Stress Reduction in Law Enforcement Officers and Staff through a Canine-Assisted Intervention

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Law enforcement officers and staff are known to experience elevated workplace stress, largely due to their increased exposure to traumatic incidents. This results in individuals experiencing trauma themselves and resultant compromised physical and mental health. Law enforcement officers are also known to be reluctant help-seekers and to increase participation in programs to promote employee well-being, initiatives are increasingly integrated into the day-to-day work routine of employees. An intervention showing promise with health care providers and college students but not yet used with law enforcement officers and staff has been to provide individuals access to therapy dogs to reduce stress. Seven therapy dogs along with their handlers were brought to an urban police precinct for 90-minutes each week for 8 weeks. A total of 251 visits (56% staff, 43% officers, < 1% unidentified) to the dog station were made with the average duration of visits being 11 minutes. A visual analogue scale was used to assess participants pre-to-post differences in stress and a paired Wilcoxon signed-ranked test indicated a significant effect of the intervention with mean stress decreasing from pre-to-post visit. Findings are discussed within the context of canine-assisted intervention and law enforcement well-being.

Keywords: Stress Reduction, Law Enforcement, Canine-Assisted Intervention, RCMP

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The public's interest in therapy canines and participation in programs that provide opportunities to interact with therapy canines is burgeoning (Brelsford et al., 2017). In particular, there has been a marked increase in interest in canine-assisted interventions to reduce stress (Haggerty & Mueller, 2017). Whereas therapy canines were historically found almost uniquely in care facilities to provide comfort to health-impaired patients, therapy canines are now found in a variety of contexts supporting the well-being of a variety of visitors who are drawn to interacting with dogs. In fact, therapy canines are now routinely seen in airports to reduce stress in travelers, on college campuses to reduce student stress, in public school classrooms to assist reluctant young readers, and in funeral homes to support mourners (Pet Partners, n.d.; St. John Ambulance, n.d.).

Despite the surge in popularity of this approach to stress reduction, there is a distinct lack of corresponding research attesting to the benefits of canine-assisted interventions in these varied contexts. A careful review of the extant psychological, sociological, and anthrozoological literature revealed a dearth of research extolling the benefits of the use of therapy canines to support the well-being of employees working in first-responder settings, a population known to experience elevated stress (Leppma et al., 2017).

Support for the notion that animals can assist military personnel informs our understanding of the potential therapy dogs have to support the well-being of law enforcement officers. In their exploratory study of the effects of psychiatric service dogs on Canadian veterans' mental health and well-being (i.e., psychiatric symptoms, daily/social functioning, and quality of life), Vincent and colleagues (2017) found the acquisition of a dog positively influenced veterans' sleep, post-traumatic symptoms

and depression. Drawing from a parallel field, there are findings attesting to the therapeutic benefits of equines in reducing the stress of military personnel. The research of Lanning and colleagues (2018) identified significant improvements in the mental health and well-being (e.g., PTSD, depression) of military service members who participated in 90-minute therapeutic riding sessions, once each week for 8 weeks.

The mental well-being of first-responders in general, and police officers in particular, has garnered increased attention from both researchers interested in better understanding factors contributing to compromised mental health in officers and from on-the-ground personnel whose responsibility is to manage the day-to-day workplace environment of officers. Recent research by Ricciardelli et al. (2018) and Carleton and colleagues (2017) explored the extent to which public safety personnel (i.e., firefighters, paramedics, police officers, correctional officers, emergency dispatch, and individuals in supportive or administrative roles) experience compromised mental health. In a qualitative study by Ricciardelli and colleagues, negative physical, psychological, and social outcomes were identified in public safety personnel. In their survey of over 5,000 public safety personnel, Carleton and colleagues identified that Royal Canadian Mounted Police (RCMP), when compared to other public safety personnel, had elevated frequencies of positive screens for mental health disorders (e.g., PTSD, major depressive disorder, anxiety disorder).

