

Service Dog Training by Service Members/Veterans: Reflections on the Need for Empirical Evidence

Norman B. Epstein, Rick Yount, Cindy C. Wilson, F. Ellen Netting, Jeffrey Quinlan

Abstract: Five members of an interdisciplinary team reflect on the development of a service dog training evaluation designed for service members/veterans with PTSD. We describe the process of working together as a team to learn the principles of dog training and the practicalities of designing a human-animal intervention in order to generate empirical evidence of the human-animal bond.

Keywords: human-animal interaction, PTSD, program evaluation, interdisciplinary team, human-animal bond.

We sat in a circle, in the old stone country house that serves as the headquarters for the Warrior Canine Connection (WCC), where we had come to learn firsthand about a remarkable program directed by Rick Yount that engages service members and veterans with Post-Traumatic Stress Disorder (PTSD) and mild Traumatic Brain Injury (mTBI) in training service dogs for partnerships with other Wounded Warriors. At first we fidgeted a bit as we listened to Rick explain how important early socialization is for purpose-bred service dogs. A yellow lab watched us, showing no signs of concern but monitoring our nonverbal cues. Rick, who trains the active service members and veterans as dog trainers in the program, handed each of us a tiny recently born puppy, whose eyes were still closed, as we murmured all the appropriate adjectives: “So cute, so sweet, so cuddly, so soft . . .” The mother lab continued observing us closely, coming up to each pup in our arms and sniffing. As we gently stroked the heads of each small creature, Rick talked about how these new puppies would become the next group of dogs to be trained by service members and veterans at the National Intrepid Center of Excellence (NICoE) at Walter Reed National Military Medical Center (WRNMMC) in Bethesda, Maryland. Among us there were three university professors who at the moment were thinking very little of academic pursuits but instead were in close touch with the warm feeling of how calming stroking a tiny puppy could be.

After we returned the pups to their mother, four one-to-two year old dogs were led in on leashes and introduced to us. Their distinctive personalities were immediately obvious as Rick talked about their respective predispositions and temperaments. We were each given a pouch of treats, as we had agreed to participate in a training simulation to better understand Rick’s WCC intervention and get direct

exposure to the challenges and joys of working with the dogs. Rick stood behind our semi-circle of chairs, a tall, gentle and soft-spoken man, guiding our attempts to work with our assigned dogs. We laughed at one another as it became obvious that some of us were better disciplinarians than others and at how quickly the dogs identified those who demonstrated a lack of experience at training by simply indulging them with treats. Rick emphasized the importance of consistency in conveying limits to the dogs.

This exercise in service dog training was the beginning of what would become part of an interdisciplinary effort to design an evaluation of a long-established intervention with service members and veterans who have suffered from PTSD and mTBI. Rick’s extensive work with both service dogs and individuals who have experienced physical and psychological trauma had demonstrated to him that the bond that forms between dog trainer and animal has powerful therapeutic effects in reducing PTSD symptoms of anxiety, irritability, depression, and emotional numbing. Furthermore, he has noted that the empathy and interpersonal skills that an individual develops while training a dog improve his or her relationships with family members. We couldn’t help but share Rick’s infectious enthusiasm for the value of the WCC; however, we were concerned that there is a need for more scientific evaluation of the program, especially regarding its effects on family relationships. Therefore, we established the goal of figuring out how to evaluate its effectiveness, especially in improving Wounded Warriors’ relationships with their spouses/partners and children. In this reflection we share what we have learned about the WCC intervention as well as the complexity of designing evaluations in the “real world” of practice.

The Intervention

Rick, a social worker and certified service dog trainer, designed the WCC to remediate symptoms of combat-related PTSD and to improve overall social and emotional functioning in Wounded Warriors. His goal was to harness what anecdotally appears to be the healing power of the human-animal bond in alleviating the trainers' own debilitating symptoms and help Wounded Warriors establish more positive connections with their family members. The program model was piloted for two years at the Menlo Park VA's Men's Trauma Recovery Program. In 2011, Rick established the WCC program at NICoE at WRNMMC, as a voluntary adjunct treatment for active-duty service members and veterans with PTSD and mTBI.

