% did not provide ethnicity information. Seventy-three percent of patients were between the ages of 18 and 29, an additional 14% were 30–39, and the remaining 13% of participants were 40 years of age or older. In terms of rank, 16% were Junior Enlisted service members (E-1–E-3), 59% were Non-Commissioned Officers (E-4–E-5), 21% were staff Non-Commissioned Officers (E-6–E-9), and the remaining 4% were Officers (O-1–O-4). In terms of primary focus of AD treatment, 13 individuals were treated for symptoms primarily related to fear-inducing life-threatening or disgust-related traumatic events (i.e., more prototypical PTSD), 19 were treated for distress related primarily to moral injury, and 18 for distress related primarily to traumatic loss. The sum of these numbers slightly exceeds 44 because 6 individuals were experiencing PTSD and either moral injury or traumatic loss in equal measure.

Of those initially referred for AD, 25% started but did not complete the treatment, which is comparable to attrition rates for conventional PTSD treatments (Bradley, Greene, Russ, Dutra, & Westen, 2005). Dropouts did not differ appreciably from completers on initial symptoms or presenting issues (i.e., PTSD, moral injury, traumatic loss). Further, there were no differences in

initial symptoms or outcomes for participants as a function of type of presenting issues (all p 's > .30), so data were analyzed in aggregate. Forty-six participants completed treatment but 2 were dropped from analyses (resulting in a final sample of 44 completers) as a result of reporting initial (i.e., baseline) symptom minimization in the middle of treatment or discussing nontraumatic events during initial sessions. More specifically, the marine who was dropped from analyses for symptom minimization reported at the end of treatment that he intentionally denied symptoms at baseline that he was actually experiencing as he was uncomfortable acknowledging distress at that point. Although he reported subjectively that he benefited a great deal from therapy, we could not accurately quantify his improvement due to acknowledged symptom suppression at baseline. Importantly, results remained unchanged with the exclusion of these data—no new results became significant and all effect sizes were in the medium-to-large range with and without the inclusion of these data.

There were minimal missing data among treatment completers (i.e., less than 5%). Instances of missing data were conservatively handled by substituting a subject's mean value for the missing score on that measure. No differences in outcomes resulted from this strategy. More specifically, all significant findings remained significant when missing values were replaced, and no new significant findings emerged as a result of this strategy. Similarly, effect sizes were nearly identical (e.g., Cohen's d for PTSD symptom improvement was .85 without replacing missing values and .79 when missing data were imputed).

MEASURES

PTSD Checklist–Military Version

The PTSD Checklist–Military Version (PCL-M) is a 17-item self-report measure of DSM-IV PTSD symptoms. It exhibits excellent internal consistency, temporal stability, and converges strongly with CAPS diagnoses (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996; Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

Patient Health Questionnaire

The Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, & Williams, 1999) is a brief measure of the severity of depressive symptoms. It exhibits excellent agreement with independently derived mental health professionals' depression diagnoses. Because a validated measure of moral injury did not exist at the beginning of this pilot study, we used symptoms of depression as a proxy for distress resulting from traumatic loss and moral injury.

Alcohol Use Disorders Identification Test

The Alcohol Use Disorders Identification Test (AUDIT) is a brief paper-and-pencil measure of problematic alcohol consumption use. It exhibits high internal consistency, temporal stability, and successfully distinguishes individuals diagnosed with alcohol dependence from nondrinkers (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). Because alcohol is a common means by which service members cope with or otherwise avoid thinking about war experiences, the AUDIT was included to evaluate whether AD reduced this problematic behavior.

Posttraumatic Cognitions Inventory

The Posttraumatic Cognitions Inventory (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999) was used to assess changes in trauma-related cognitions. This measure was used to index problematic appraisals that are central to moral injury and traumatic loss. The PTCI assesses three categories of beliefs known to be associated with poorer posttraumatic adjustment—negative beliefs about self, negative beliefs about the world, and self-blame. Internal consistency is excellent, it is very stable over a 3-week retest interval (.80) and is strongly associated with PTSD, depression, and anxiety (Foa et al., 1999). The PTCI was selected as an outcome measure in an attempt to index the types of problematic appraisals that we hoped would be successfully targeted by AD.

Posttraumatic Growth Inventory

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to assess the degree to which marines' perceptions of personal strength and growth occurred over the course of therapy. The PTGI consists of 21 items that inquires about new possibilities, relations with others, personal strength, spiritual change, and appreciation of life posttrauma. The measure has been found to be stable, internally consistent, and valid (Tedeschi & Calhoun, 1996).

