



7-1-2018

How Service Dogs Enhance Veterans' Occupational Performance in the Home: A Qualitative Perspective

Terry K. Crowe
University of New Mexico, tcrowe@salud.unm.edu

Mylinh T. Nguyen
HealthSouth Rehabilitation Hospital and, linhn368@gmail.com

See next page for additional authors

Credentials Display

Terry K. Crowe, Ph.D., OTR/L; Mylinh T. Nguyen, MOT, OTR/L; Brenda G. Tryon, MOT, OTR/L; Stephanie Barger, CPDT-KA, CBCC-KA, Victoria Sánchez, DrPH, MPH

Follow this and additional works at: <https://scholarworks.wmich.edu/ojot>

 Part of the [Occupational Therapy Commons](#)

Copyright transfer agreements are not obtained by The Open Journal of Occupational Therapy (OJOT). Reprint permission for this article should be obtained from the corresponding author(s).

[Click here to view our open access statement regarding user rights and distribution of this article.](#)

DOI: 10.15453/2168-6408.1468

Recommended Citation

Crowe, Terry K.; Nguyen, Mylinh T.; Tryon, Brenda G.; Barger, Stephanie; and Sanchez, Victoria (2018) "How Service Dogs Enhance Veterans' Occupational Performance in the Home: A Qualitative Perspective," *The Open Journal of Occupational Therapy*: Vol. 6: Iss. 3, Article 12.

Available at: <https://doi.org/10.15453/2168-6408.1468>

This document has been accepted for inclusion in The Open Journal of Occupational Therapy by the editors. Free, open access is provided by ScholarWorks at WMU. For more information, please contact wmu-scholarworks@wmich.edu.



How Service Dogs Enhance Veterans' Occupational Performance in the Home: A Qualitative Perspective

Abstract

Background: This qualitative study explored the lives of veterans diagnosed with posttraumatic stress disorder (PTSD) and/or traumatic brain injury (TBI) and how the partnerships with their service dogs supported improved occupational performance in their homes.

Method: Semi-structured individual interviews were conducted with six veterans with PTSD and/or TBI who graduated and received their service dogs from the Paws and Stripes Program in Albuquerque, NM. Home activities of daily living (self-care, household tasks, leisure activities, and family and friend relationships) guided the interview questions. The individual interviews were audio recorded, transcribed, and coded using qualitative data analysis software. Preliminary themes were independently developed by two graduate research assistants. Final themes and subthemes were generated by team consensus.

Results: The overarching theme was veteran and service dog partnerships improved occupational performance in the home. Four primary themes arose that supported the overarching theme: (a) providing physical safety and peace of mind; (b) supporting healthy behaviors; (c) my service dog, my hero; and (d) influencing family and friend relationships.

Discussion: Findings from this study support that veteran and service dog partnerships improved the veterans' occupational performance in their homes. The service dogs assisted the veterans on physical and emotional levels and improved their healthy behaviors.

Comments

Stephanie Barger reports that as the director of programs for Paws and Stripes, she has significant knowledge about the individuals studied in this program and did not take part in the collection or analysis of the data. The service dog vest is patent-pending.

Keywords

veterans, service dogs, posttraumatic stress, traumatic brain injury, qualitative methods

Cover Page Footnote

We offer a heartfelt thanks to Paws and Stripes for opening their doors to this research study and collaborating with us. We extend our sincere gratitude to all of the veterans and service dogs who participated in this study. We also thank the veteran who participated in the pilot study.

Complete Author List

Terry K. Crowe, Mylinh T. Nguyen, Brenda G. Tryon, Stephanie Barger, and Victoria Sanchez

Since World War I, occupational therapists have played a crucial role in the rehabilitation and reintegration of veterans with physical and psychological injuries that range from amputations to posttraumatic stress disorder (Cogan, 2014). Approximately 61% of veterans who were deployed to Iraq and Afghanistan sought health care from Veterans Affairs between the years 2002 to 2015 (U.S. Department of Veterans Affairs, 2015). The Department of Veterans Affairs reported that many of the returning service members experienced medical conditions that included posttraumatic stress disorder (PTSD), traumatic brain injury (TBI), major depressive disorders (MDD), or musculoskeletal injuries.

Over 299,000 veterans who served in the Iraq and Afghanistan wars were diagnosed with PTSD between the years 2002 to 2015 (U.S. Department of Veterans Affairs, 2017). PTSD is a psychiatric disorder that can occur in individuals who have experienced or witnessed a traumatic event. Symptoms include flashbacks; distressing dreams; avoidant tendencies of people, places, and objects or activities that may elicit distressing memories; ongoing guilt, shame, and anger; feeling detached from others; irritability; hypervigilance; and difficulty sleeping (American Psychiatric Association, 2013).

According to the Defense and Veterans Brain Injury Center (2017), more than 300,000 U.S. military personnel were diagnosed with TBI between the years 2000 to 2015. TBI is caused by a blow, bump, or jolt to the head and is diagnosed by severity ranging from mild to severe (Centers for Disease Control and Prevention, 2017). Symptoms of TBI vary and may include physical symptoms (e.g., headache, trouble sleeping, vision problems, noise and light sensitivity, and feeling dizzy), cognitive symptoms (e.g., memory problems, difficulty staying focused, poor judgment, trouble putting thoughts together), and/or emotional symptoms (e.g., depression, anger, outbursts, anxiety, and personality changes) (Miles, Graham, & Teng, 2015; U.S. Department of Veterans Affairs, 2015; U.S. Department of Veterans Affairs, 2017). PTSD frequently accompanies TBI (Gironde et al., 2009; Hoge et al., 2008; Ruff, Riechers, Wang, Piero, & Ruff, 2012). The co-occurrence of PTSD and TBI can have overlapping physical, cognitive, and psychological symptoms (Bryant, 2011; Miles, Graham, & Teng, 2015; Speicher, Walter, & Chard, 2014; Spencer, Drag, Walker, & Bieliauskas, 2010). These cognitive, psychological, and behavioral impairments can affect reintegration into civilian roles and participation in occupations (Hwang, Peyton, Kim, Nakama-Sato, & Noble, 2014; Radomski & Brininger, 2014; Speicher et al., 2014). These studies stated that concerns can include driving in the community; resuming household, family, work, and leisure roles; self-management of stress and pain; and establishing healthy routines.