We were brought together because all of us were impressed by Rick's passion and commitment to the program, and by his strong belief that there was a need to back up with empirical evidence the consistent observations by himself and his colleagues that individuals who develop skills for training service dogs become more connected and effective parents, as well as spouses/partners. As a practitioner, it was impossible for Rick to manage the oversight of training multiple service dogs and puppies, raise monies for his nonprofit, take the dogs to various facilities, and systematically collect data to demonstrate the effectiveness of his program. Therefore, he was enlisting the support of an interdisciplinary research team to focus on how to assess and evaluate the effects of the WCC intervention in improving Wounded Warriors' family relationships through reducing PTSD symptoms and building interpersonal skills.

The WCC is based on the assumption that interactions between Wounded Warriors with symptoms of combat trauma and dogs who have strong attachments to humans, low emotional arousal or reactivity, and favorable responses to positive training strategies can counteract debilitating PTSD symptoms and enhance the Wounded Warriors' comfort and interpersonal skills to interact with their children in a more emotionally connected way. The empathy, patience, and skills learned through training a dog also generalize to more constructive child-rearing behavior. In addition, their WCC experiences are hypothesized to

enhance their relationships with their spouses/partners by reducing PTSD symptoms that interfere with intimacy and improving their interpersonal communication. Thus, the WCC program not only produces valuable service dogs that can be placed with physically disabled service members; it is designed to reduce the symptoms of combat trauma in the Wounded Warriors who train them and improve their function within their family circle. Everyone benefits. Rick notes that many Wounded Warriors are motivated to participate as dog trainers based on their dedication to the mission of helping other service members in need. In short, Rick's vision of the WCC is to bring hope and healing to the tens of thousands of Wounded Warriors who will continue to seek treatment through the thousand-plus Department of Defense (DoD) and Veterans Administration treatment centers in the United States.

Our team became engaged in developing a design for a formal evaluation of the program's effects on the Wounded Warriors' symptoms and the quality of their relationships with their family members; to empirically examine the positive effects that Rick had observed on participants' symptoms and abilities to relate to significant others. Rick had consulted with Norm (a professor of family science, clinical psychologist, and family therapist) who directs the couple and family therapy training program at the University of Maryland and has expertise in both couple and parent-child relationships. He and Norm had talked at length about how the skills and enhanced attachment needed to train a service dog could potentially transfer to improved family relationships of combat-stressed service members who were experiencing challenges as they re-engaged with their family members in life beyond the battlefield. Through networking with board members from WCC, Rick made contact with Cindy, a public health educator/researcher, and Ellen, a social work educator/researcher. Cindy and Ellen had worked for over 30 years on human-animal interaction research. Cindy's colleague Jeff, a family physician with experience in working with patients and families with diagnoses of PTSD and mTBI in service members, was recruited in order to cover all the bases in understanding the problem, the intervention, and the pathways through which training the dogs could lead to closer and more constructive family relationships and potentially reduce the Wounded Warriors' need for medical services and medications.

The WCC program focuses on the great importance of the relationship between trainer and dog (i.e., that dogs are motivated by attachment to the trainer and by the trainer's praise much more than by punitive discipline techniques), empathy with daily variations in the dog's moods and arousal level, emotion regulation skills for responding to stressful situations during the training process, the importance of touch (e.g., grooming) in building the bond, and patience and gradual shaping of desired behavior. It is assumed that as the Wounded Warrior forms an attachment with the dog and learns to be sensitive to the dog's needs and personality while implementing constructive training techniques, the constructive bond with the dog will reduce trauma symptoms, and the skills will generalize to the individual's significant human relationships.

