

Effects of a therapy dog program on the wellbeing of older veterans living in a long term care residence

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Current health care practices do not adequately meet the health needs of older adult war veterans. Increasingly, animal assisted interventions (AAIs) are being identified as potentially beneficial for this population. To explore this, this study, informed by a One Health framework, measured the outcomes of the *St. John Ambulance (SJA) Therapy Dog Program* on the wellbeing of older adults at a Veterans Affairs Canada residence in Saskatchewan, Canada. Over a 13 week period, two groups of veterans, of 8 and 10 in number respectively, who were living at the residence were purposively selected to participate in weekly individual and group therapy dog visits. The type of visit varied according to the level of cognition of the veteran, with lower level individuals visiting in a group format. A modified instrumental case study design was applied incorporating both quantitative and qualitative approaches, including questionnaires, focus groups, case history, and observation. Quantitative measures were analyzed descriptively, and qualitative measures were analyzed thematically. The findings revealed a positive influence of therapy dogs on memory recollection and reminiscence among veterans; positive health impacts on veteran wellbeing as understood through the significance of the therapy dog team encounter; and, perceived meaningful support from the therapy dog handlers and love and support from the therapy dogs. The analysis is contextualized within the growing literature on AAIs and contributes important insights to adequately meeting the needs of older adult war veterans, and potentially for the increasing population of recent war veterans. Additionally, key policy, practice, and research recommendations are proposed, including further investigation of therapy dog visits.

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A wide body of knowledge suggests that the human-animal bond and the relationships that stem from it positively impact human health (Anderson, Reid, & Jennings, 1992; Allen, Shykoff, & Izzo, 2001; Cutt, Knuiman, & Giles-Corti, 2008; Friedmann & Thomas, 1995; Garrity & Stallones, 1998; Headey, 1999; Koivusilta & Ojanlatva, 2006; Levine et al., 2013; Pachana, Ford, Andrew, & Dobson, 2005; Parker et al., 2010; Parslow & Jorm, 2003a, 2003b; Raina, Waltner-Toews, Bonnett, Woodward, & Abernathy, 1999). Animal assisted interventions (AAIs) are understood as “[a]ny intervention that intentionally includes or incorporates animals as part of a therapeutic process or milieu” (Kruger & Serpell, 2006, p. 23) and are frequently applied to improve human health. Existing studies on AAIs primarily focus on the therapeutic contribution of animals, such as dogs in most cases (Nimer & Lundahl, 2007), and in areas including pediatrics, mental health, oncology, long-term care (Banks & Banks, 2005), and palliative care. The literature suggests that visiting dogs and their handlers can offer a variety of human health benefits – ranging from stress relief (Bell, 2013; Friedmann, Thomas, & Eddy, 2000; Handlin et al., 2011; Miller et al., 2009) through to companionship (DeMello, 2012; Hart, 2010). This paper shares the key findings of a modified instrumental case study investigating how group and individual St. John Ambulance (SJA) therapy dog visits influenced the wellbeing of older adult war veterans in a Saskatchewan Veterans Affairs Canada (VAC) residence. Informed by a One Health framework, the study found that visiting with a St John Ambulance (StJA) therapy dog contributes positively to wellbeing. Therapy dogs in the program brought back fond memories for the veterans, which provided opportunities for the veterans to reminisce with the therapy dog handlers.

The veterans felt support and love from the therapy dogs and support from the handlers.

Older Adult Veteran Wellbeing

Older adult war veterans make up a sizable portion of the North American population, and consequently their health needs are an important consideration (Wilmoth & London, 2011). Both literature and practice show that current health care responses to older veteran wellbeing are lacking with regard to their physical, psychological, social, and spiritual needs. The gerontology literature generally refers to the wellbeing of older adults as successful aging, in contrast to ‘usual’ aging (Rowe & Kahn, 1987). Although there is no single definition of successful aging, common amongst understandings is that it is inclusive of the entire individual. It is generally premised on the understanding that physical, behavior and social factors contribute to wellbeing and more recently the addition of spiritual factors (Crowther, Parker, Achenbaum, Larimore, & Koenig, 2002; Mackenzie, Rajagopal, Meibohm, & Lavizzo-Mourney, 2000).