Some veterans with a history of PTSD and/or TBI are partnering with service dogs to assist them in occupations that have been impacted by their disability (Crowe, Sánchez, Howard, Western, & Barger, 2017; Froling, 2009; Hemmerly-Brown, 2011; Miller, 2014). Occupations refer to daily life activities in which people engage and which have purpose, meaning, and perceived use (American Occupational Therapy Association, 2014). As defined by the Americans with Disabilities Act (ADA), service animals include dogs that are individually trained to do work or perform tasks directly related to a person's disability (ADA National Network, 2017). Service dogs may perform tasks for veterans with a history of PTSD and/or TBI, including performing safety room checks, reminding the veteran to take prescription medication, responding to the onset of an anxiety attack, or alerting the veteran to take breaks or avoid activities that can trigger flashbacks or stress-related symptoms (Froling, 2009). Alerts are a form of communication the service dogs use to inform people about distressing changes, impending triggers, or when to take a break. Triggers can vary and may include seeing or hearing

something, or even a specific smell, that can set off a memory or flashback of a traumatic event (U.S. Department of Veterans Affairs, 2015).

Service dogs are increasingly being paired with people with a variety of disabilities. These partnerships have been shown to improve self-esteem and overall well-being and to increase social interactions and independence (Allen & Blascovich, 1996; Crowe et al., 2014; Rintala, Matamoros, & Seitz, 2008; Winkle, Crowe, & Hendrix, 2011). For example, women with mobility disabilities had more social interactions in their community and performed functional tasks more efficiently and with less effort when their service dogs were present (Crowe et al., 2014).

There is the potential for similar findings when veterans are paired with service dogs. In a qualitative study, Crowe, Sánchez, Howard, Western, and Barger (2017) found that service dogs helped veterans transition from isolation to being integrated into the community. The service dogs helped the veterans to navigate daily life, facilitate social opportunities, and transform their sense of worth and purpose. Anecdotal publications have described the physical benefits of service dogs, including the ability to live more independently secondary to mobility assistance (e.g., retrieving dropped items); psychological and emotional benefits, such as preventing panic attacks; and increasing social interaction opportunities (Hemmerly-Brown, 2011; Miller, 2014; O'Brien, 2008). Yet more research is needed to systematically explore the benefits of veteran and service dog partnerships.

This is the first study that explored how service dogs assist veterans' occupational performance in their homes. Occupational performance is defined as the engagement in a task or occupation resulting from the dynamic interaction among the person, environment, and occupation (American Occupational Therapy Association, 2014). Activities in the home (self-care, household tasks, leisure activities, and interactions with family and friends) provided the overarching framework for this study.

The research questions were:

1. How do service dogs influence veterans' emotional well-being in the home?
2. How do service dogs influence veterans' physical well-being in the home?
3. What are the general benefits and challenges of service dogs for veterans when interacting with family and friends in the home?

Method

Setting: Paws and Stripes

Paws and Stripes is a nonprofit organization providing service dog training, education, and mental health support for veterans with PTSD and/or TBI (Paws and Stripes, 2015). Each veteran carefully chooses his or her service dog from an animal shelter with guidance from the Paws and Stripes professional trainers. Paws and Stripes has a team of trainers with various levels of experience in dog training, adult education, and the medical field. The training team is overseen by the director of programs and the head trainer, who hold nationally recognized certifications through the Certification Council for Professional Dog Trainers (CPDT). Once a member of the training team meets the criteria to qualify for certification through CPDT, they are encouraged to pursue certification.

After establishing a relationship with his or her service dog, each veteran commits to an intensive weekly training program that can take up to 18 months. Veterans participate in groups with and without their service dogs and in individual sessions with their service dogs and the professional trainers at the Paws and Stripes facility. Once the service dog/veteran team demonstrates basic skills and acceptable public manners, training sessions move to public locations for further task-oriented training. The training focuses on teaching the dog skills that address each veteran's unique challenges and

needs. For example, dogs are taught to help the veterans by providing additional space in crowded situations, monitoring the environment by checking blind corners or entryways, physically assisting the veterans on stairs or in transitions from sitting to standing, physically picking up items, and alerting the veterans to increased anxiety. Finally, weekly workshops without the service dogs provide a classroom environment where the veterans learn the many theories, practices, and other elements important for successful completion of the program. Figure 1 outlines the multiple required steps to meet graduation competencies.

In addition to the dog training competencies, veterans enrolled in the Paws and Stripes program and their service dogs must attend individual sessions with a mental health provider familiar with the rigors of the program two times a month. The goal of the mental health component is to assist the veterans in coping with the challenges that they face while enrolled in the program. This includes assisting the veterans to develop skills to counter symptoms they experience as they move to more difficult levels of the training. These skills include developing communication skills to address public interest, addressing family issues that may arise from the changing dynamics in the home caused by the introduction of a service dog, and exploring de-escalation techniques to assist in regulating their symptoms. The focus of this component is to develop techniques that enhance the communication between the veteran and his or her service dog by dealing with the symptoms and triggers that the veteran faces each day, rather than unpacking why a symptom flares up or is triggered by something. While it may be necessary to delve into the original traumatic event when the issue is affecting program progress, it is not the focus of the mental health component of the program. However, the veterans are encouraged to pursue such other treatment outside of the program.