Driving Forces to Capture Empirical Evidence

As Cindy and Ellen reflected about how we came to this project, we recognized that it was not the first time we had worked with others to design an evaluation of an existing program. When we teach program evaluation in our respective university/college, we preach that effectiveness-based program planning incorporates how the program will be incorporated into the program design (e.g., Kettner, Moroney & Martin, 2013). But often we have observed that, in the world of practice, programs emerge in response to a need, and program emergence is anything but a linear design. Intellectually we know that the practice world does not work in a neat, linear fashion. Often interventions happen as a confluence of forces - someone having a hunch that something might work - and based on experience and anecdotal observations, the program evolves, and it is modified based on feedback about aspects that seem to work well and others that need tweaking. Rick certainly had an incredible level of commitment, as well as years of experience and observations of how various populations responded positively to interaction with animals. In addition, he knew that decades of conceptual and empirical work had focused on human-animal interaction. Rick and his colleagues had published articles about their program, always with the caveat that there is a "need for empirical study of the Warrior Canine Connection Intervention" (Yount, Olmert, & Lee, 2012, p. 67). Their work and observations had begun to be

published in the peer reviewed literature, but as yet there had been no opportunity for a formal test of the effects of the WCC intervention on Wounded Warriors' relationships with their family members. Rick wanted us, as a team, to figure out how to capture that needed empirical evidence.

Designing the Program Evaluation

As a team, we knew that research has shown that interaction with animals has positive physiological effects (e.g., reduced heart rate, reduced blood pressure) on humans, as well as inducing improvements in psychosocial functioning (Braun, Stangler, Narveson, & Pettingell, 2009; Knisely, Barker, & Barker, 2012). In addition to the widespread use of service dogs to provide various forms of physical assistance to individuals with physical disabilities (Sachs-Ericsson, Hansen, & Fitzgerald, 2002; Winkle, Crowe, & Hendrix, 2012; Zapf & Rough, 2002), we also knew that forms of animal assisted therapy (AAT) have been increasingly used in treatments of a variety of psychological disorders with children and adults (Chandler, 2012; Friesen, 2010; Mills & Yeager, 2012; Reed, Ferrer, & Villegas, 2012).

Cindy and Ellen had cut their academic teeth with a colleague from the University of Tennessee College of Veterinary Medicine in the early 1980s, designing a program to place dogs with older people (Netting, Wilson & New, 1984). Although a distinction has been made between service animals that primarily perform instrumental tasks for humans and animals that are used in AAT to meet patients' psychosocial needs, in fact the two types of functions commonly overlap. Service animals also have effects on patients' psychological functioning, whereas therapy animals commonly assist patients with some behavioral tasks as well (Shubert, 2012).

Our present work group talked about the considerable evidence that interaction with service dogs helps physically disabled patients carry out tasks of daily living and enhances the patients' psychosocial functioning, including increased social contact, interpersonal skills, and experiences of pleasure (Camp, 2001; Hart, Hart & Bergin, 1988; Sachs-Ericsson et al., 2002; Winkle et al., 2012; Zapf & Rough, 2002). Individuals with physical disabilities who participated with service dogs in Camp's (2001)

qualitative study reported strong emotional bonds that they developed with the dogs. Those self-reports are consistent with increases in blood oxytocin levels in people and animals as they interact, as well as reduced experiences of anxiety (Olmert, 2009). Patients also described how being out in public with their dog facilitated their interactions with other people (Camp, 2001; Hart et al, 1988). Thus, even when the stated major goal of human-animal interaction is the accomplishment of instrumental tasks, significant socio-emotional processes seem to occur. Whereas some forms of AAT involve only passive exposure of patients to the presence of animals (e.g., Marcus et al., 2012), others produce therapeutic effects through patients' actively interacting with the animals and forming relationships with them (e.g., Pedersen, Martinsen, Berget, & Braastad, 2012). It has been hypothesized that positive effects occur both through the establishment of a secure attachment bond with the non-threatening animal and the patient's increased sense of self-efficacy as he or she takes on the responsibilities of working with the animal and develops better relational skills (Shubert, 2012). The WCC program takes those beneficial effects further by systematically instructing and coaching Wounded Warriors in training service dogs.