Older war veterans are in poorer physical health than their non-veteran counterparts. Veterans report difficulty functioning, rate their health status as fair or poor, and have worse physical and mental health outcomes than their non-veteran peers (Brooks, Laditka, & Laditka, 2008; O’Toole, Catts, Outram, Pierse, & Cockburn, 2009; Villa, Harada, Washington, & Damron-Rodriguez, 2003; Benyamini & Solomon, 2005). The aging process itself is associated with numerous negative life events, including the loss of a spouse, the absence of a work role, the shift from home to residential accommodation, and physical decline (Busuttil, 2004). These life events may exacerbate the symptoms and psychological impact of combat for veterans, and lead to resurfaced stressors and in turn negatively

impact their physical health (Busuttill, 2004; Kaup, Ruskin, & Nyman, 1994).

One form of psychological impact of combat prevalent among veterans is post traumatic stress disorder (PTSD), which is frequently attributed to older veterans' increasing mental health needs. While combat exposure has an indirect effect on health status, PTSD has been found to have a significant direct impact (Schnurr & Spiro III, 1999). Specifically, older adults with PTSD, including war veterans, suffer from a variety of impairments, are less satisfied with life, and receive sub-par treatment related to their unmet mental health needs (van Zelst, de Beurs, Beekman, van Dyck, & Deeg, 2006). Perhaps unsurprisingly, this cohort is also frequently dissatisfied with the healthcare they receive, especially as they appear to be over-prescribed tranquilizers and under-prescribed antidepressants (van Zelst et al., 2006). Among veterans, PTSD may be coupled with other psychological health needs, including depression and dementia. Depression has also been found to increase veterans' risk of dying prematurely (Byers, Covinsky, Barnes, & Yaffe, 2012; Meziab et al., 2014). And a greater prevalence of dementia has been identified in older adults with PTSD (Qureshi et al., 2010; Meziab et al., 2014; Yaffe et al., 2010). If left untreated, this comorbidity has been found to reduce affected veterans' quality of life and life satisfaction, while simultaneously exacerbating existing symptoms and neglected mental health needs (Ikin, Creamer, Sim, & McKenzie, 2010).

The social needs of older adult veterans are most often considered as a result of a study's unexpected findings. For instance, Bernsten and colleagues' (2001) large scale randomized study underscored the importance of older age veterans' psychosocial wellness, but initially the research set out to measure how a community pharmacy program could improve older

adults' lives. The social needs of aging apply to veterans in general, and include resources (e.g., social support, relationships, financial, illness), purposeful activities (e.g., engagement, exercise) and mental health (e.g., address depression, loneliness) (Chapman, 2009; Choi & McDougall, 2009; Evans 2009; Alpass & Neville, 2003).

The status of older adult war veterans' spiritual needs is less certain. There is a dearth of research in this area, with more present in the general adult aging literature (Hodge, Bonifas & Chou, 2010; Hodge & Horvath, 2011). Both the spiritual care and spiritual needs of older adult war veterans can be different than non-veterans, due to veterans' involvement in combat and associated traumas (Chang et al., 2012). Being part of the military can impact veterans' spirituality. At times this impact can be positive, but in many cases it is related to unresolved combat-associated feelings of guilt (Chang et al., 2012; Drescher & Foy, 1995).

The needs of older adults in Veterans Affairs Canada (VAC) facilities are many, ranging from social isolation to post-traumatic stress disorder. All of these conditions can exacerbate their health challenges and negatively impact overall wellbeing. Identifying effective responses to veteran needs in older age is a health priority, especially when considering the addition of high numbers of recent war veterans and their related health concerns. To address these gaps, some medical professions, such as nursing, are increasingly identifying AAs as a means to supplement veterans' health care (Conrad, Armstrong, Young, Lacy, & Billings, 2016).

SJA Therapy Dog Program as an Animal Assisted Activity

Over the past three decades, research highlighting the importance of the human-animal bond and the health and social

benefits of companion animals has expanded and diversified across populations and contexts (Toohey, McCormack, Doyle-Baker, Adams, & Rock, 2013). For instance, numerous studies have focussed on the benefits for specific age groups, such as older adults living in long-term care facilities (Banks & Banks, 2005) and with conditions like dementia (Walsh, 2009; Motomura, Yagi, Ohyama, 2004). The contribution of animals to veterans' health is documented in a variety of ways, including service animals, animal assisted activities, animal assisted therapy, resident animals, and emotional support animals (Carper, Bartone, & Petty, 2016). Canine assisted interventions are well-suited for the veteran population in part because of the unique history of dogs in military service. Dogs have served during war for therapy, companionship, combat, and rescue. Service dogs are also increasingly being used to manage mental health problems like anxiety and trauma experienced among recent veterans returning from service (Gillett & Weldrick, 2014).