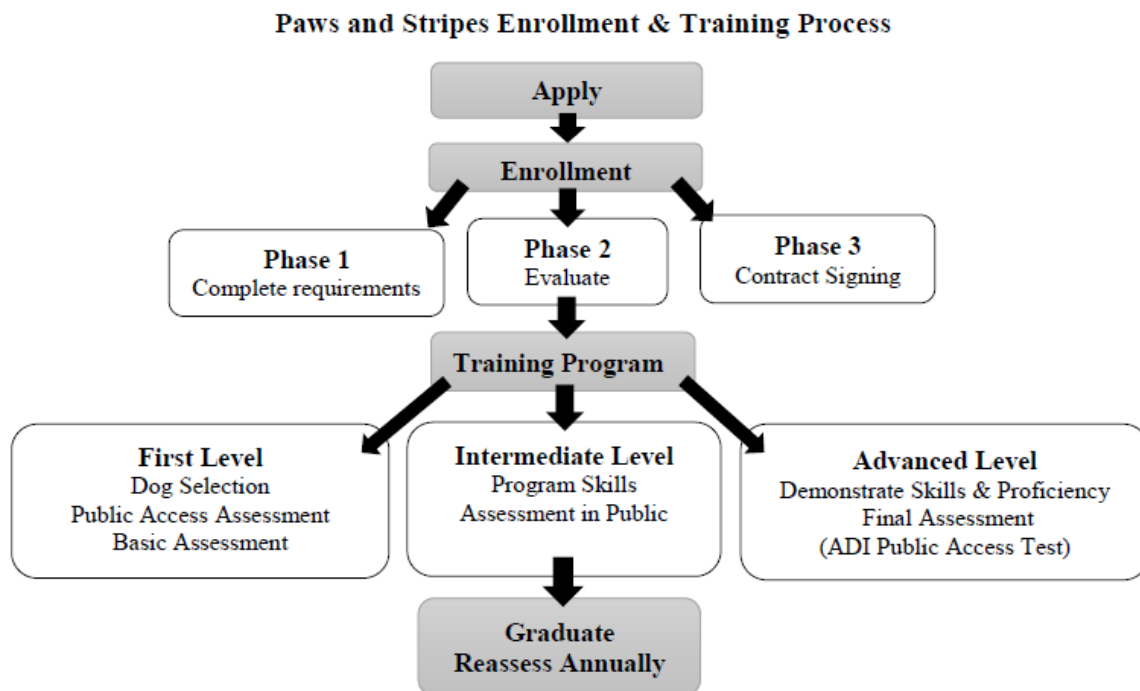


Figure 1: Paws and Stripes Enrollment and Training Process.

Participants

Participant recruitment began with the Paws and Stripes staff presenting information about the research project and inviting Paws and Stripes graduates to participate in interviews to share their personal experiences about their service dogs. Paws and Stripes staff then forwarded the names and contact information of interested veterans to the principal investigator (first author). The first author contacted perspective participants via phone and/or email to determine eligibility, to fully describe the study, and to answer questions. Inclusion criteria required that the veterans (a) graduated from the Paws and Stripes Program in 12 months, (b) owned a service dog trained by Paws and Stripes, (c) lived in New Mexico, (d) could speak and understand English, (e) had a diagnosis of PTSD and/or TBI, (f) were 18 years of age or older, and (g) were willing to participate in the study. Six veterans—four men and two women—between 27 to 55 years of age agreed to participate in the study (see Table 1).

Table 1

Veteran Demographics

Age (years)	Gender	Marital Status	Military Branch (% Disability)	Diagnosis	Service Dog Training (months)
51	Male	Married	Army (100)	PTSD & TBI	18
55	Female	Single	Army (90)	PTSD	12
40	Male	Married	Army (100)	PTSD & TBI	11
27	Female	Married	Air Force (90)	PTSD	10
54	Male	Married	Army/Marines (100)	PTSD	9
33	Male	Married	Army (70)	PTSD & TBI	10

Data Collection

We used an exploratory qualitative research design to answer our research questions about the veteran and service dog partnerships in the home. This study was approved by the University of New Mexico Human Research Projects Office (UNM HRPO). All of the participants completed a demographic survey form and signed an informed consent form before participating in the semi-structured individual interviews.

The five-member research team created the interview guide for the individual interviews. The interview guide focused on collecting data on home activities in the following areas: self-care, household tasks, leisure activities, and interactions with family and friends. The first, second, and third authors conducted a pilot interview with one veteran whose data was not included in this study. This veteran's feedback was used to refine the interview guide. The pilot data was later transcribed,

independently coded by the second and third authors (graduate assistants), and cross-referenced to establish reliability between both graduate research assistants prior to coding the six interviews.

The six individual interviews were scheduled and conducted by the first author either in the veteran's home or at the Paws and Stripes facility. Out of respect for the veterans, we allowed them to choose the interview location. Some of the veterans were comfortable leaving their homes and preferred the familiarity of the Paws and Stripes facility, while others were uncomfortable with people they did not know coming to their homes. Paws and Stripes staff were not present at the interviews. Each graduate assistant attended three interviews. The semi-structured individual interviews varied from 45 to 90 min. The veterans received a \$25 gift card for their participation.

The interviews were audio recorded with a recording device (Olympus Digital Voice Recording VN-6000, Olympus Corp., Shinjuku, Tokyo, Japan). Each graduate assistant transcribed verbatim the interviews they attended. The other research assistant then listened to the audio recordings and read the transcriptions completed by the other graduate assistant to ensure accuracy and, if needed, to correct the transcripts.

Data Analysis

The graduate assistants worked with the fifth author, a senior qualitative researcher, to create the analytic and coding framework. Descriptive coding and thematic analysis began with question-level coding to create a codebook with categories that led to further development of themes. For example, a coding category was safety in the home. Quotes that described how the service dog assisted in preventing falls and providing safe mobility (balance assistance, picking up items) were categorized under safety in the home. Refinements were made to the codebook as the graduate research assistants read and coded the pilot transcript prior to coding the six interviews. We omitted identifying characteristics to protect the identity of the veterans and their service dogs. The veterans were assigned a number between 1 and 6, and their service dogs were identified as service dog. The graduate assistants used QDA Miner 4 Lite qualitative data analysis software to code each transcript (Provalis Research, 2014).

To enhance study rigor and validity, the graduate assistants used a primary/secondary coding approach where each served as the primary coder for the three interviews they transcribed and as secondary coder for the interviews transcribed by the graduate assistant. They identified preliminary themes separately and then compared themes to assess coding consistency and agreement. Coding differences were discussed until the two graduate research assistants reached a consensus. The full research team then met to discuss themes and subthemes. Final theme consensus was reached and the team discussed selected quotes to define the themes and subthemes.