The last decade of military conflict has taken a devastating physical and mental toll on hundreds of thousands of Wounded Warriors, who have brought these conflicts home with them. Based on DoD figures through July 15, 2013, 6,733 Americans had died and 51,179 had been wounded in action since the onset of conflict in Iraq and Afghanistan. Additionally, through October 2012, 253,330 servicemen and women had suffered traumatic brain injury. Finally, in just the Army, 73,674 had been diagnosed with PTSD according to the U.S. Army Surgeon General Report from Fall 2012. PTSD symptoms associated with specific combat exposures are frequent and persistent (e.g., Smith et al., 2008). Symptoms have been found to cluster into four groups: Re-experiencing in memory and perception of traumatic events, effortful avoidance of stimuli that remind the individual of prior traumatic experiences, emotional numbing, and hyper-arousal (King, Leskin, King, & Weathers, 1998). These symptoms commonly are associated with problems of disturbed sleep, anger management difficulties, and distancing from situations that might

trigger distressing flashbacks and anxiety (e.g., interactions with people who ask about the Warrior's deployment experiences, driving in congested traffic that elicits concerns about the ability to escape danger, the odor of diesel fuel), among others.

Further complicating the identification and treatment of these injuries, service members are trained to suppress emotions in order to function in combat situations, and they may persist in using this coping response long after returning to their home life, where family and friends look to them for emotional connection. In addition, traumatic experiences during deployment can substantially increase Warriors' level of emotional numbing, as well as the other symptoms of PTSD described above that can interfere with his or her relationships with significant others. Service members come home to their children and spouses, attempting to transition back to civilian life, but they often have great difficulty re-engaging with their families. Their spouses can be affected very negatively, as the Warrior's PTSD symptoms commonly create marital dissatisfaction and conflict, as well as the danger of domestic violence. Jordan et al. (1992) demonstrated that veterans suffering from PTSD and their spouses both engaged in higher levels of violence than similar couples in which the veteran did not have PTSD. Veterans with PTSD have increased levels of fear of intimacy (Riggs, Byrne, Weathers, & Litz, 1998), lower levels of self-disclosure and emotional expression (Carroll, Rueger, Foy & Donahoe, 1985), and difficulty in creating intimacy (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Monson, Fredman, & Taft, 2011). If in addition to experiencing these disruptive symptoms the Wounded Warrior lacks interpersonal skills for intimacy with his or her spouse/partner, the risk is high that the couple's relationship will deteriorate. The WCC program is intended to enhance empathy, patience, and communication skills that can improve couple relationships.

In addition to the risks for significant distress in the couple relationship, the Warrior's PTSD symptoms can contribute to emotional distancing from his or her children, as well as impatience, irritability, and harsh parenting behavior. In addition to negative effects from the PTSD symptoms, an overall lack of knowledge about and skills for parenting children is a common risk factor. Substantial research and development of programs for constructive parenting

(e.g., Kazdin, 2005) has occurred over the past few decades, due to widespread problems with parenting in the general population, and it is likely that many Wounded Warriors, as members of that larger population, would benefit from parenting training. Any pre-existing deficits in parenting knowledge and skills easily can be exacerbated by PTSD symptoms, resulting in significant problems that Wounded Warriors may have in interacting with their children. Jordan et al. (1992) also reported that veterans suffering from PTSD had more parenting problems, poorer adjustment, and a higher incidence of children with behavioral problems than did the cohort without PTSD. More contemporary research has demonstrated that the veterans' emotional numbing was the strongest predictor of parent-child relationship problems (Ruscio, Weathers, King, & King, 2002).

