



Cpl. Kyle Click, a dog handler with 3rd Platoon, Kilo Company, 3rd Battalion, 3rd Marine Regiment, and a native of Grand Rapids, Michigan, shares a moment with Windy, an improvised-explosive-device detection dog, while waiting to resume a security patrol 27 February 2012 in Garmsir District, Helmand Province, Afghanistan. (Photo by Cpl. Reece Lodder, U.S. Marine Corps)

A Call for Research on the Impact of Dogs Deployed in Units to Reduce Posttraumatic Stress

Rebecca Segal

There is evidence that dogs should be deployed in forward-operating units to reduce the incidence and severity of posttraumatic stress disorder (PTSD). PTSD is a major medical concern for the U.S.

military, yet current therapies are of limited effectiveness, and they do not begin until weeks after a stressful event.¹ The body's response to stress actually begins on day zero and, if severe, is referred to as an *acute stress*

reaction (ASR). However, the diagnostic criteria for PTSD require thirty days to have passed after a traumatic event, and intervention is often delayed until that point.² This raises the question of whether PTSD treatment would be more effective if begun on day zero, rather than on day thirty or later. Doing this would require a treatment that is both benign and effective.

There is growing evidence that contact with dogs is useful in treating PTSD. In addition, there is anecdotal evidence that dogs are helpful during diagnosis and later in patient compliance to recommended treatment. Thus, the use of dogs could meet the criteria needed for a day-zero intervention.

The hypothesis that dogs are therapeutically useful is being tested in a large U.S. Department of Veterans Affairs (VA) study.³ If this shows a positive effect, the research

should be extended into the efficacy of treating those diagnosed with the possibility of PTSD from day zero. The study of dogs in deployed units should assess their impact on the rates and intensity of ASR, the rates of ASR conversion to PTSD, and the intensity of the resulting PTSD, as well as any effect dogs have on relapse rates.

The stakes are high. PTSD results in high medical costs while on active duty, premature reassignment stateside or retirement, and difficulty transitioning to civilian life. Moreover, for the U.S. taxpayer, the costs of medical care in support of veterans extend well beyond their separation from service.

As indicated in a RAND Corporation study, PTSD is now mainly treated with a combination of pharmacological and behavioral interventions. However,

those interventions fail to work for many patients, their benefits are often temporary, and they can entail bad side effects or stigma.⁴ Therefore, an alternative option that would effectively mitigate PTSD in earlier stages of its development would be a better solution for those with PTSD and would greatly reduce the overall cost of treatments currently borne by the taxpayer.

The Problem

The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*

defines PTSD as a disturbance triggered by "exposure to actual or threatened death, serious injury, or sexual violation ... The disturbance, regardless of its trigger, causes clinically significant distress or impairment in the individual's social interactions, capacity to work, or other important areas of functioning."⁵ The DSM-5 lists common



A therapy dog with the 219th Medical Detachment (Combat Operational Stress Control) named Maj. Butch concludes her tour interacting with service members 1 February 2013 in Afghanistan at Bagram Air Field. (Photo by Maj. Charles Patterson, U.S. Army)

symptoms of PTSD as intrusive recollection, guilt, and inability to cope or function, often resulting in behaviors such as recklessness, aggression, depression, and substance abuse.⁶

PTSD was reported in 10–30 percent of wartime service members (varying by conflict and measurement technique).⁷ The RAND Corporation study of the costs of PTSD care for veterans showed that of the 1.6 million service members returning in 2005, approximately 7.5 percent had PTSD, and approximately another 7.5 percent had PTSD as well as major depression.⁸

The RAND study modeled the cost per person during the first two years after being diagnosed with PTSD. The model included treatment costs and costs related to lost productivity from reduced employment and lower earnings, but not monetary costs relating to



lives lost to suicide.⁹ The study found an average cost of \$5,900 for a PTSD-only case, and \$12,400 for cases with co-morbidities.¹⁰ When the cost of cases were combined, the estimated total annual cost to the military alone was \$2.2 billion. The study further estimated that if 100 percent of affected individuals were offered treatment and they follow through with it, 19 percent of these costs could be saved.