Animal assisted activities (AAAs) are a distinct type of animal assisted intervention, and include programming like the *SJA Therapy Dog Program*. While resonating with some of the core values of AAIs, there are key criteria unique to AAAs. In AAAs specifically trained professionals, paraprofessionals, and volunteers visit in a variety of contexts with animals that meet specified criteria (Pet Partners, n.d.), recognizing that the vast majority in practice are moderately trained volunteers. While an AAA is not therapy per se, it can be therapeutic. This distinction is made because in AAAs there are no treatment goals like there are in Animal Assisted Therapy, detailed notes are not taken, and visit content is spontaneous (Delta Society, n.d., cited in Kruger & Serpell, 2006, p. 23). An AAA is typically “informal, takes places in a variety of environments, and is not targeted at any

specific medical condition or person” (Huss, 2012, p. 444). The overall intent is to enhance the recipients' quality of life through the provision of motivational, educational, and/or recreational benefits (Pet Partners, n.d.).

The goal of the *SJA Therapy Dog Program* is to offer support and love to the individuals with whom the dogs and handlers visit (St. John Ambulance, 2015). The *SJA Therapy Dog Program* began in 1992 in Ontario, Canada, and has since been implemented in all Canadian provinces and territories. The program was initiated in Saskatchewan in 2007, and has grown to include over 175 therapy dog teams. These therapy dog teams have undergone screening, orientation, evaluation, placement, and have established a regular visitation schedule that qualify them as members of the *SJA Therapy Dog Program*. This process helps to ensure the welfare of the therapy dog, its handler, and visiting clientele which is of central importance to the *SJA Therapy Dog Program*.

Effects of a Therapy Dog Program on the Wellbeing of Older Veterans Living in a Long Term Care Residence

This study is the first of its kind to examine the *SJA Therapy Dog Program* with older adult war veterans. The research question addressed is: What are the health impacts of group and individual SJA therapy dog visits with older adults in a Saskatchewan Veteran Affairs Canada residence? Specifically stated, what is the significance of the encounter for the resident with the *SJA Therapy Dog Program*, accounting for its goals of offering love and support? The University of Saskatchewan Human and Animal Research Ethics Boards, the Saskatchewan Health Region, and the VAC residence approved this study, to ensure the health and safety of both human and animal participants.

This study draws on a One Health Framework, which accounts for the interface between humans, animals, and environment and recognizes their inter-connection (Centers for Disease Control and Prevention, 2013, n.p.). The zoonosis focus of this framework specifically acknowledges the benefits of animals to human health (Hodgson & Darling, 2011). Chalmers and Dell (2015) have applied the framework to AAIs, explaining that the animal is the health intervention. Humans are accounted for in at least two ways: the client and the human handler interaction with the client. The environment is also accounted for in two ways. First, the natural environment, where the human-animal interaction occurs, provides a potential space for human wellbeing by specifically attending to the dissociative split between nature and the human spirit (Wilson, 1984; Kellert & Wilson, 1993; Kahn, 1997). Second, the social environment is acknowledged, which reflects humans' need for the support of their kin and extended families, communities, and society at-large for their health and wellbeing. It also includes the program, and all other people directly involved in the intervention (Chalmers & Dell, 2015).

Applying a One Health Framework to this study, the natural environment is not measured, but is recognized in part by the Eden Alternative® Philosophy of Care of the participating Saskatchewan Veterans Affairs Canada (VAC) residence. This particular philosophy is premised on 10 principles compatible with the One Health framework (Eden Alternative, 2015), as it supports cats, fish, birds and bearded dragons to live at the Saskatchewan residence, and for companion dogs to regularly attend with staff, adults in the day program and/or general visitors. The One Health framework corroborates an inclusive definition of wellbeing that attends to the physical, psychological, social and spiritual aspects of health.

Modified Instrumental Case Study

A modified, instrumental case study design was applied for several reasons. Foremost, it allows for the in-depth exploration of topics, and secondly, it contextualizes data through the use of multiple sources. The case study design is considered to be modified because the collected data is not as in-depth as unmodified case study designs, but is still rich nonetheless. The case study in this instance is instrumental because it is intended to understand a particular issue of interest, that is, how participation in the *SJA Therapy Dog Program* contributes to the wellbeing of veterans (Stake, 2000). Specifically, this study collects and analyzes data with the goal of understanding lived experiences within the framework of the *SJA Therapy Dog Program* goals, as well as in relation to the empirical evidence located within the AAI, companion animal, and general human health literature. The One Health framework helps to make sense of the data.