Thus, there are major risks for couple and family stress and instability among Wounded Warriors with PTSD and/or mTBI. The WCC service-dog training program is intended to provide a safe, effective, non-pharmaceutical adjunctive treatment for PTSD as well as provide lessons for the Warrior in highly nurturing and effective methods for building bonds with their children, partners, and other people outside their families. The goal of the WCC program is to remediate symptoms of PTSD and improve the social and emotional functioning of Wounded Warriors, especially in their significant family relationships. Through the therapeutic stress-reducing processes previously documented to occur in AAT, the WCC was designed to reduce the trainers' own debilitating PTSD symptoms. It also was designed to improve the Warrior's relationship with his or her spouse/partner and the Warrior's child-rearing skills, as he or she develops patience and empathy in learning to train a dog. The dogs' strong attachments to humans, low emotional arousal, and favorable responses to positive training strategies are expected to facilitate the Warriors' comfort and capacity for close interpersonal relationships, especially with their children and significant others.

Determining How to Go About the Project

Our areas of expertise were certainly complementary to one another, and in the process we have become a learning team. We work very well together as a

team of senior professionals who were all convinced that the intervention was well worth evaluating. Norm and Jeff's expertise with the population to be served (including the family relationships of the Warriors) combined with Rick, Cindy, and Ellen's knowledge of human-animal interaction and program evaluation fit together well. Initially we had to overcome differences in professional backgrounds, in terms of variables we typically look at and the language we use to describe the processes that we study, in order to fully explicate the WCC program's purpose. We agreed that the program involves educating and coaching a Wounded Warrior with PTSD symptoms in effective approaches to training a service dog. Training programs world-wide include teaching dogs to carry out a variety of activities such as opening doors, carrying and retrieving items, turning lights on and off, pushing elevator buttons, assisting patients with support for walking, helping the patient dress, making a bed, and helping the patient do laundry (Miura, Tanida, & Bradshaw, 1998; Zapf & Rough, 2002).

We agreed that our project's initial stage had to begin with Rick training a set of clinical staff members at the Center for Healthy Families outpatient family therapy clinic within Norm's Department of Family Science at the University of Maryland, College Park, regarding the principles and procedures of training the service dogs, as well as in the processes through which the WCC intervention is designed to improve Wounded Warriors' psychological and interpersonal functioning. Subsequently, those clinical staff members would work with individual Wounded Warriors as they each learned to train a service dog for eventual assignment to a physically disabled war veteran. The staff members would conduct education and coaching activities with the Wounded Warriors, involving didactic explanations of principles of dog training and information about the cognitive and emotional life of dogs that trainers must take into account. They also would present live demonstration/modeling of specific training strategies with a dog and positive feedback to the Wounded Warrior as he or she practiced.

Based on the existing literature regarding positive effects of animal assisted therapy (AAT) and anecdotal examples of positive outcomes that have been observed in the WCC program, we hypothesized that Wounded Warriors who participate in the program will experience a decrease in PTSD symptoms and

improvements in relationships with family members. They will develop greater understanding of learning principles and more refined behavior management skills for training the dog, which we hypothesize will generalize to more constructive interactions with their children and spouses/partners.

Specifically, we hypothesized that our pilot service dog training study would result in Wounded Warriors who complete the WCC program, compared with those who only receive the standard of care treatment for their PTSD, exhibiting reduced PTSD symptoms, increased knowledge and use of positive dog training principles, and increased warmth and emotional regulation during interactions with the dog. Additionally, we hypothesized that, in comparison with those who receive only the standard of care, the WCC participants will exhibit a larger increase in use of authoritative parenting behavior and decreased use of authoritarian and permissive parenting behavior with his or her children; increased warmth conveyed through verbal and nonverbal behavior toward their spouse/partner and child; increased emotion regulation during interactions with their spouse/partner and child; increased verbal and nonverbal behavior by the child reflecting comfort interacting with the Warrior parent; and, increased couple relationship satisfaction reported by the Warrior and by the spouse/partner.