A key source contributing to the underlying compromised mental health of police officers is elevated occupational stress (Dobreva-Martinova, Villeneuve, Strickland, & Matheson, 2002; Kelloway & Day, 2005, Kinman, Clements, & Hart, 2017; Nelson & Smith, 2016). For the purpose of this study, stress is broadly defined ". . . as the adverse

reaction people have to excessive pressure or other types of demands place on them." (Agolla, 2009, p. 25). Occupational stress more narrowly ". . . refers to stress experienced as a direct result of a person's occupation." (Agolla, 2009, p. 25). It is argued there are two distinct sources of first-responder stress. First, operational factors including threat of injury, loss of life, and negative interactions with the public, contribute to elevated workplace stress (Kaplan, Christopher, & Bowen, 2017; McCraty & Atkinson, 2012). And second, organizational factors such as intra- and inter-agency politics, resource or staff shortages, and insufficient rewards, combine with operational factors to render officers susceptible to elevated stress (Shane, 2010; Tuckey, Winwood, & Dollard, 2012).

First-responders, including police officers, experience increased exposure to traumatic incidents (Thorton & Herndon, 2016). The toll on first-responders is well documented and manifests in individuals experiencing trauma themselves as well as health, emotional, and social consequences (Augustin & Fagan, 2011; Menard & Arter, 2013). More specifically, these employees may experience troubled conscience, emotional exhaustion, and depersonalization (Padyab, Backteman-Erlanson, & Brulin, 2016). Some have argued that it is the challenging and unpredictable nature of the encounters comprising a typical work day that are the source of these maladaptive outcomes (Backteman-Erlanson et al., 2011), whereas others posit that organizational stress (the employee's perception that workplace demands exceed his/her resources; Shirom, 1982) is behind much of these negative outcomes (Liberman et al., 2002). It merits noting that it is not uniquely first-responders who are impacted by the aforementioned negative outcomes as stress in the workplace can have a contagious effect,

spilling over to all employees in the work setting.

Civilian employees (e.g., a crime analyst) working within law enforcement may also experience heightened stress as the nature and content of their work can be trauma-inducing. These employees can have their stress exacerbated by virtue of being in proximity to, and interacting with, an individual with elevated stress (i.e., officers responding to 911 calls). Stress spilling over or emanating from a stressed individual within a setting has been identified in psychological literature as "emotional contagion." (Bakker et al., 2006; Hatfield et al., 2014). Stress, within this model, is viewed as contagious whereby individuals experience increased stress arising from their interactions with colleagues or members of the public who themselves are characterized by heightened stress levels. Recent work by Carleton and colleagues (2017, p. 4) identified that: "Civilian employees working for police, compared with sworn/regular members, reported slightly higher mean scores and slightly more frequent positive screens for most mental disorders except AUD (alcohol use disorder), which was slightly lower."

The negative outcomes arising from workplace stress, in turn, have significant ramifications for workplace climate and employee interpersonal interactions/relations, for job performance, for recruitment, staff turnover and absenteeism, for the use or uptake of mental health resources within the workplace, and for burnout (Chikwem 2018; Couto, Vendenberghe, & de Araujo Farro Brito, 2012; Gershon, Barocas, Canton, Li, & Vlahov, 2009; Gershon, Lin, & Li, 2002). Though more research is needed, there appear to be gender differences in stress among male and female officers (He et al., 2002; Kurtz, 2012) with female officers rating work-related stressors (e.g., insufficient support from supervisors,

situations where force is required, and colleagues not doing their job) as more stressful than their male counterparts (Violanti et al., 2016).

Though reactive support mechanisms are in place (e.g., access to therapeutic services or the accessing of a workplace mentor after a critical incident), increasingly, there is discussion of thwarting the accumulation of debilitating levels of stress by providing employees with opportunities to boost their resiliency through ongoing wellness programming (Anshel, 2011; Anshel, Umscheid, & Brinthaupt, 2013). Defined by Paton and colleagues (2008, p. 95), ". . . the resilience of a person or group reflects the extent to which they can call upon their psychological and physical resources and competencies in ways that allow them to render challenging experiences meaningful, coherent, and manageable . . ." This proactive approach to reducing stress might see first-responders participate in mindfulness training (Center for Healthy Minds, 2017) or other programming that fosters a healthy workplace such as resiliency training (Bensimon, 2010). There remains room to explore the potential of canine-assisted interventions in supporting first-responders' well-being as no peer-reviewed publications were identified in which the effects of a canine-assisted intervention program on first-responder well-being were studied.