Results

The veterans reported that their service dogs helped to improve their occupational performance in their homes. Four themes and six subthemes emerged from the data that illustrated these changes: (a) providing physical safety and peace of mind; (b) supporting healthy behaviors (sleep, medication and pain management, physical health awareness, and emotional awareness); (c) my service dog, my hero; and (d) influencing family and friend relationships (benefits, challenges). These themes came together to support the overarching theme: Veteran and service dog partnerships improved occupational performance in the home (see Figure 2).

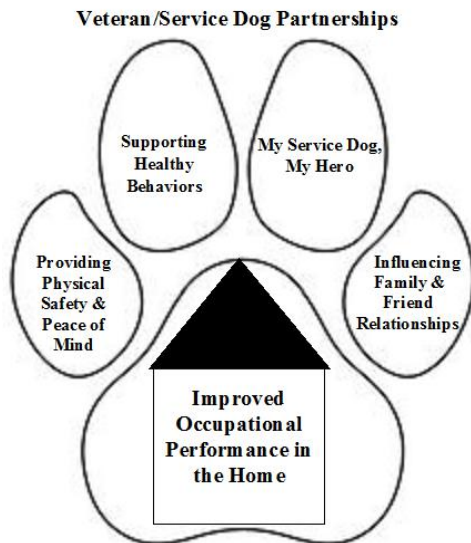


Figure 2. Four primary themes supporting the overarching theme.

Theme 1: Providing Physical Safety and Peace of Mind

Physical safety. Because of war-related injuries, some of the veterans reported having mobility issues that impacted home safety. Three of the six veterans reported that their service dogs assisted with safe mobility and fall prevention in the home. For example, Veteran 5 expressed, “If I’m going up a stairway, he’ll help me get up the stairway by kinda leaning on me while I’m walking.” Veteran 1 experienced “dizzy spells” and could avoid falls with assistance from his service dog. He stated, “I don’t have to bend over to pick up anything, she picks up everything for me, my shoes, my cane, my keys.” Some of the veterans reported that their service dogs physically assisted them to get up after a fall. Veteran 3 shared:

He follows me around in case I fall because I do have falling spells every now and then. Say I’m mopping the floor in the hallway, he’ll lay at the far end of the room and he’ll just sit there until I get back to him and then he’ll move and get into the living room until I mop back to him. And if I do fall, then he comes over and I’ll stay laying down and even though I feel OK, he won’t let me up or help me up until he knows that I’m OK.

Peace of mind. Four of the six veterans reported feeling safer in their homes after owning a service dog. This renewed sense of security enabled the veterans to focus on completing meaningful occupations at home and achieving healthy behaviors instead of focusing on security for their families and themselves. Veteran 1 shared his sense of greater ease.

People can knock on my door without me grabbing my gun at the door now, because I know when it’s necessary by her [service dog] tone. When I first got back, somebody would knock on the door . . . and [I] would [be] jumping and running for my gun.

Feeling relaxed in their home was also commonly reported, as shared by Veteran 2: “I couldn’t relax without him. I feel if anything is coming, [service dog] will let me know.” Many of the veterans stated that having a service dog was parallel to having a fellow soldier “watch his or her back” during service in the military. Veteran 5 expressed: “OK . . . when you’re out there in a combat situation, you feel that with your fellow brothers, with your fellow marines, and you know they got your back. I know my [service dog’s] got my back.”

Theme 2: Supporting Healthy Behaviors

The veterans reported achieving or reengaging in healthy behaviors (sleep, medication and pain management, physical health awareness, and emotional awareness) with the assistance of their service dogs.

Sleep. The majority of the veterans reported that they had trouble falling asleep, staying asleep, or experienced night terrors or nightmares due to a history of PTSD and/or TBI. Five of the six veterans reported that the presence of the service dog assisted them in falling asleep or staying asleep. Veteran 6 shared:

So, there have been times where I have woken up in the middle of the night and [service dog] wasn't physically right next to me because he was on the ground. So, I call . . . he'll come up and comfort me.

Many of the veterans also reported that when experiencing night terrors, their service dogs would interrupt the cycle by alerting them to wake up. Veteran 5 stated:

There's been times that I'd be laying, I'd be half asleep, he puts his head right there on the edge of the bed, so I know, he's there if I'm having a nightmare or something, he'll kind of wake me up."

Veteran 2 explained how her service dog would alert her:

When I have night terrors, [service dog] wakes me up. He touches me with his nose on a sensitive part of my arm and I wake up. Well, I didn't know why I was waking up. And I was still married, and I asked my husband, "What is going on?" And we didn't sleep in the same room because of my night terrors. And he goes, "Well, I heard you, and you were screaming, and so [service dog] woke you up.

Medication and pain management. Remembering to take medications was often a challenge to the veterans. Each veteran was on different medications ranging from supplements to prescribed medications. Five of the six veterans were alerted by their service dogs to take their daily medications and/or supplements at the right time. Veteran 4 reported, "He'll just go over where my medications are at a specific place on the counter, and he'll go over there and just wait. So, I'm like, 'Oh yeah, I need to go take them [medications]'" Pain management was another concept that arose for four of the veterans. When a veteran experienced pain at a level that might impact functional participation in occupations, his or her service dog would detect the pain and alert the veteran to take a break, step away, rest, or take pain medication. The service dog's alerts varied from ignoring commands to tactile alerts. Veteran 2 expressed:

If I just keep pushing, you know soldiering on, and adapting and overcoming, and I don't take my medication, [service dog] will refuse to get vested [service dog wears vest when working], and if he does, he will refuse to get into the car. Then I take my medication. Now if I forget, he reminds me to take my medication because he senses my mood and work [quality] deteriorates if I don't take my medication.