The above cost figures apply only to active-duty service members, but the study estimated that the incidence of PTSD was one-and-a-half times higher among veterans than among active duty personnel, suggesting that the total cost to the taxpayers of treating veterans with PTSD may be about \$3 billion.¹¹ The RAND study did not consider costs associated with transitions to civilian life common to service members with PTSD, including monetary costs associated with violence.¹² Furthermore, the current treatments do not offer reliable cures. As a result, relapses are a constant risk. Depending on the type of treatment, relapses occur

Pfc. Alex Fanning, 98th Medical Detachment Combat Stress Control (CSC) behavioral health specialist, and Maj. Eden, a 98th Medical Detachment CSC combat stress dog, visit service members 21 January 2014 at Bagram Air Field, Afghanistan. (Photo by Senior Airman Kayla Newman, U.S. Air Force)

in 61–70 percent of the cases, implying that the total societal costs are likely to continue to grow as the base of veterans with PTSD increases.¹³

Current Treatment Approaches

The main treatment options for PTSD are psychological and pharmacological. For psychological therapies, the single most effective is behavior therapy. It is more effective than the most effective pharmacological approach, although these treatments are often used in combination.¹⁴

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A soldier stands with two warrior-trained therapy dogs 7 November 2011 at the Warrior Canine Connection Healing Quarters in Brookeville, Maryland. (Photo courtesy of Warrior Canine Connection)

Behavioral therapy programs for soldiers with PTSD range from individualized therapy to group fly-fishing trips.¹⁵ Among veterans, 20–50 percent discontinue behavior therapy before the treatment is complete.¹⁶ Accordingly, doctors develop and use treatments that include activities one would naturally do, such as video games and outdoor activities, which are more likely to be continued after the official treatment.¹⁷

The most effective pharmacological approach is use of selective serotonin reuptake inhibitors (SSRIs). These SSRIs elevate brain levels of serotonin, a neurotransmitter that regulates pain suppression and mood.¹⁸ However, various side effects—including agitation, nausea, diarrhea, and low sex drive—often lead to poor compliance.¹⁹ Moreover, for those with PTSD who are compliant, these medications have only a 60 percent response, with “only 20–30 percent of patients [achieving] complete remission.”²⁰ There are other pharmacological options, but they have even lower effectiveness or worse side effects, so SSRIs are seen as the best overall pharmacological treatment for PTSD.²¹

One reason for soldiers not following through on both psychological and pharmacological approaches is the perceived stigma of the diagnosis and the associated treatment.²² This stigma results from fear of being perceived as weak, belief that superiors look down upon treatment, and fear of potential repercussions for seeking help.²³ Such attitudes toward mental health treatment vary by gender and marital status, but are widely held.²⁴ Certain types of treatment have also been shown to have a higher stigma than others. For instance, service members would rather have behavioral “exposure” therapy than medication therapy.²⁵

Using Dogs to Treat PTSD

There is evidence that using therapy dogs in treatment of PTSD can result in much-improved outcomes, such as a servicemember previously assessed as likely to

be sent home early being able to complete a deployment. Dr. Heidi Squier Kraft, a Navy psychologist who deployed with the U.S. Marines, chronicled such an effect. She encountered a marine who was struggling with depression and PTSD during deployment. "She told me her future was hopeless," wrote Kraft. "She spoke of falling asleep and never awakening."²⁶ Kraft worked with the marine, using both antidepressant medication and behavioral therapy, with only limited progress. She worried she would need to send the marine stateside, mid-deployment. However, a few weeks later, the marine came back to see Kraft, and the psychologist's concerns disappeared. According to Kraft, the marine appeared happy:

"Our unit has adopted this puppy," she started as she sat down. I had heard about several groups of marines finding the orphaned puppies of wild dogs on base and making them unofficial mascots, feeding them with shipments of puppy chow sent from home ...²⁷

Kraft had tried all of the standard medical treatments for PTSD for this marine, but reached a point at which there were no other known medical options apart from removal from the location of the inciting event. Then, the marine got a dog, she got better, and she was able to finish her deployment.