Data Collection

Data were gathered from multiple and diverse sources. Case histories outlining basic demographic details, veterans' relationships with dogs, and staffs' perceptions of the veterans' wellbeing were developed. An 18-item questionnaire was completed by veterans following the visits detailing their experiences with the two objectives of the *SJA Therapy Dog Program*. A 9-item questionnaire was completed by a research observer, handler, and/or staff following each visit for the same reason and based on their observations. Finally, two 90 minute focus groups with staff at the mid and end points of the study were held. Primarily qualitative methods were chosen because they are especially relevant to research questions concerned with subjective experiences, meanings, and processes (Berg, 1998; Boyatzis, 1998; Kirby, Greaves, &

Reid, 2006). They also allow for examining data within an established One Health theoretical framework. The qualitative inquiry is guided by phenomenology's focus on the subjective experience, recognizing the importance of documenting veterans' viewpoints (Denzin & Lincoln, 2008; Patton, 2002; Speziale & Carpenter, 2007), while at the same time recognizing that the perspectives of others lend to the creation of individual's stories such that they can collaboratively unfold (Creswell, 2007). The goal is to "describe the meaning of the lived experience of the phenomena" (Starks & Trinidad, 2007, p. 1373).

Quantitative methods are drawn on to succinctly document findings in areas that were identified in the literature, including anxiety, calmness, emotional control, health, loneliness and confidence (Taylor, Edwards & Pooley, 2015; Mossello et al., 2011; Furst, 2015; Wells, 2009; Hodgson et al., 2015). Quantitative data was analyzed using IBM SPSS version 23. Descriptive analysis was conducted to provide the means of the Likert scale data that focused on the outcomes of the Therapy Dog program. A paired samples t-test was undertaken to determine whether there was a significant difference between the means of how veterans felt before to how they felt after their visit with the therapy dog ($p < .05$). To examine change over time, an ANOVA was conducted to compare means of outcomes between the first and last visit ($p < .05$).

Data were collected over a 13-week period starting on September 1st, 2015 through to November 30th, 2015. Eight veteran residents were purposively selected to participate in weekly individual therapy dog visits (2 veterans fell ill after a month of visiting and 6 continued), and 10 veteran residents were selected to participate in weekly group therapy dog visits. The veterans participating in individual visits did so once a week, as did the group visiting

veterans. The type of visit varied according to the level of cognition of the veteran, with lower level individuals visiting in a group format. The one-on-one visiting requirement for veterans was that they be: (1) interested in visiting, and (2) able to answer questions on how the visit made them feel. The group visiting requirement was that the veteran be interested in visiting.

Individual visits with the SJA therapy dog and handler, and attended by a research observer and sometimes staff member, lasted on average 15 minutes, and group visits were 25 minutes. The individual visits happened in a common residence room, and staff or a researcher brought the veteran to this space. During the visit the veteran would typically sit on the couch or a chair, and depending on their comfort level and the size of the dog, the therapy dog would either be on the floor at their feet or beside them on the couch. Most often, the handler and veteran would visit and the veteran would pet the dog, but sometimes only limited human interaction took place, depending on the veteran's lead. In some cases, if the veteran was not mobile to pet the dog that day, the handler would have the dog do a trick so the veteran could watch or toss a ball for the dog to fetch close by. The group visit took place in a specific veteran house. Staff gathered the interested veterans in the common area outside the kitchen to visit. The visit commonly included the veterans sitting in a circle with the handler taking the dog around to visit each of the participants, so they could pet and interact with the therapy dog as well as the handler, although the majority of attention focussed on the dog. Group and individual visiting data are presented together, unless there is a marked difference, and then it is noted.

A total of 13 therapy dogs, and 7 handlers, attended the visits (therapy dogs were mainly consistent with individual visits and varied with group visits). All of the

handlers were middle to older age females and had been with the *SJA Therapy Dog Program* for an average of 2 years. They were chosen by the program coordinator to participate because of their experience level and positive history with the *SJA Therapy Dog Program*. The dogs' average age was 7, with the youngest being 4 and oldest 11 years of age. They ranged in breed from a small 10 pound Toy Poodle mix to a 60 pound Lab.

The average age of the veteran participating in individual visits was 92 years and had lived at the residence for an average of 9.75 months. Of the 8 veterans, 5 were involved in active combat during World War II; and 2 veterans were considered to have frail to moderate mental health, with the remaining 6 having stable mental health. Comparatively, a total of 10 veterans participated in the group therapy dog visits. The average age of the veterans was 91.8, and the average time living at the residence was 9.4 months. Three of the veterans served actively during World War II, 2 did not, and it is unknown for the remaining veterans. At the conclusion of the study period, a total of 8 male veterans completed 62 questionnaires (62 individual visits, 0 group visits), 8 staff completed 14 questionnaires (12 individual visits, 2 group visits), 9 handlers (representing 12 dogs) completed 76 questionnaires (66 individual visits, 10 group visits), and 8 observers completed 83 questionnaires (70 individual visits, 13 group visits).