Consequently, measures of these domains of functioning will be administered immediately before Warriors take part in the program and at the end of the program. In this pilot study involving a randomized controlled clinical trial, Warriors who are screened as meeting inclusion criteria (current clinical levels of PTSD symptoms, ongoing relationships with a spouse/partner and at least one child between the ages of 4 and 12, not currently engaged in any other form of animal assisted therapy) will be randomly assigned with their consent to either standard treatment at their current treatment center or to treatment as usual plus the WCC program. Those who are assigned to standard treatment will be given the option of receiving the WCC program after the post-treatment assessments are completed, in a cross-over design.

We agreed that during the pre- and post-treatment assessments, participants will be administered

standard validated measures of (a) PTSD symptoms, (b) current life stressors, (c) authoritarian, authoritative and permissive parenting styles, (d) positive attachment to the dog, and (e) couple relationship satisfaction. In addition, each Warrior will be asked to engage in structured behavioral interactions in which they are given the tasks of (a) instructing a dog, (b) instructing one of their children in completing a task, and (c) discussing with their spouse/partner a conflict topic in their couple relationship. All of these behavioral interactions will be video-recorded for subsequent rating by trained coders. Interactions with the dog and with the child will be coded for forms of constructive communication and training/parenting skills, as well as emotion regulation. Interactions with the spouse/partner will be coded for forms of constructive versus avoidant and/or destructive communication, as well as emotion regulation.

All pre- and post-therapy assessments will be conducted at the Center for Healthy Families (CHF) at the University of Maryland, College Park. The WCC dog training sessions with Wounded Warriors also will be conducted at the CHF. The CHF is a modern outpatient clinic with a large comfortable waiting room and eight therapy rooms equipped with digital video and audio recording equipment. The WCC treatment protocol will be the same as Rick has implemented at NICoE. Each session will be standardized, and clinicians who deliver the training to the Wounded Warriors will be trained extensively in the protocol components. The clinicians will video-record all of their sessions with the Warriors so the clinicians can receive supervision from Rick and Norm on their implementation of the session protocols. In addition, recordings of sessions will be rated subsequently for treatment protocol adherence.

Lessons Learned

As we reflect about our experiences, we have learned a number of lessons about community-university partnerships, nonprofit organization and university/government partnerships, human-animal interaction, and program design and evaluation. Based on our prior participation in community-university partnerships, we had learned to expect the unexpected, and further complexity in implementing our project arose because the WCC cuts across public and private sectors. Recent regulations issued by the Veterans Administration have forced programs that are “warm

and fuzzy” to articulate their results in the form of hard data. In order for a program to be recognized as valuable and receive sustained support within the larger system, these data must be collected in multiple ways, using standardized self-report tools as well as behavioral observations. We can all speak to what we observe when we walk through a clinic and see a Service Member training a dog. But can those Warrior-dog interactions influence the Service Member’s psychological well-being and how he or she interacts with family members? Does the program truly reduce the debilitating effects of service-related PTSD? This is what we will be testing, and we have learned that a challenge faces us in engaging support across organizational lines for conducting this needed evaluation of what some might consider an interesting but tangential intervention. Community-university partnerships are time and financially costly, and locating funding to support these partnerships is always challenging. Yet, in order for public sector (governmental) organizations to continue to engage in these types of adjunctive interventions, there is no choice. Their participation requires having exactly those types of empirical data that take so long to collect.

Human-animal interaction has been a field of study for many years now. Yet, we marvel at how difficult it has been to build a body of empirical evidence. Certainly the military has used animals in multiple capacities, but it seems likely that it has been assumed that service dogs only become valuable in meeting needs of Wounded Warriors after the dogs have completed their training. The expenses involved in the training may seem to be prohibitive when compared to effects of their long-term placements with individual Wounded Warriors. It is difficult to conduct this cost-benefit analysis, because it is time-consuming to follow over time the Wounded Warriors who received service dogs and compare their functioning to that of those who did not receive dogs.