Physical health awareness. Some of the veterans reported that their service dogs perceived the state of their physical health. Veteran 3 reported that his service dog provided tactile alerts, "If my back or legs are hurting real bad, he will actually lay on my back just so I can't get out of bed." The service dogs also assisted in early detection of pain symptoms. As in the case of Veteran 5, his service dog prevented the escalation of his migraines:

I've learned, just with pain, they'll tell you, "What's your worst pain [level], [on a scale of 1 to] 10?" With the migraines, I could be a three or four and they're manageable. My [service dog] will alert me at a [pain level] two or three. He will come up and start stepping into me.

Veteran 1 shared:

When I had a heart attack, I was standing [and] just went into total pain. She jumped on top of me and I thought, "What the . . . ?" She never jumps on me but she threw me on the chair. She doesn't jump on me, that's not what she's trained to do, but she jumped on me, she threw me in the chair. I started sweating like a pig. She started licking my face, nudging me, and licking me, that's when I said, "Something's wrong". I called 911 and the next thing you know I was on a helicopter to [the hospital].

Emotional awareness. The service dogs not only detected physical health issues, they also supported the veterans' awareness of their emotions. The veterans with a history of PTSD and/or TBI reported that they commonly experienced stressful emotions, such as anxiety or feeling disconnected to their emotions. A few of the veterans reported that their service dogs increased their awareness of their emotions through alerting them to pay attention to incidents that trigger negative emotional responses. The veterans were often able to recognize triggers in response to the service dogs' alerts and take proactive steps to self-regulate. Veteran 6 expressed how he enjoyed playing war video games; however, these video games also increased his anxiety levels. When his service dog detected his high anxiety levels, his service dog would alert him to take a break. Veteran 6 stated, "Basically, I had to teach [service dog] by listening to him [becoming aware of the dog's alerts]. You know, by putting the controller down and just relaxing for a little bit." Veteran 6's service dog would transition from subtle alerts (e.g., nudging his leg) to more obvious alerts (e.g., barking) if he did not take a break during the initial alerts. In other cases, the service dog provided deep pressure or tactile input by leaning against the veteran, providing a calming effect and deescalating emotions of high anxiety before they transformed into a panic attack. Veteran 5 shared, "That physical contact kind of eases me, it gives me a sense of ease." His service dog provided him with a sense of calm through tactile input. Veteran 4 reported a similar experience:

He [service dog] will come to me when he knows I'm stressed. Just kind of lean on me.

The other two [family dogs], I feel like we don't have that connection so they may have not ever done that or I don't know but he [service dog] definitely calms me down a lot.

Theme 3: My Service Dog, My Hero

The veterans experienced a special bond with their service dogs that exceeded their expectations. "[Service dog] is my arms and my legs and my heart," stated Veteran 2. The veterans spoke not only of the support they received from their service dogs but also about the camaraderie that developed between the two. Veteran 1 stated, "I couldn't sit here and talk to you right now if it wasn't for [service dog] sitting next to me, reminding me that I am bigger than I think I am. You know, I'm bigger than I feel." This reciprocal and symbiotic relationship also generalized to engaging in social participation in the home. Veteran 3 shared, "I've had to learn with him because I couldn't have done this. I wouldn't even [have] been talking to you a year ago, or a year and a half ago." This common sentiment from all of the veterans highlighted the unique partnership between the veteran and his or her service dog and characterized the changes the service dog brought to each veteran's life.

Theme 4: Influencing Family and Friend Relationships

Benefits. Residual impacts from being involved in the wars in Iraq and Afghanistan affected not only the veterans but also their families. Having a history of trauma, PTSD, and TBI may cause some veterans to create emotional barriers with their family and friends. Veteran 4 reported, “Since I’ve had [service dog], I’ve learned so much throughout the program. I really feel like it has made me a more calm, understanding mom, and I feel like I’ve been closer to my husband.” During the interviews, some of the veterans reported a distant relationship from some family members after their military service and prior to owning their service dogs. Veteran 1 shared, “I could never tolerate the grandkids, I mean, they were just intolerable. I just had no patience for them. It just wasn’t a good thing for a grandfather.” Integration of the service dog helped Veteran 1 build a relationship with his grandchildren. He stated:

When I got [service dog], she started going with me everywhere, doing everything with me. My grandkids wanted to be involved with [me and the dog] . . . but yeah, [service dog] has taught me to be more patient.

Some of the veterans reported that the skills they gained from building the partnership with their service dogs were transferable to interacting or reconnecting with their family. In other circumstances, the service dog provided a physical barrier between the veteran and a family member to facilitate a more comfortable interaction. Veteran 6 shared:

When we went to the funeral, it had probably been a year since I’d seen my dad. My dad comes up to me, gives me a hug and we start talking. Almost immediately [service dog] got in between my dad and [me] . . . he definitely was picking up because I was uncomfortable being around him.

The ability to maintain and establish friendships can also be affected by a history of PTSD and/or TBI. Through involvement with Paws and Stripes, Veteran 3 expressed how the program helped him develop a friendship with another veteran through shared dog training experiences.

I’ll be honest, since getting back from Iraq, I would say, I had one friend and that was the person I married after my first wife left me and until I started this program and graduated, and now [another veteran] comes up to my house on weekends. He’s the first true friend that I’ve had in 11 years.

Veteran 3 also shared how a new friendship helped him by further explaining: “It’s pushing my friend, so we’re helping each other through some things and it’s neat.” Veteran 4 also shared how she established friendships with other veterans in the program:

I do have another friend that is in the program right now. She has a service dog and she’ll sometimes come over. And we’ll just leave [service dog] and her service dog in here the house, so they can play.

In some cases, part of the caregiver role, which often fell on other family members, was partially alleviated by the service dog. The service dog retrieved items for the veteran or relieved the caregiver from always having to stay with the veteran in the home. For example, Veteran 1 shared:

If [my wife] is not here, she has to go to the store [or] has to do something . . . she doesn’t worry about me because [service dog] will lay right next to me and will not move until [my wife] gets back . . . once [my wife] gets back, [service dog] will get out of bed . . . but if there’s nobody here, she won’t leave my side.