Given the broad interpretive and specifically phenomenological design of the study, the data analysis offers insight into the significance of the therapy dog team encounters. As well, given that this study is framed within both the *SJA Therapy Dog Program's* goals (i.e., love and support) and the empirical evidence located within the companion animal, AAI and general human health literature (i.e., anxiety, calm, control of emotions/present, stress, healthy, lonely,

confidence), the data analysis was undertaken with a focus on health impacts in these areas. Data collected via the Likert scale was analyzed descriptively and open-ended questions were analyzed qualitatively. All data was examined across cases as well as within the context of a specific case.

Given the study's qualitative design, which "aims to reflect the complexity of the phenomena studied, and present the underlying structures which 'make sense' of that complexity" (Green & Thorogood, 2009, p. 197), our pragmatic approach to the qualitative data employed thematic analysis. This inductive approach is consistent philosophically and methodologically with interpretive studies (Creswell, 2013). Thematic analysis seeks to identify recurrent patterns in textual data. Data analysis involves searching for themes by analyzing words and segments of text. The themes are then compared across several other themes and clustered based on similarity in meaning (Saldana, 2010). As such, each data set is essentially taken apart and re-contextualized into high level themes that offer an account of the story that serves to explain what is occurring in the data (Thorne, 2000).

Findings

Quantitative Data

The quantitative data indicated positive health impacts for both group and individual SJA therapy dog visits with older adults in a Saskatchewan Veteran Affairs Canada residence. After spending time with the therapy dog, the majority of the veteran responses indicated agreement with feeling less lonely (83%), calmer (79%), less stressed (78%), and less anxious (73%). To a lesser extent, two-thirds of the veteran responses (65%) indicated agreement about being more in control of their emotions/in the moment, and about half indicated feeling healthier (53%) and more confident (43%).

The quantitative data also relayed that

the significance of the encounter for the resident was positive, including attaining the program's goals of offering love and support. On average, the veterans rated their feelings as happier after spending time with the therapy dog (3.3 to 4.5), and this was statistically significant ($p < .001$). In response to whether the veterans were glad they met with the therapy dog, 89% responded "Yes", 3% were "Unsure", and the remaining 8% did not respond. The veterans shared feeling loved, feeling supported, the dogs provided companionship and it felt good to be around. In response to whether they would

recommend the therapy dog program to other veterans, 58% of the responses were "Yes", 1% were "No", 8% were "Unsure", and the remaining 33% did not respond. Veterans that responded negatively reasoned that the value of the visit for veterans with dementia was unknown. Ratings from veterans, handlers, observers, and staff on three questionnaire items related to love and support demonstrate that the veterans received support from the handler foremost, followed very closely by receiving love and support from the therapy dog (see Table 1).

Table 1. Ratings.

Questionnaire Item	Veterans*	Handlers	Observers	Staff
<i>Felt loved/comforted by the dog</i>				
Item Mode	4	3	3	3
Item Average	4.1	2.5	2.8	2.8
Number of Responses	35	75	79	12
Percentage of Positively Rated Responses (%)**	83	60	82	75
<i>Felt supported by the dog</i>				
Item Mode	4	3	3	2
Item Average	4.1	2.7	2.8	2.4
Number of Responses	35	75	77	12
Percentage of Positively Rated Responses (%)**	80	72	84	42
<i>Felt support by the dog handler</i>				
Item Mode	5	3	3	3
Item Average	4.3	2.7	3.0	2.8
Number of Responses	34	71	78	12
Percentage of Positively Rated Responses (%)**	85	75	99	75

*Veterans rated items on a 5-point Likert scale. Handlers, observers, and staff rated items on a 3-point Likert scale.

** Positive responses were defined as ratings of 4 or 5 on a 5-point Likert scale or as ratings of 3 on a 3-point Likert scale.

Qualitative Data

Through thematic analysis, insight was gathered on the significance of the therapy dog team encounter between the therapy dog team and veteran, including highpoints of the therapy dog team visits, veteran change over time; visiting challenges; and welfare of the therapy dog.