Finally, to meet one of the key objectives of this program evaluation, we assessed marines' satisfaction with AD. Accordingly, we developed a satisfaction measure that was administered to all participants at the conclusion of treatment. The Post-Intervention Satisfaction Measure (PISM) consisted of the seven items reflected in Table 2. Each item was rated on a scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

PROCEDURE

Participants were active-duty marines who (a) deployed at least once to Iraq or Afghanistan, (b) reported symptoms consistent with a diagnosis of

PTSD related to a distressing deployment event or set of events, and (c) had received an initial mental health evaluation at Camp Pendleton. Measures were completed at baseline and at the concluding session.

Therapists were two female postdoctoral fellows with Ph.D.'s in clinical psychology and two licensed clinical psychologists. All had extensive previous experience working clinically with military populations in veteran's administration (VA) settings. In addition to reading and receiving training in the AD treatment manual, weekly phone conferences with treatment developers were conducted throughout the course of the intervention to provide clinical supervision and consultation for each AD case. Therapists also received weekly, individual face-to-face supervision with a doctoral-level clinical psychologist who helped to develop AD.

Inclusionary criteria included current diagnoses of PTSD (with allowance for other co-occurring disorders such as depression, anxiety, and substance abuse), no deployment anticipated within the next 2 months (allowing time for completion of the intervention), and willingness to commit to 6 weekly sessions of 90 minutes duration each. Exclusion criteria included serious suicidality or homicidality that required emergent treatment within the past 3 months, psychotic disorders, or bipolar type I disorder not related to combat stress. These determinations were made via interviews conducted by doctoral-level psychologists providing AD treatment. Eleven individuals were referred for possible AD treatment but were ineligible due to these criteria.

Results

Because of the single-group, pre-post design, paired-sample *t* tests were conducted, with symptom improvement magnitude expressed with Cohen's *d* statistic. As depicted in Table 1, marines

Table 1
Pretreatment and Posttreatment Outcome Data

Measure	Pretest Mean	Posttest Mean	<i>t</i>	<i>p</i>	<i>d</i>
PCL-M	60.13	50.55	5.27	.001	.79
PHQ	14.32	10.97	4.66	.001	.71
AUDIT	7.80	6.49	1.48	.15	.23
PTCI-Self	3.40	2.87	3.67	.001	.57
PTCI-World	5.10	4.39	4.53	.001	.69
PTCI-Self-Blame	2.51	2.31	1.50	.14	.23
PTCI Total	10.95	9.48	4.13	.001	.64
PTGI	2.28	2.58	2.05	.04	.33

Note. PCL-M=PTSD Checklist-Military Version; PHQ=Patient Health Questionnaire; AUDIT=Alcohol Use Disorders Identification Test; PTCI=Posttraumatic Cognitions Inventory.

receiving AD exhibited significant improvement with respect to PTSD, depressive symptoms, and relevant posttraumatic cognitions indexed by the PTCI. Although the self-blame subscale of the PTCI was only marginally significant ($p = .14$), the scales assessing negative beliefs about the self, negative beliefs about the world, and total (i.e., aggregate) PTCI scales exhibited significant decrements over the course of treatment. Further, effect sizes were large for PTSD, depression, and posttraumatic cognitions generally. There was also a significant increase in posttraumatic growth that may be characterized as a small to medium effect size. Only the AUDIT failed to evidence significant improvement over the course of AD treatment. AUDIT scores decreased over the course of treatment and a smaller percentage of marines met or exceeded the cutoff score of 8, which is indicative of alcohol use disorders by the end of treatment (27.3%) than was the case before treatment (34.1%). Nevertheless, these results were not statistically significant ($p < .15$). Table 2 depicts marines' ratings of satisfaction with AD. As is evident in the table, all items were rated above the neutral point of 3 and nearly all items achieved mean ratings between 4 (*agree*) and 5 (*strongly agree*).

Discussion

The findings indicate that complex combat and operational stress injuries can be effectively treated in garrison. Furthermore, they indicate that a comparatively brief, early intervention can result in substantive symptomatic improvements among active-duty service members, who are likely to be deployed in the near future. It was particularly noteworthy that AD was well tolerated by marines

as evidenced by relatively modest attrition and their strong endorsement of the intervention. Although this program development and evaluation project represents only an initial step in the validation of AD, the fact that the effect sizes were large and the attrition rate was comparable to established evidence-based treatments for PTSD, despite the much briefer duration, is particularly encouraging.