Kraft relates that since then, she has heard of other examples of marines adopting dogs, with similar therapeutic outcomes. These dogs apparently played an important role by helping comfort and facilitating psychological healing among other marines in the same way. In effect, the troops were self-medicating by bringing these dogs into the units.²⁸

Additional data comes from the Army, where dogs have been useful in facilitating the mission of Combat and Operational Stress Control (COSC) teams. These teams "provide education and therapy in the theater of war."²⁹ The Army began attaching dogs to COSC teams in 2007 in an initiative that originally sent two dogs to Iraq.³⁰ The dogs accompanied their handlers and were able to serve as icebreakers between the medical practitioner and the soldiers. In a *U.S. Army Medical Department Journal* article, William Kroll wrote, "Whether in a one-on-one or group setting, members of the COSC teams have reported that service members would talk to them for longer periods of time than if they were alone."³¹ In another report, Lorie

Fike, Cecilia Najera, and David Dougherty wrote of a Labrador retriever, Albert, which was a part of one of the COSC units. His handler was grateful to have the dog assist in therapy:

[Albert] was able to ease tension of many of our clients in order to assist in their willingness to seek out the COSC unit for care and to openly discuss the issues that had troubled them ... The ability to travel with Albert to each unit within our contingency operations base provided opportunities to engage our clients from a preventative standpoint ... As we would visit a unit, news would travel to adjacently oriented units that would also request our services. This only further assisted our detachment in trying to reach all of the potentially at-risk [combat and operational stress reaction] casualties.³²

The report observes that members of the COSC teams noted how the dogs provided multiple benefits across the entire mental health process, from setting up meetings to getting soldiers coming back for appointments: "The primary handlers noticed an increase in requests for unit visits and commands scheduled more commander briefs."³³ The dogs also helped to de-stigmatize the mental health intervention because the interaction now seemed to be about the dog and no longer as much about the psychologist or other care provider. As the report noted elsewhere, "The therapy dogs allowed the COSC units to market their services in a unique way, because they were able to post flyers and write stories about the therapy dogs."³⁴ An additional collateral impact was that unit commanders seemed more likely to allow the COSC prevention teams to meet with units when there was a dog involved:

The dog's presence helped the therapist seem more approachable and assisted with the flow of conversation. Senior officers and enlisted personnel took more time to listen to the mental health staff and find out what services were available for soldiers. The mental health team also walked through motor pools and aircraft hangars, and throughout the [forward operating base's] work and living spaces to make contact with service members and to try to gauge the stress and morale levels. If the therapy dog was present, service members appeared more

likely to share their concerns, fears, and goals, and to let down their guard for a short time ... The prevention mission was much easier and more effective with therapy dogs as members of the team.³⁵

Employing Dogs to Stimulate Conversation and Identify Issues

Currently, for deployed soldiers, dogs are used mainly to engage soldiers in diagnostic conversations to help identify those in need of therapy and to increase compliance with other therapies, not as a direct therapeutic modality. However, because COSC teams are not integrated into the soldiers' units, and are often spread thin due to demand, they are unable to attend to everybody in need.³⁶ Furthermore, because a soldier must actively take the initiative to go to meet with a member of these teams, the limited availability of COSC teams further reduces the prospect of diagnosis because one of the downsides of PTSD is a reduction in an individual's likelihood to actively seek help.³⁷

One measure aimed at helping to mitigate the effects of a shortage of COSC units—at least as an interim measure—is early exposure to therapy dogs. There have been many retrospective studies on the use of dogs for PTSD treatment that suggest soldiers greatly benefit from working with dogs.³⁸ The VA has undertaken the first prospective controlled study, over a two-year period, to evaluate the efficacy of dogs for treating those with PTSD.³⁹

Treatment using dogs has few side effects as compared to drugs. Additionally, patients are then more willing to engage and comply with other prescribed therapies. Neuroscience research suggests multiple physiological mechanisms that may be involved. When petting a dog, a person experiences the body releasing higher levels of several chemicals, including oxytocin, β -endorphin, and dopamine.⁴⁰ Oxytocin, known as a bonding hormone, helps with relationships by promoting attachment and trust.⁴¹ Endorphins, as opiates, "are involved in pain reduction [and] pleasure ... Endorphins are also thought to play a role in appetite, sexual activity, blood pressure, mood, learning, and memory ... a link [also] exists between endorphins and human attachment."⁴² Dopamine is involved in emotion, pleasure, and reward.⁴³ Dogs apparently help people calm down, be happy, trust others, and, in

general, improve morale due to the natural release of such substances within the human body.