Challenges. Although the veterans reported that the service dogs helped improve the quality of family relationships and friendships, challenges were also identified when integrating the service dog into the family. Some of the challenges reported by the veterans included family members or friends who were not accepting of their service dogs, a loss of family relationships or friendships, and/or a strain to a long-standing relationship or friendship due to the addition of the service dog. Two of the veterans experienced a change in the interactions they had with family and friends. Veteran 3 expressed, “It was very difficult for my wife because that was her job to watch my back for 10 years and so it was very difficult for a while.” Some family members did not understand PTSD and the important role the service dog played for the veteran. Veteran 5 shared:

Well you know family, most, I don’t want to say most, the majority of my family say they understand. They look at him as a pet rather than as a service dog, especially my brother and my mom, because they tend to say, “Well, there’s nothing wrong with you.” They can’t understand what PTSD is.

The additional and constant presence of the service dogs changed the family dynamics in more than half of the veterans’ homes. As Veteran 2 recalled about friends she made in church: “I was going to that big church, we had which is called ‘community group’, it is where you had a group of people who met every week, same group, and they became your family, I mean really a family.” These gatherings often took place at Veteran 2’s home, but stopped shortly after she received her service dog. Veteran 2 explained, “Everyone else has pets but they don’t want me to bring my [service] dog.” This resulted in a loss of close friendships with people she also considered family.

Overarching Theme: Veteran and Service Dog Partnerships Improved Occupational Performance in the Home

In general, the veterans reported that before they received their service dogs their health issues often prevented them from fully engaging in meaningful occupations. Many of the veterans reported how having a history of PTSD and/or TBI symptoms caused them to experience issues ranging from decreased sleep to increased pain, which ultimately affected their participation in valued occupations. However, with the assistance of their service dogs, the veterans reengaged in many occupations in their homes. For example, Veteran 3 reported:

If I had forgotten to take a shower in the morning, [service dog] will not let me out of my bathroom because that is something that relaxes me for the day and so he doesn’t like me starting the day . . . [My service dog] stands at the door . . . if the door is kinda a little open he’ll push it closed and lay down right in front of it. Then it doesn’t take me long to figure out, “Ok, I need to take a shower”.

Veteran 3’s service dog helped him do his self-care tasks so he could successfully engage in other occupations throughout the day. The veterans shared how the responsibilities of caring for their service dogs often intermingled with their own daily routines, therefore promoting them to engage in meaningful occupations. Veteran 5 reported:

I get up and I take my vitamins and I get ready to feed [service dog]. I feed him, we go through the routine . . . I usually have a cup of coffee or something, watch the news a little bit, get ready, whatever I have to get done, I usually do things at home or I go out if I have to go out, I plan my day out. I get [service dog] dressed, I get myself dressed, I take a shower, [service dog] is there with me as I am getting dressed.

Veteran 5 continued to describe how his service dog provided increased motivation, thus enabling him to engage in physically active occupations even when he felt unmotivated. Veteran 5 reported:

Some days I don't feel like doing anything, [service dog] kinda gives me motivation. He'll get me up . . . and sit there like, "come on let's go do something". He will want to go outside, just to go. I play toss, he likes to run, so I'll go out there and toss the ball with him. We play . . . he kinda gets me motivated. He helps me not to sit there and waste the day.

Veteran 2 shared a similar experience: "He gets me motivated, to get up and get outside." In some cases, the service dog physically assisted the veteran with specific tasks needed to complete an occupation. Veteran 4 expressed how her service dog assisted in her occupation as a mother.

For example, if I drop a diaper, I'll be like pick it up (snaps with fingers), I'll just snap and [service dog] will pick it up and bring it to me, a clean diaper of course, you know if we're changing a diaper If I dropped the spoon and [service dog] picked it up and brings it to me. Um what else . . . [service dog will] shut like the dishwasher or the cabinets or doors so that's always helpful.

Veteran 2 shared, "It's a great household thing. He shows me where my keys are when I've lost them. When I lose them, and I lose them quite frequently, so I ask [service dog] to find them." The veteran and service dog partnership also improved occupational performance in the home by improving many of the veterans' abilities to engage in occupations shared with family members or friends. Veteran 1 experienced how his service dog brought his family closer by just spending time together, thus providing a common connection between the veteran and his family members. "I have been able to have incredible times with my family since I've had him [service dog]. My family, doing the family things, family time, I guess you could say. There was none before. I couldn't be around family; I couldn't be around anybody." These experiences of family bonding increased the veterans' relaxation, joy, and performance in leisure activities with family and friends. Family leisure activities also strengthened the family bond when the service dog was not working, as described by Veteran 4: "We, as a family, we'll play with all three dogs, we play tug-of-war, we play fetch, so that's just a stress reliever for me and it's, you know, giving them exercise. We are also together as a family."

Overall, the veteran and service dog partnership helped improved each veteran's ability to engage in meaningful occupations in his or her home by addressing issues that may have hindered occupational performance.

Discussion

This study, which focused on veterans' occupational performance in the home, will add to the limited research addressing veteran and service dog partnerships. The themes and subthemes that emerged from this study supported the overarching theme: Veteran and service dog partnerships improved occupational performance in the home. By providing physical safety and peace of mind; supporting healthy behaviors, such as better sleep and medication management; and facilitating improved family and friend relationships, the service dogs promoted occupations that provided opportunities to improve the veterans' home environments.

Veterans with a history of PTSD and/or TBI may experience health issues that can serve as barriers when trying to engage in occupations or return to previously held occupational roles. The most commonly affected occupational performance barriers reported by the veterans in our study, which incorporated service dogs, were the areas of self-care, household tasks, physical and emotional health,

and relationships with family and friends. These areas of occupational performance overlapped with findings from the Plach and Sells (2013) and Speicher, Walter, and Chard (2014) studies, which explored the occupational performance of the veteran population without service dogs. In these two studies, the Canadian Occupational Performance Measure-COPM (Law et al., 2014) was administered to identify the occupational performance barriers that veterans experienced when returning to their civilian lives after military service. These studies also identified occupational performance barriers, including self-care (sleep, physical health, mental health), productivity (household management), and leisure and social participation (relationships, emotional regulation, and emotional de-sensitivity). Radomski, Davidson, Voydetich, and Erickson (2009) found that veterans with a history of TBI had occupational performance difficulties in the areas of life skills and routines, household tasks, family relationships, leisure activities, and work tasks. The veterans in our study reported disrupted occupational performance in their homes in similar areas prior to receiving their service dogs.