Despite opportunities to participate in both formal and informal programs to reduce stress, first-responders, especially those with already compromised mental health, tend to under-utilize available resources, leaving elevated stress untreated (Bryan & Morrow, 2011; White, Shrader, & Chamberlain, 2016). Closer examination of the barriers to accessing resources intended to reduce stress reveals that individuals prefer to deal with their stress on their own (e.g., through inner strength, self-reliance, and mental toughness),

and believe that stress is normative, that help seeking is a sign of weakness, that their need to reduce stress is not serious enough to warrant seeking help, and that they have insufficient time for treatment (Blum, 2000; Downs & Eisenberg, 2012; Tanielian & Jaycox, 2008). Experiencing high levels of stress can compromise the resiliency of first-responders (White et al., 2016). White and colleagues (2016) posit that the high rate of occupational stress experienced by law enforcement officers can compromise their physical (e.g., sleep deprivation, dysregulated cortisol output, increased risk for diabetes and cardiovascular disease) and mental well-being (e.g., depression, strained relationships, addiction).

Drawing from the broader field of community-based mental health counselling, two trends have emerged that inform the design of the present investigation to reduce barriers for clients seeking help: 1) the offering of single-session counselling (Hymmen, Stalker, & Cait, 2013); and 2) the structuring of walk-in (versus scheduled) access to services (Stalker et al., 2016). Stalker and colleagues (2016) assessed the effectiveness of walk-in (where no appointment is needed) versus traditional approaches to accessing counseling services and found the walk-in approach effective in reducing client distress and frustration. As first-responder personnel can be distrusting of outside sources of support (Bryan & Morrow, 2011), integrating support into the existing workplace culture stands as a viable means of offering support to potentially reluctant users. Within the fields of Human-Animal Interactions and Animal-Assisted Therapy, canine-assisted intervention is considered a complementary therapeutic approach – not intended to stand on its own as a comprehensive treatment but rather a way of offering support to clients in addition to other available services (Marcus, 2013; Nepps, Stewart & Bruckno, 2014; Nimer &

Lundahl, 2007; Rossetti & King, 2010; Yorke et al., 2013). Canine-intervention programs typically bring certified therapy canines and community volunteer handlers to a workplace to provide opportunities for personnel to interact (with the dogs and with fellow employees) as a means of reducing their stress (Crossman & Kazdin, 2015; Foreman et al., 2017; Tielsch-Goddard & Gilmer, 2015). Recognizing that not all employees are keen to interact with dogs in the workplace, bringing therapy dogs into a work environment must be thoughtfully introduced. Charles and Wolkowitz (2019) argue, conflict can arise, possibly rooted in cultural perceptions of the role of dogs in society, when dogs are introduced to spaces where they are not typically expected. Signage announcing the scheduling of dog visits and the location of the dog stations allows employees seeking to avoid dogs, ample warning around when and where dogs will be present within the workplace.

This research extends both the contexts within which therapy canines are found and the client profile supported by therapy canines by situating therapy canines within an urban RCMP detachment. The aim of this study was to assess possible reductions in the pre-to-post self-reports of stress in law enforcement officers and staff in response to a canine-assisted intervention. It was first hypothesized that visitors to the canine therapy stations would experience a significant reduction in pre-to-post visit self-reports of stress. This is in alignment with research in other contexts (e.g., Barker et al., 2016; Crossman & Kazdin, 2015; Crossman et al., 2015; Pendry et al., 2018) attesting to the stress reduction benefits of spending time with therapy canines. Second, and in accordance with previous research on stress reduction and gender, it was hypothesized that female visitors would both report higher pre-visit stress levels and experience corresponding greater reductions in self-

reports of stress at post-visit. Third, it was hypothesized that duration of visit would positively impact the magnitude of visitors' stress reduction. Last, it was hypothesized that participants would describe their workplace environment more positively from pre- to post-test thereby reflecting increased workplace morale.

Method

Participants

Canine handlers. Seven community volunteer canine handlers and their therapy canines were drawn from a larger pool of 60 certified handlers and canines active in a large, on-campus canine therapy program titled *Building Academic Retention through K9s* (B.A.R.K.; barkubc.ca). Handlers were chosen based on their prior experience and availability. Given the busy and public nature of the setting for this study and the potentially high level of stress of the participants, only experienced handlers (85% female, M_{age} =46.6 years, SD = 13.3, *range* = 31-65, Mean prior canine therapy experience = 5.17 years, SD = 4.47) were selected for participation.