Much of the innovation in the use of dogs in treatment has been for veterans. Once home, veterans get involved with service dogs in various ways. Some get service dogs for themselves. Others train service dogs for other veterans, getting the side benefits of being with dogs during the training period. Over time, training a service dog has been shown to improve patience, impulse control, emotional regulation, and sleep. It also appears to increase in many cases a trainer's sense of purpose and enables a decrease in pain medications and depression.⁴⁴ As a result, the benefits of one dog can extend to many veterans, as shown by the Warrior Canine Connection, a specific service dog training organization.⁴⁵

Discussion

PTSD is a major cost to the military in lost productivity (including premature retirements) and higher health care costs. Taxpayers continue to bear PTSD-related costs for soldiers after their retirement. In addition, the nonmonetary, human costs are significant. When soldiers leave the military because of PTSD, their lives may be impaired, particularly if they fail to comply with care guidelines. These soldiers often becoming dependent on drugs, have trouble being in civilian gatherings, and feel abandoned by the military.

Better interventions may improve the situation. On a small scale, COSC teams have successfully used dogs in programs to help soldiers recognize combat stress and trauma, to aid in diagnosis, and to get the soldiers to accept treatment. Given the scale of the problem, however, there are not enough dogs deployed to meet the need. Assuming that the VA study supports the hypothesis, the Army should consider dramatically increasing the number of dogs deployed.

The reports of dogs attached to COSC teams and informally adopted into units raises the question of whether widespread deployment of dogs within units, rather than with the COSC teams, might help to avoid development of PTSD from ASR.⁴⁶ If this proves successful, those who do develop PTSD would have a socially acceptable therapeutic approach from day zero, one that will easily transition into civilian life.

Given the promise of this new approach, the military should test the efficacy of using dogs in the prevention and treatment of PTSD. The military should evaluate

the benefits of integrating dogs directly into units to reduce the rate at which the ASR converts to PTSD and the degree to which the presence of dogs reduces the severity of PTSD among deployed soldiers, either directly or through better detection and treatment compliance.

The study should be designed to answer a number of questions. First, what are the optimal and minimum required ratios of dogs to soldiers to have the desired outcome? Second, what level of training is needed for the dogs? Is it necessary or cost effective to integrate fully trained service dogs into every platoon, or will lower levels of training meet the requirements? While a service dog can perform more specialized duties that may be important in the treatment of PTSD, an emotional support dog, or even a well-trained, ordinary dog, may have enough of a benefit to help prevent PTSD without costing \$50,000 in training.⁴⁷ Third, the study should measure several outcomes: the frequency of development of ASR; the frequency of conversion from ASR to PTSD; the severity and duration of the PTSD; and any impact on unit cohesion and combat readiness. Finally, the study design needs to avoid a key risk: with the de-stigmatization shown to come from involving dogs in PTSD treatment, the rate of reporting PTSD symptoms could go up with no change in the true incidence. The study design should be structured to control for this risk and the confounding data as much as possible.

Future Implications

Before the military could act on the results of such a study, the economics will need to be understood. There is reasonable data from which to estimate cost. Training soldiers is expensive; the basic cost to train a new soldier is about \$50,000.⁴⁸ However, if additional training or education and use of expensive equipment are included, that number rises significantly.

Furthermore, as soldiers gain experience, they learn information that cannot always be taught, making them worth even more.⁴⁹ The military invests the money to train a soldier under the assumption that they will then serve for a certain number of years or a certain number of deployments. However, when a soldier must leave the deployment or the military prematurely because of PTSD, the military loses the benefit of the productivity.

Service dogs require about two years of training, costing \$25,000–\$50,000. In addition, the military would assume the costs to transport, house, feed, groom, and provide the required veterinary care for the dogs. Such costs are likely to be higher in a forward operation base than in garrison. Ideally, the study will allow estimates of the complete cost of the proposed dog deployments.

Although preliminary numbers look promising, it is too early to make a formal economic case for the benefit of integrating dogs into units. In designing the study, it would be essential to collect the data necessary to enable an effective cost-benefit economic analysis.

Conclusion

By deploying support or service dogs, service members with PTSD might be diagnosed and treated more quickly, ultimately improving their chances for recovery as well as enhancing unit cohesion. Dogs might also help de-stigmatize mental health care and reduce behavioral incidences due to PTSD. By deploying the dogs in units, not just with the COSC teams, the military may be able to reduce the development and severity of PTSD after an ASR. In this way, the military could more effectively take care of a problem that is affecting as much as 20 percent of their soldiers; they could better take care of their own. ■

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