The veterans with a history of PTSD and/or TBI in our study used service dogs to assist them in their daily lives. The experiences and perspectives shared by the veterans with service dogs highlighted how these partnerships improved occupational performance in their homes. These study findings are consistent with existing anecdotal reports regarding veteran and service dog partnerships (Hemmerly-Brown, 2011; Miller, 2014; O'Brien, 2008). Anecdotal reports also described benefits, such as mobility assistance (e.g., retrieving dropped items); the ability to live more independently; increased social interactions; and psychological and emotional benefits, such as preventing panic attacks, deescalating distressing emotions, and alerting to triggers.

Congruent with the outcomes from other studies focusing on people with disabilities and service dogs (Crowe et al., 2014; Rintala, Matamoros, & Seitz, 2008; Winkle et al., 2011), the veterans in this study reported experiencing an increase in their overall well-being and in their independence in performing some occupations. Another similarity is that the veterans in our study reported an increase in the frequency of social opportunities, as well as in their personal skill development and independence. Overall, this study indicates that there is potential for other veterans with a history of PTSD and/or TBI to benefit from a veteran and service dog partnership.

Limitations

This study provides a better understanding of veteran and service dog partnerships and lays the initial groundwork to guide future studies. Given that perspectives are limited to the veterans who choose to participate in this study and were willing to share their experiences, the findings may not generalize to all veterans who have a history of PTSD and/or TBI or to nonveteran populations. The diversity of the veterans' learned skills and training methods used by Paws and Stripes may not be the same across service dog organizations, which may deploy different training approaches. Therefore, this study cannot be generalized to all service dog organizations.

Implications for Future Research

This is the first study that focused on occupational performance in the home for veterans with service dogs. In future studies, the severity of symptoms associated with PTSD and/or TBI should be taken into consideration. We noted that each veteran's needs varied; therefore, the level of assistance and acquired skills of each service dog varied as well. Future quantitative studies with larger samples and pre and post studies focusing on veterans' occupational performance and quality of life before and after receiving a service dog would be beneficial. Comparison studies between the effects of veteran and service dog partnerships and veteran and companion dog partnerships would be another avenue to

explore. In addition, studies focused on other occupational therapy areas, such as community reintegration, would benefit the research on veteran and service dog partnerships. Finally, exploration of the role of occupational therapy in facilitating occupational performance for nonveteran populations who partner with service dogs remains fertile ground for additional exploration.

Implications for Practice

Occupational therapists will continue to play an influential role in the rehabilitation and reintegration of veterans returning from military service. Occupational therapists interested in providing services to veterans who have expressed an interest in owning a service dog should become familiar with reputable service dog organizations in their geographic area. Occupational therapists can help facilitate veterans in their quest to obtain service dogs or provide an appropriate referral. With their competencies in the physical, cognitive, and mental health areas, occupational therapists can perform assessments with veterans to identify areas of occupational performance difficulties. Once occupational performance needs are identified, occupational therapists can be a vital part of the collaboration between the veteran, the service dog organization, and the professional dog trainers. This collaboration can facilitate better placement of service dogs that match the veterans' strengths and occupational performance needs and enable targeted preparation for dog handling and the education of other team members about disability issues. Occupational therapists can bring a unique and holistic perspective to this new collaboration, ultimately enhancing the veteran and service dog partnership.

Terry K. Crowe, Ph.D., OTR/L, professor and founding director, occupational therapy graduate program, University of New Mexico, Albuquerque, NM

Mylinh T. Nguyen, MOT, OTR/L, occupational therapist, HealthSouth Rehabilitation Hospital and University of New Mexico Hospital, Albuquerque, NM

Brenda G. Tryon, MOT, OTR/L, OnPointe Health, Albuquerque, NM

Stephanie Barger, CPDT-KA, CBCC-KA, director of programs, Paws and Stripes, Albuquerque, NM

Victoria Sánchez, DrPH, MPH, associate professor, College of Population Health, University of New Mexico

References

- ADA National Network. (2017). *Service animals*. Retrieved from <http://adata.org/factsheet/service-animals>
- Allen, K., & Blascovich, J. (1996). The value of service dogs for people with severe ambulatory disabilities: A randomized controlled trial. *Journal of the American Medical Association*, 275(13), 1001-1006. <http://dx.doi.org/10.1001/jama.1996.03530370039028>
- American Occupational Therapy Association. (2014). Occupational therapy practice framework: Domain & process (3rd ed.). *American Journal of Occupational Therapy*, 68(Suppl. 1), S1-S48. <https://doi.org/10.5014/ajot.2014.68s1>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: American Psychiatric Association. <https://doi.org/10.1176/appi.books.9780890425596>
- Bryant, R. (2011). Post-traumatic stress disorder vs traumatic brain injury. *Dialogues in Clinical Neuroscience*, 13(3), 251-262. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3182010/pdf/DialoguesClinNeurosci-13-251.pdf>
- Centers for Disease Control and Prevention. (2017). *TBI: Get the facts*. Retrieved from http://www.cdc.gov/traumaticbraininjury/get_the_facts.html