The magnitude of PTSD improvement associated with AD in this study ($d = .79$), though large, is not of the magnitude associated with existing CBT treatments for PTSD ($d = 1.43$) based on a recent meta-analysis of PTSD treatment (Bradley et al., 2005). A few interpretive considerations are important to note. First, treatments included in that meta-analysis were, on average, nearly twice as long in duration as AD (16 hours and 9 hours, respectively). Second, though a minority of the studies in that meta-analysis did utilize combat-exposed samples with chronic PTSD, those studies were not conducted with active-duty military and it is unclear whether complicating issues of moral injury and traumatic loss were represented. Existing CBT treatments may have fared well in targeting these issues, but this is unknown. Finally, the intent behind the development of AD was not to replace existing evidence-based treatments for PTSD. Rather, the intent was to more fully address associated variants of distress such as moral injury and traumatic loss in service members exposed to combat. It should be noted that when marines present primarily with anxiety-based distress reactions, AD is similar to prolonged exposure therapy in form and function. There was no expectation a priori that AD would outperform PE or CPT with respect to PTSD symptoms, especially in light of the fact that AD is only six sessions in length. The *potential* superiority of AD is a more explicit and systematic focus on loss and moral injury—sequelae that can be addressed via other approaches but are not sufficiently or explicitly designed to do so in the context of war trauma. Although PTCI gains attest to the apparent efficacy of AD in addressing problematic posttraumatic thoughts, future controlled trials are required to determine whether AD is more advantageous in this regard.

With respect to patients' satisfaction with AD, it appears that marines had a very positive experience. Specifically, on average, marines agreed or strongly agreed that the intervention was helpful, helped them feel more in control, that it was tailored to their individual needs, that they would use an intervention like AD as needed following future deployments, and that they would recommend this intervention to other marines. The highest overall satisfaction rating

Table 2
Postintervention Satisfaction Measure Means and Standard Deviations

Item	Mean	SD
1. This intervention was helpful.	4.38	.74
2. I would recommend this intervention to other marines.	4.50	.56
3. This intervention helped me feel more in control.	4.09	.75
4. This intervention helped resolve emotional difficulties I had been experiencing.	3.91	.90
5. This intervention was long enough to make a significant improvement in my life.	3.33	1.14
6. I would use an intervention like this to address emotional difficulties following future deployments.	4.12	.86
7. The intervention was tailored to my individual needs.	4.03	.76

Note. Means represent scores ranging from 1 (*strong disagreement*) to 5 (*strong agreement*).

was for the latter item. This suggests to us that the explicit incorporation of Marine culture and values into the treatment manual and approach had a positive impact.

The only items failing to achieve a mean rating of 4 or higher—although still on the “agree” end of the scale—were the degree to which the intervention resolved emotional difficulties and whether the intervention was long enough to make a significant improvement in the marines’ life. From the outset we recognized that the duration of AD would need to be limited so that it could be implemented in garrison. Therapists repeatedly stressed throughout the intervention that AD represented the beginning of a process that the marine would need to continue after the formal conclusion of the intervention. It was emphasized that the goal of the treatment was to “plant seeds” and provide a tangible example of how additional difficulties could be addressed in the future. In spite of this understanding from the outset of treatment, in many instances, both therapists and patients agreed that additional sessions could have been helpful. Consequently, we have added two additional sessions to the AD manual to be tested in an upcoming randomized controlled trial of AD.

This investigation is not without limitations. The most prominent limitations, in addition to the relatively small sample size and the lack of a longer-term follow-up, are the lack of random assignment and a control group. As a result, we cannot conclude that improvements were caused by AD rather than spontaneous symptom remission or other unspecified mechanisms. We also cannot know the degree to which symptom improvements were the result of novel treatment techniques designed to address moral injury and traumatic loss. It may be that improvements in PTSD, depression, and even posttraumatic cognitions would have been just as evident using a more conventional treatment approach. Although we believe that our approach allows for a type of perspective taking and meaning making that is likely to be more helpful when addressing distressing beliefs that are not, in fact, distorted, this remains to be substantiated in future studies. Because participants were referred by mental health professionals, the marines treated may not be representative of treatment-seeking marines with PTSD. Although it is possible that patients deemed to be most cooperative or responsive to this treatment approach were referred, our perception is that the patients referred for AD were particularly complex cases that required intensive therapy. An additional limitation of this investigation pertains to measurement issues. In particular, because a measure of moral injury did not exist at the time the pilot study began, we were forced to use the PTCI to detect

maladaptive beliefs about self and self-blame. A reliable and valid measure of moral injury has since been developed (Nash et al., 2011) and will be included in subsequent AD trials. Also, although attrition was comparable to other trauma treatments, we cannot rule out the possibility that marines dropping out of treatment prematurely exhibited no symptom improvement. Still, even the most conservative approach to intent-to-treat analyses (classifying baseline scores as best estimates of outcomes for those dropping out of treatment) still yield medium-size treatment effects for both PTSD ($d = .59$) and depression ($d = .53$). Finally, this evaluation relied exclusively on self-report questionnaire data, and we do not know whether we helped marines beyond the posttreatment evaluation interval. These limitations notwithstanding, in this initial project, AD was well received by marines and was associated with reasonably large symptom improvement. Although continued rigorous evaluation of AD is warranted, the current data suggest that a very brief intervention can be effectively implemented in garrison for service members. These findings also provide preliminary support for AD's ability to address not only life-threat-related PTSD but that it can also address guilt and shame resulting from morally injurious actions and grief related to traumatic loss.

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