However, in Rick’s program, the training of the dogs has dual functions, and there is little lag time before benefits begin to accrue to the Warriors who train the dogs. The beauty of Rick’s WCC program is that well before the dogs are placed and provide the second set of benefits, they may help heal hundreds of Wounded Warriors struggling with symptoms of PTSD and mTBI as those Warriors become engaged

in the process of training them. The systematic controlled outcome evaluation that we are planning can provide data needed to understand the effects that service dog training has on Wounded Warriors who participate in the front end of the process.

As we work on this evaluation project, we are constantly reminded about how we have to impress upon students and practitioners that program design and evaluation are essential if interventions that we personally value based on personal experience are to survive and flourish in the context of various interests competing for funds and patients’ time. Furthermore, program evaluation is not a linear process, and there always is an element of the unknown as researchers do their best to measure the effects of a program. Even though we have designed a way to capture those empirical data, we can already forecast a number of issues and unintended consequences. We ask ourselves questions such as what happens if those empirical data indicate that this intervention doesn’t produce significant improvements in Wounded Warriors’ psychological and interpersonal functioning? What if this program that Rick is so passionate about simply doesn’t do what he thinks it does? The lack of statistically significant effects can be due to a variety of factors in addition to a program being ineffective, including the possibility that the researchers’ choices of assessment instruments were not well-suited to capture meaningful changes. We have used our expertise to select measures, but there are no guarantees that they tap the changes that Rick and his patients have observed.

As an interdisciplinary team of researchers, we are biased too. We would not have engaged in this journey had we not hoped that the WCC program will prove to be effective. We admit that bias and understand our great responsibility to conduct the research in the most rigorous way possible, with built-in protections against the risk of our enthusiasm for the program influencing the data. We think Rick has a lot of courage to enlist us into this adventure, because it is possible that service members/veterans only get a temporary jolt from training these dogs. But it is also possible that his observations may be supported and that service dog training does make a difference in service members/veterans/families’ lives.

References

- Braun, C., Stangler, T., Narveson, J., & Pettingell, S. (2009). Animal-assisted therapy as a pain relief intervention for children. *Contemporary Therapies in Clinical Practice, 15*(2), 105-109.
- Camp, M. M. (2001). The use of service dogs as an adaptive strategy: A qualitative study. *American Journal of Occupational Therapy, 55*, 509-517.
- Carroll, E. M., Rueger, D. B., Foy, D. W., & Donahoe, C. P. (1985). Vietnam combat veterans with Posttraumatic Stress Disorder: Analysis of marital and cohabiting adjustment. *Journal of Abnormal Psychology, 94*, 329-337.
- Chandler, C. K. (2012). *Animal assisted therapy in counseling* (2nd ed.). New York: Routledge/Taylor & Francis.
- Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic Stress Disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology, 18*, 36-45.
- Friesen, L. (2010). Exploring animal-assisted programs with children in school and therapeutic contexts. *Early Childhood Education Journal, 37*, 261-267.
- Hart, L. A., Hart, B. L., & Bergin, B. (1988). Socializing effects of service dogs for people with disabilities. *Anthrozoös, 1*(1), 41-44.
- Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., & Weiss, D. S. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 60*, 916-926.
- Kazdin, A. E. (2005). *Parent management training: Treatment for oppositional, aggressive, and antisocial behavior in children and adolescents*. New York: Oxford University Press.
- Kettner, P. M., Moroney, R. M., & Martin, L. L. (2013). *Designing and managing programs: An effectiveness-based approach*, 4th ed. Thousand Oaks, CA: Sage.
- King, D. W., Leskin, G. A., King, L. A., & Weathers, F. W. (1998). Confirmatory factor analysis of the Clinician-Administered PTSD Scale: Evidence for the dimensionality of posttraumatic stress disorder. *Psychological Assessment, 10*, 90-96.
- Knisely, J. S., Barker, S. B., & Barker, R. T. (2012). Research on benefits of canine-assisted therapy for adults in nonmilitary settings. *The United States Army Medical Department Journal, April-June*, 30-37.
- Marcus, D. A., Bernstein, C. D., Constantin, J. M., Kunkel, F. A., Breuer, P., & Hanlon, R. B. (2012). Animal-assisted therapy at an outpatient pain management clinic. *Pain Medicine, 13*, 45-57.
- Mills, J. T., & Yeager, A. F. (2012). Definitions of animals used in healthcare settings. *The United States Army Medical Department Journal, April-June*, 12-17.
- Miura, A., Tanida, H., & Bradshaw, J. W. S. (1998). Provision of service dogs for people with mobility disabilities. *Anthrozoös, 1*(2), 105-108.
- Monson, C. M., Fredman, S. J., & Taft, C. T. (2011). Couple and family issues and interventions for veterans of the Iraq and Afghanistan wars. In Ruzek, J. I., Schnurr, P. P., Vasterling, J. J., & Friedman, M. J. (Eds.), *Caring for veterans with deployment-related stress disorders* (pp. 151-169). Washington, DC: American Psychological Association.
- Netting, F. E., Wilson, C. C., & New, J. C. (1984). Developing a multidisciplinary pet placement program for community-based elderly. *Journal of Applied Gerontology, 3*(2), 181-191.
- Olmert, M. D. (2009). *Made for each other: The biology of the human-animal bond*. Cambridge, MA: DaCapo Press.
- Pedersen, I., Martinsen, E. W., Berget, B., & Braastad, B. O. (2012). Farm animal-assisted intervention for people with clinical depression: A randomized controlled study. *Anthrozoös, 25*, 149-160.
- Reed, R., Ferrer, L., & Villegas, N. (2012). Natural healers: A review of animal assisted therapy and activities as complementary treatment for chronic