Therapy canines. Seven spayed or neutered therapy canines, chosen from the larger pool of 60 therapy dogs working in the B.A.R.K. program, participated in this study (60% male, Mage = 4.64 years, SD = 1.65, range = 2-6 years, prior canine therapy experience = 2.39 years, SD = 1.91). Participating canines included: 3 Golden Retrievers, 1 Black Lab, 1 Greyhound, 1 Newfoundland, and 1 mixed breed (Boxer cross).

Law enforcement personnel participants. Participants were drawn from an urban RCMP detachment situated in the downtown core of a small city (population 130,000) where the prevalent policing challenges addressed by officers and staff focus predominantly on crime reduction and community safety (Crime Reduction Strategy, 2016-2019). The canine intervention offered

to officers and staff was comprised of 8 weekly visits and employees were free to visit one or all of the sessions offered. A total of 251 employee visits by 120 unique employees to the canine therapy station were documented over the course of the study. It merits noting that of the 375 individuals employed by the precinct, 125 were present in the building on any given day. Of the 375 total employees, 32% made use of the canine intervention.

  Civic employees. Civic employees were considered employees who worked within the detachment but who were not RCMP constables and who performed a variety of administrative duties within the precinct. A total of 140 civic employee visits by 51 unique visitors occurred over the course of the study.

  Constables. Constables were considered RCMP constables who were employed within the precinct as law enforcement officers. A total of 107 constable visits by 67 unique visitors occurred over the course of the study (note: There were four visits by two unique visitors who did not indicate their employee status). See Table 1 for a summary of both civic employee and constable demographic information.

Table 1
Descriptive statistics for participants across all sessions.

Group	N	Duration (min)	Stress T1	Stress T2
All participants	251	10.8	3.3	2.0
Male	80	9.4	3.3	2.0
Female	167	11.6	3.3	1.9
Age				
15-24	8	14.4	2.6	1.5
25-34	29	13.0	3.4	2.3
35-44	52	10.5	3.1	2.1
45-54	102	9.6	3.5	2.0
55-64	53	11.9	3.3	1.7
65+	2	12.5	3.5	3.0
Civic Employee	140	10.8	3.4	1.8
RCMP	107	10.9	3.2	2.1

Note: Number of participants is the total number of participants in each group across all sessions. Duration and perceived stress are mean values across all sessions.

Measures

  Demographic information. Prior to the study, canine handlers were asked to provide demographic information for themselves and for their dog (i.e., age, gender, and previous experience volunteering in canine therapy). Visitors to the canine stations were asked to provide brief demographic information (age category, gender, and employment within the precinct).

  Stress. Participants' entry and exit self-assessments of stress were measured using a single-item visual analogue scale (VAS; Lesage, Berjot, & Deschamps, 2012). VASs have been used extensively in health research to capture participants' self-ratings of constructs such as pain (e.g., Averbuch & Katzper, 2004), mood disorders (e.g., Ahearn, 1997), stress (e.g., Couper, Tourangeau, Conrad, & Singer, 2006) and require respondents to indicate on a scale their

perception of the construct in question. A single item may be used when assessing a global construct (Wanous & Reichers, 1996; Zimmerman et al., 2006) such as stress. Pertinent to the present investigation is the work of Barker and colleagues' (2016; 2012; 2010) who used a VAS to assess health care workers' perceptions of stress in response to canine-therapy interventions of 5 and 20-minutes. A VAS was also used by Dell and colleagues (2019) to assess how spending 10 minutes with a therapy dog in a hospital emergency room affected patients' perceptions of comfort and distress. Recent work by the lead author (Binfet et al., 2018) saw a VAS successfully used to assess pre-to-post stress in over 1,900 university student participants who spent time with therapy dogs. The confidential and anonymous one-item VAS used in this study required participants to indicate their stress level on a 5-point scale ranging from 1 (Not at all Stressed) to 5 (Very Stressed).

Duration of visit. Each participant's arrival and departure times were documented to allow the calculation of intervention dose in minutes.

Workplace climate. A one-item question was used to assess participants' pre- and post-visit perceptions of their workplace. Respondents were asked: "What is one word that describes your current perception of your work environment?"