Highpoints of the therapy dog team visits

For all veterans, **reasons for visiting with the therapy dog** centered on the visit being enjoyable, a source of happiness, and a positive encounter. Veterans also reported that it gave them something to do. They mentioned appreciating the opportunity to see a dog and 'just be' with it, and make

linkages to distant, fond memories. Handlers, observers, and staff shared similar sentiments about the visits being an opportunity for engagement and a source of happiness for the veterans. The visits also provided an opportunity for reminiscence about fond memories, largely about when they had a pet, and this was especially true for veterans visiting one-on-one. Staff also emphasized the role of the therapy dog visits in addressing veterans' loneliness and boredom.

During the visits veterans emphasized seeing, connecting, and being entertained by the therapy dog, and visiting with the handler as their favourite parts. Observers and handlers described the one-on-one visits as being happy, enjoyable, comforting, relaxing, and in the moment, while group visits were described as happy and enjoyable, but were limited in terms of being calming and/or relaxing. Staff emphasized the positivity of the visits, regardless of the format.

Examining what **feeling loved** by the therapy dog meant to the veterans, they highlighted the overt affection they received from the dog (e.g., physical closeness), including 'just being' with it, and the development of a bond with the dog that contributed to feelings of joy and safety. Observer and handler data supported this interpretation of love for veterans visiting individually. In the group format, observer data paid limited attention to the veterans physically interacting with the dog and/or receiving affection. Instead, observers placed emphasis on veterans enjoying being around a dog. However, handler data highlighted physical interaction in the group format, and also emphasized embodied expressions: increased smiling, nodding, and talking. Staff specifically shared that the veterans appeared to bond with the dog over time, and following visits veterans spoke positively and recollected fond memories. One staff noted the general difficulty veterans experience in

emotional expression and communication, and the therapy dog visits attending to this.

The veterans overwhelmingly **felt support** from the therapy dogs and interpreted it similar to the love the dogs offered: the feelings gained from 'just being' with the dog, the development of a bond or friendship with the dog through mutual affection, and specific identification of feeling comfort as a form of support. Feelings of support were linked more strongly though to the positivity of the encounter (i.e. laughter, smiling). Observers and handlers shared similar views to the veterans, but also emphasized physical interactions and the recollection of fond memories, and this was reported across both visiting formats. Handlers noted greater recognizable improvement among veterans in the group visits (i.e. talking, physical interaction with the dog), and this was likely due to the low engagement at baseline. Staff reported the veterans felt special with the focused attention, and many generally wanted more time with the therapy dog.

Veterans and observers also reported the handler as a source of support. Observers emphasized the conversation and positive interaction between the veterans and handlers, and suggested that the handler offers support through their role in the veteran reminiscing and interacting with the therapy dog. However, handlers only interpreted themselves as supportive when directly engaged in conversation with the veterans, and were more likely to attribute support to the therapy dog. The staff confirmed the supportive role of the handlers.

Analysis of the specific cases confirmed that each of the participating veterans enjoyed dogs in general, with the majority saying they 'love' dogs, regardless of living with companion animals prior to their residence. Prior to the start to the *SJA Therapy Dog Program*, all 8 veterans engaged with the animals living at and

visiting the residence. This means that this study may be showing its level of positive impact due in part to the participating client population. The cases also offered insight into the development of the bond between the veteran and the therapy dog. While the veterans initially attended the sessions largely because it gave them something to do, over time a connection, companionship and relationship with the therapy dog formed. This was variously important for the different veterans; the bond was related for some to the dogs being associated with fond memories, for others the feeling of closeness and affection (physical and emotional) that the therapy dog offered, and for others still, the general sense of happiness experienced during the visit. Insight was also gained from the case studies on the role of the handler in contributing to the veterans connecting with the therapy dogs. The therapy dog was perceived as being the link to the veterans' fond memories, and the handler provided the human counterpart with whom to reminisce.

Change over time

Comparing the first to the last visit, the data demonstrated that overall veterans felt statistically better after visits; average means on the items for the first visit ranged from 3.5 to 4.0 (out of 4.0) while average means for the final visit were consistently 4.0. Most notable was feeling less lonely and calmer over time. Looking at the qualitative data, there is likewise some indication of positive change over time by observers, handlers, and staff. Observers identified that change was more notable for veterans in the group visits, compared to handlers, who shared that change was more notable for veterans visiting individually. Some observers shared that interest in and a connection/bond to the therapy dog increased as the number of visits progressed, including increased physical interaction with the dog (not for the group visits/already interacting). The handlers similarly presented some

indication of change over time, noting elevated mood (happier, more relaxed and present, warmer) and increased interaction, with these types of observations most notable for the one-on-one visits. The staff, from their unique vantage point of working daily with the veterans, noted foremost that the veterans talked about the dogs as time went on, recalling points of their visits. They also shared that there was an increase in anticipation and excitement for the visits – it was something to look forward to, and brought about happiness afterward among the veterans who visited.