- Cogan, A. M. (2014). Supporting our military families: A case for a larger role for occupational therapy in prevention and mental health care. *American Journal of Occupational Therapy*, 68(4), 478-483. <http://dx.doi.org/10.5014/ajot.2014.009712>
- Crowe, T. K., Perea-Burns, S., Sedillo, J. S., Hendrix, I. C., Winkle, M., & Deitz, J. (2014). Effects of partnerships between people with mobility challenges and service dogs. *American Journal of Occupational Therapy*, 68(2), 194-202. <http://dx.doi.org/10.5014/ajot.2014.009324>
- Crowe, T. K., Sánchez, V., Howard, A., Western, B., & Barger, S. (2017). Veterans transitioning from isolation to integration: A look at veteran/service dog partnerships. *Disability and Rehabilitation*, 40, 1-9. <http://dx.doi.org/10.1080/09638288.2017.1363301>
- Defense and Veterans Brain Injuries Center. (2017). DoD worldwide numbers for TBI. Retrieved from <http://dvbic.dcoe.mil/dod-worldwide-numbers-tbi>
- Froling, J. (2009). *Service dog tasks for psychiatric disabilities*. Retrieved from http://www.iaadp.org/psd_tasks.html
- Gironda, R. J., Clark, M. E., Ruff, R. L., Chait, S., Craine, M., Walker, R., & Scholten, J. (2009). Traumatic brain injury, polytrauma, and pain: Challenges and treatment strategies for the polytrauma rehabilitation. *Rehabilitation Psychology*, 54(3), 247-258. <http://doi.org/10.1037/a0016906>
- Hemmerly-Brown, A. (2011, June). *Paws of healing: Service dogs help soothe wounds of war*. Retrieved from https://www.army.mil/article/60771/paws_of_healing_service_dogs_help_soothe_wounds_of_war
- Hoge, C. W., McGurk, D., Thomas, J. L., Cox, A. L., Engel, C. C., & Castro, C. A. (2008). Mild traumatic brain injury in U.S. soldiers returning from Iraq. *The New England Journal of Medicine*, 358(4), 453-463. <http://doi.org/10.1056/NEJMoa072972>
- Hwang, E. J., Peyton, C. G., Kim, D. K., Nakama-Sato, K. K., & Noble, A. E. (2014). Postdeployment driving stress and related occupational limitations among veterans of Operation Iraqi Freedom and Operation Enduring Freedom. *American Journal of Occupational Therapy*, 68(4), 386-394. <http://dx.doi.org/10.5014/ajot.2014.011668>
- Law, M., Baptiste, S., Carswell, A., McColl, M. A., Poltjako, H., & Pollock, N. (2014). Canadian occupational performance measure. Ottawa, Canada: Canadian Association of Occupational Therapists (CAOT) Publications ACE.
- Miles, S. R., Graham, D. P., & Teng, E. J. (2015). Examining the influence of mild traumatic brain injury and posttraumatic stress disorder on alcohol use disorder in OEF/OIF veterans. *Military Medicine*, 180(1), 45-52. <http://dx.doi.org/10.7205/MILMED-D-14-00187>
- Miller, P. R. (2014, June). Going to the dogs: Veterans turn to canines to help them cope with PTSD, trauma. *Citizen Airman Magazine*, 66(3), 26-27.
- O'Brien, S. (2008, May). A soldier and his service dog. *Exceptional Parent*, 38(5), 100-101.
- Paws and Stripes. (2015). *Paws and stripes: Helping dogs, helping heroes*. Retrieved from <http://www.pawsandstripes.org/>
- Plach, H. L., & Sells, C. H. (2013). Occupational performance needs of young veterans. *American Journal of Occupational Therapy*, 67(1), 73-81. <http://dx.doi.org/10.5014/ajot.2013.003871>
- Provalis Research. (2014). QDA Miner Lite (Version 1.4.3) [Software]. Available from: <http://provalisresearch.com/products/qualitative-data-analysis-software/freeware/>
- Radomski, M. V., & Brininger, T. L. (2014). Occupational therapy for service member and veteran recovery, resilience, and reintegration: Opportunities for societal contribution and professional transformation. *American Journal of Occupational Therapy*, 68(4), 379-380. <http://dx.doi.org/10.5014/ajot.2014.013060>
- Radomski, M. V., Davidson, L., Voydetich, D., & Erickson, M. W. (2009). Occupational therapy for service members with mild traumatic brain injury. *American Journal of Occupational Therapy*, 63(5), 646-655. <http://dx.doi.org/10.5014/ajot.63.5.646>
- Rintala, D. H., Matamoros, R., & Seitz, L. L. (2008). Effects of assistance dogs on persons with mobility or hearing impairment: A pilot study. *Journal of Rehabilitation Research and Development*, 45(4), 489-503. <https://doi.org/10.1682/JRRD.2007.06.0094>
- Ruff, R. L., Riechers, R. G., II, Wang, X-F., Piero, T., & Ruff, S. S. (2012). A case-control study examining whether neurological deficits and PTSD in combat veterans are related to episodes of mild TBI. *British Medical Journal Open*, 2(2), 1-12. <http://dx.doi.org/10.1136/bmjopen-2011-000312>
- Speicher, S. M., Walter, K. H., & Chard, K. M. (2014). Interdisciplinary residential treatment of posttraumatic stress disorder and traumatic brain injury: Effects on symptom severity and occupational performance and satisfaction. *American Journal of Occupational Therapy*, 68(4), 412-421. <http://doi.org/10.5014/ajot.2014.011304>
- Spencer, R. J., Drag, L. L., Walker, S. J., & Bieliauskas, L. A. (2010). Self-reported cognitive symptoms following mild traumatic brain injury are poorly associated with neuropsychological performance in OIF/OEF veterans. *Journal of Rehabilitation*

Research & Development, 47(6), 521-530.

<http://doi.org/10.1682/JRRD.2009.11.0181>

- U.S. Department of Veterans Affairs. (2015). Traumatic Brain Injury and PTSD. Retrieved from http://www.ptsd.va.gov/public/problems/traumatic_brain_injury_and_ptsd.asp
- U.S. Department of Veterans Affairs. (2017). Analysis of VA health care utilization among Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) veterans. Retrieved from <https://www.publichealth.va.gov/docs/epidemiology/healthcare-utilization-report-fy2013-qtr4.pdf>
- Winkle, M., Crowe, T. K., & Hendrix, I. (2011). Service dogs and people with physical disabilities partnerships: A systematic review. *Occupational Therapy International*, 19(1), 54-66. <http://dx.doi.org/10.1002/oti.323>