conditions. *Revista Latino-Americana de Enfermagem*, 20, 612-618.

Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress*, 1, 87-101.

Ruscio, A. M., Weathers, F. W., King, L. A., & King, D. W. (2002). Male war-zone veterans' perceived relationships with their children: The importance of emotional numbing. *Journal of Traumatic Stress*, 15, 351-357.

Sachs-Ericsson, N., Hansen, N. K., & Fitzgerald, S. (2002). Benefits of assistance dogs: A review. *Rehabilitation Psychology*, 47, 251-277.

Shubert, J. (2012). Dogs and human health/mental health: From the pleasure of their company to the benefits of their assistance. *The United States Army Medical Department Journal*, April-June, 21-29.

Smith, T. C., Ryan, M. A., Wingard, D. L., Slymen, D. J., Sallis, J. F., & Kritz-Silverstain, D. (2008). New onset and persistent symptoms of post-traumatic stress disorder self reported after deployment and combat exposures: Prospective population based US military cohort study. *BMJ*, 336(7640), 366-371.

Winkle, M., Crowe, T. K., & Hendrix, I. (2012). Service dogs and people with disabilities partnerships: A systematic review. *Occupational Therapy International*, 19(1), 54-66.

Yount, R. A., Olmert, M. D., & Lee, M. R. (2012). Service dog training program for treatment of posttraumatic stress in service members. *The United States Army Medical Department Journal*, April-June, 63-69.

Zapf, S. A., & Rough, R. B. (2002). The development of an instrument to match individuals with disabilities and service animals. *Disability and Rehabilitation*, 24(1/2/3), 47-58.

About the Authors: Norman B. Epstein, is Professor and Director, Couple and Family Therapy Program Department of Family Science, University of Maryland, College Park (nbe@umd.edu); Rick Yount, is Executive Director, Warrior Canine Connection (rick@warriorcanineconnection.org); Cindy C. Wilson, is Professor & Faculty Development Director, Department of Family Medicine, Uniformed Services University of the Health Sciences (cindy.wilson@usuhs.edu); F. Ellen Netting, is Professor Emerita, Virginia Commonwealth University School of Social Work (enetting@vcu.edu); Jeffrey Quinlan, is Associate Professor, Department of Family Medicine, Uniformed Services University of the Health Sciences (jeffrey.quinlan@usuhs.edu).