Challenges

Data was specifically examined for discussion about veterans' experiences during the war, as this presumably may not be a positive experience. There was very little talk about the war before, during, or after the visits, except by one veteran. The visits infrequently brought up challenging emotions for the veterans, and these emotions were related to death and/or dying.

The elderly health status of the veterans was identified at times as impeding on the therapy dog teams' level of engagement. Additionally, observers and handlers highlighted the emotional challenge of some visits for the veterans and handlers (e.g., discussions of dying on the part of the veteran), as well as structural challenges related to the visit scheduling. Due to potential feelings of loss at the conclusion of the program, staff shared their belief that live-in pets may be more beneficial than visiting dogs, while at the same time recognizing a live-in dog may not be practical.

Animal welfare

Due to the importance of animal welfare in the *SJA Therapy Dog Program*, observers, staff and handlers observed the dogs' behaviour throughout the visits. The most common observation was the dogs' active interactions with the veterans, and their desire to be near them. The dogs

displayed good manners, affection, curiosity and excitement. In some instances, minor signs of stress were noted in a dog when a visit began, which led to the dog being temporarily distracted. The main source of stress was identified as the smell of nearby food. Staff shared that the therapy dogs were well-behaved and engaged affectionately with the veterans.

Discussion

Overall, the findings revealed a positive influence of therapy dogs on memory recollection and reminiscence among veterans; positive health impacts on veteran wellbeing as understood through the significance of the therapy dog team encounter; and, perceived meaningful support from the therapy dog handlers and love and support from the therapy dogs by the veterans. Each is discussed in turn.

First, the findings from this study suggest that visiting with a therapy dog brought back fond memories for older adult war veterans, and provided an opportunity to reminisce. Attention to the role of reminiscence is growing in the older adult literature, especially as concerns regarding dementia and Alzheimer's disease increase (Kaminsky (Ed.), 1984; Ros et al., 2016). This is because reminiscence has the potential to enhance psychological wellbeing among older adults (Bohlmeijer, Roemer, Cuijpers, & Smit, 2007), and this may be especially important for the veteran population. The veteran population can experience more traumatic memories as they approach the end of life (Rintamaki, Weaver, Elbaum, Klama, & Miskevics, 2009), and may vividly remember life threatening memories more accurately than other memories (Walton, 2010; Langer, 2011). However, studies have not conclusively determined the effectiveness of positive reminiscence, though some have indicated increases in socialization, self-esteem, mood,

life satisfaction, and quality of life, while others have shown little evidence of improvement of any kind (Hyams & Scogin, 2015). Further research among diverse populations and with diverse prompts (such as therapy dogs) is needed.

The health impacts of the therapy dog visits with the veterans centered on reductions in loneliness, and lessened feelings of stress and anxiety and for some veterans positively affecting calmness. Although the literature is limited, it suggests older war veterans suffer from physical, psychological, social and spiritual health issues at a greater extent than non-veterans (Brooks et al., 2008; Kazis et al., 1998). Further, it is known, for example, that mental and physical health are interrelated; the reduction of acute stress can improve immune system function (Dhabhar, 2014).

Studies examining the role of AAIs in long-term care facilities have found that the inclusion of animals can decrease loneliness (Banks & Banks, 2002; Fick, 1993). Additionally, AAIs have been linked to decreased depression, anxiety, and other agitated behaviours in long-term care residents, especially among those living with depression, feelings of loneliness, and dementia, while also improving cognitive functioning (Banks & Banks, 2002; Fick, 1993; Le Roux & Kemp, 2009; Moretti et al., 2011; Sellers, 2005). Reductions in loneliness, stress, and anxiety may be, in part, due to AAIs role in increasing social interactions in long-term care residences (Fick, 1993; Sellers, 2005; Taylor, Maser, Yee, & Gonzalez, 1993) and the animal's role as a buffer from stress- or anxiety-generating stimuli (Arkow, 2011; Hart, 2010; Kruger & Serpell, 2010). The animal may offer reprieve from a situation, permitting one to cope with a perceived sense of comfort, happiness, and joy (Walsh, 2009).

To understand the health impacts of the visiting therapy dogs, the significance of

the encounter for the veterans highlighted the happiness that visits with the therapy dogs brought them, and the positivity of the encounters and connection and bond with the dog. These findings are reflected in the literature which shares that animals can trigger happy memories, improve mood, and bring about a sense of happiness, joy, and wellbeing (Arkow, 2011). This triggering may be related to the influence of beneficial hormones and neurochemicals that shift participants' feelings and mood, and are released when petting an animal (Odendaal & Lehmann, 2000). For some, it has been reported that interacting with dogs can parallel the social support experienced in human-human relationships (Fine & Beck, 2010). Other researchers, such as Muschel (1985), contend that dogs offer a connection to the natural world; perspectives such as biophilia propose that humans may experience a change in mood while in the presence of animals and nature (Myers & Saunders, 2002).

The veterans, observers, handlers, and staff felt the veterans received support from the handler, followed very closely by receiving love and support from the therapy dog. Experiences of love and support from the therapy dogs are likely a result of the dogs' innate ability to offer and receive nurturance (Chandler, 2017; Levinson, 1984; Melson & Fine, 2010), which manifests into nonjudgmental warmth, companionship, and bonding that enables humans to love and trust (Arkow, 2011). The significant role of the handler as part of the therapy dog team has only recently been identified (Adams et al., 2015), and adds insight into the literature reflecting on the role animals can play in assisting humans' communication across a variety of contexts (Gee, 2011; Grandin, Fine & Bowers, 2010; Hodgson & Darling, 2011; Roux, Swartz, & Swart, 2014; Solomon, 2010; Wesley, Minatrea, & Watson, 2009).

Research, policy and practice implications arose from the study findings specific to animals, humans and the environment. First, further research is needed on the value of AAIs for older adult veterans, and specifically visits with dogs for those in long term care residences. Of particular interest is the impact of veterans having a companion animal, specifically a dog, prior to residing at the residence, and the linkage of this to reminiscence during the therapy dog visit. Second, there is a need to recognize the importance of the environment in which AAIs occur, and differences that may result from community culture, behaviours and relationships, socio-economic status and health, different pet populations, and regimes of care (Herzog, 2011; Siegel, 2011; Wells & Rodi, 2000). And third, considerations need to be made for animal welfare on the same level as human health in AAIs, including disease transmission as well as physical and mental health.

Limitations

There are three key limitations to this study. First, veterans' health, including physical and cognitive limitations, intermittently challenged the data collection process. In some instances, observers helped the veterans complete their questionnaire, and so assumptions may have been made. In the most extreme cases, as shared, 2 of the veterans were unable to complete the study after the one-month mark due to their health status.

A second limitation of the study relates to the positive results, which could be due, in part, to a number of confounding factors, including self-selection of participating veterans' with strong life histories of relationships with companion animals, including possibly during their service. However, such a factor may be a necessary requirement for a specialized intervention involving therapy dogs, and in this case, resulted in a homogenous study

sample made up of elderly, Caucasian males. The study would be strengthened by the addition of a comparison group.

Lastly, it is important to note that given the specific philosophy and working environment of the Veterans Affairs Canada residence, the findings of this study cannot be reliably generalized to the wider older adult veteran population outside of this specific site. However, implications from this study to other environments can be made with this understanding in mind. Moving forward, the limitations present in this study and their broader implications must be considered.

Knowledge Translation and Dissemination

The veterans, handlers, therapy dogs, residence staff, observers, and researchers held a final celebration to bring the research project to a close. At this 90 minute celebration, cake was served and certificates of completion and pictures of the visiting therapy dogs were distributed to all veteran participants. Video was taken at the event and was used to create a music video. A song was created by Wes Froese, a recreation coordinator and musician at the residence who works with the veterans, to share the overarching findings of the study. The song was developed by Wes after he witnessed the experiences of the veterans in the *SJA Therapy Dog Program* and sat in on the final staff focus group. The music video is available with and without subtitles in

English and French, and an accompanying resource sheet is available in both languages at no charge by visiting: <http://www.colleendell.ca/videos/>. The research and practice literature on the role of reminiscence of older adults and wellbeing is evolving, and so ideally this product will offer a contribution (Haslam et al., 2014).

Conclusion

Increasingly, AAIs are being identified as a means to supplement the health care received by older adult war veterans. This study applied a One Health framework to better understand how group and individual St. John Ambulance (SJA) therapy dog visits impact the wellbeing of older adults in a Saskatchewan Veterans Affairs Canada (VAC) residence. The findings revealed a positive influence of therapy dogs on memory recollection and reminiscence among veterans; positive health impacts on veteran wellbeing as understood through the significance of the therapy dog team encounter; and, perceived meaningful support from the therapy dog handlers and love and support from the therapy dogs. The results have important implications for meeting the health needs of older adult war veterans and potentially the increasing population of recent war veterans. Due to the importance of effectively meeting these populations' needs, further investigation of therapy dog visits is warranted.

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