Procedure

Both university Human (A17-03306) and Animal (A14-0134) research ethics approval and Divisional Research Project approval from the RCMP head office was obtained prior to the commencement of this study. Advanced security clearance was obtained for the lead author, his research assistant, and for all canine handlers prior to the start of the study. All participants, including canine handlers and civic employee and officer visitors to the canine stations, provided written informed consent

acknowledging their participation in this research study. Consistent with protocols used in the B.A.R.K. program, canine well-being (i.e., signs of distress) was monitored throughout each session by a trained graduate student research assistant. Over the course of the study, no signs of canine distress were noted.

Prior to the commencement of the study, volunteer canine handlers attended a training session to prepare them for working with RCMP constables. This session was led by the author and two officers familiar with the daily operations of the precinct. The aim of this two hour training session was to familiarize handlers with the escort procedure into the building, familiarize handlers with the space in which they would be working, familiarize handlers to the duties performed by officers and civic employees within the detachment, familiarize therapy canines to constable uniforms and the smell of firearms, review protocols should a visitor to a canine station be in distress and require additional support, and to respond to any questions handlers might have regarding the study.

Intervention. This study was comprised of 90-minute sessions scheduled once each week over the course of eight weeks. From a pool of seven dog/handler teams, four therapy dogs and their handlers were randomly assigned to participate each week (each dog/handler team participated in at least 4 sessions). The role of the handler within a session was to introduce him or herself and their dog to participants, facilitate dialogue by sharing information about their dog, position their dog to ensure participants had access to and were able to pet and interact with their dog, and to respond to any questions the participants had. The number of participants to each of the eight sessions varied and averaged 31 participants (range = 19 to 52). The number of participants to each

dog station on average was 8 and ranged from 5 to 17 within any given session.

Statistical Analysis Plan

Participants ($n = 14$) who failed to report perceived stress on either measurement occasion were excluded from analyses. Little's (1988) Missing Completely at Random test was not significant (χ^2 (53) = 51.27, p = .54) indicating no significant differences in participant characteristics between cases with and without missing data. This suggests the exclusion of cases with missing data should not bias the results of the analyses. As perceived stress was measured on an ordinal scale and was not normally distributed, hypotheses were tested using non-parametric statistical tests.

The effectiveness of the intervention was analyzed by comparing pre- and post-intervention perceived stress using a paired Wilcoxon signed-rank test. This was first examined using all cases with complete data. It was then examined using all cases where participants indicated it was their first time attending a session as part of the 8-week intervention.

Moderator variables were tested by comparing raw difference scores.[1] For each case, a raw difference score was calculated by subtracting perceived stress at T1 from perceived stress at T2. Positive scores on this variable represent an increase in stress from T1 to T2, and negative scores represent a decrease in stress from T1 to T2. Raw difference scores were correlated with moderator variables using polychoric correlations for ordinal moderator variables, and polyserial correlations for continuous moderator variables. For ease of interpretation, the signs of these correlations were reversed, such that significant positive correlations represent an enhanced effect of the intervention, and significant negative correlations represent a diminished effect of the intervention.

Two judges independently scored each word provided by participants to describe their work environment as either −1 (negative valence), 0 (neutral valence), or 1 (positive valence). Inter-rater reliability, measured with Kendall's tau, was high for both pre-intervention (τ = .90) and post-intervention (τ = .93) scores. Analyses were conducted using the average of the two raters' scores.

Results

A paired Wilcoxon signed-rank test indicated a significant effect of the intervention (V = 52, p < .001) with mean stress decreasing from 3.33 at T1 to 1.95 at T2 (see Figure 1). The same test but only for cases where the participants indicated it was their first session revealed a smaller, but nevertheless significant effect (V = 27.5, p < .001), with mean stress decreasing from 3.21 to 2.12. Figure 2 illustrates the distribution of participants' self-ratings of stress at pre- and post-test for both civic employees and constables. Participants' perception of their work environment was significantly more positive at T2 than at T1 (V = 2784.5, p < .001).

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[1] Historically, there has been some debate about whether difference scores are reliable measures of change; however, this debate largely was settled following publications by Rogosa and colleagues, in which they showed that the unreliability demonstrated by opponents of change scores could only be demonstrated under extreme conditions that rarely, if ever, occur in real-world datasets (Rogosa, Brandt, & Zimowski, 1982; Rogosa & Willet, 1983). Readers who are concerned by our use of difference scores are encouraged to review the publications by Rogosa and colleagues as well as more contemporary treatments of the issue (e.g., Gollwitzer, Christ, & Lemmer, 2014; Overall & Tonidandel, 2010).
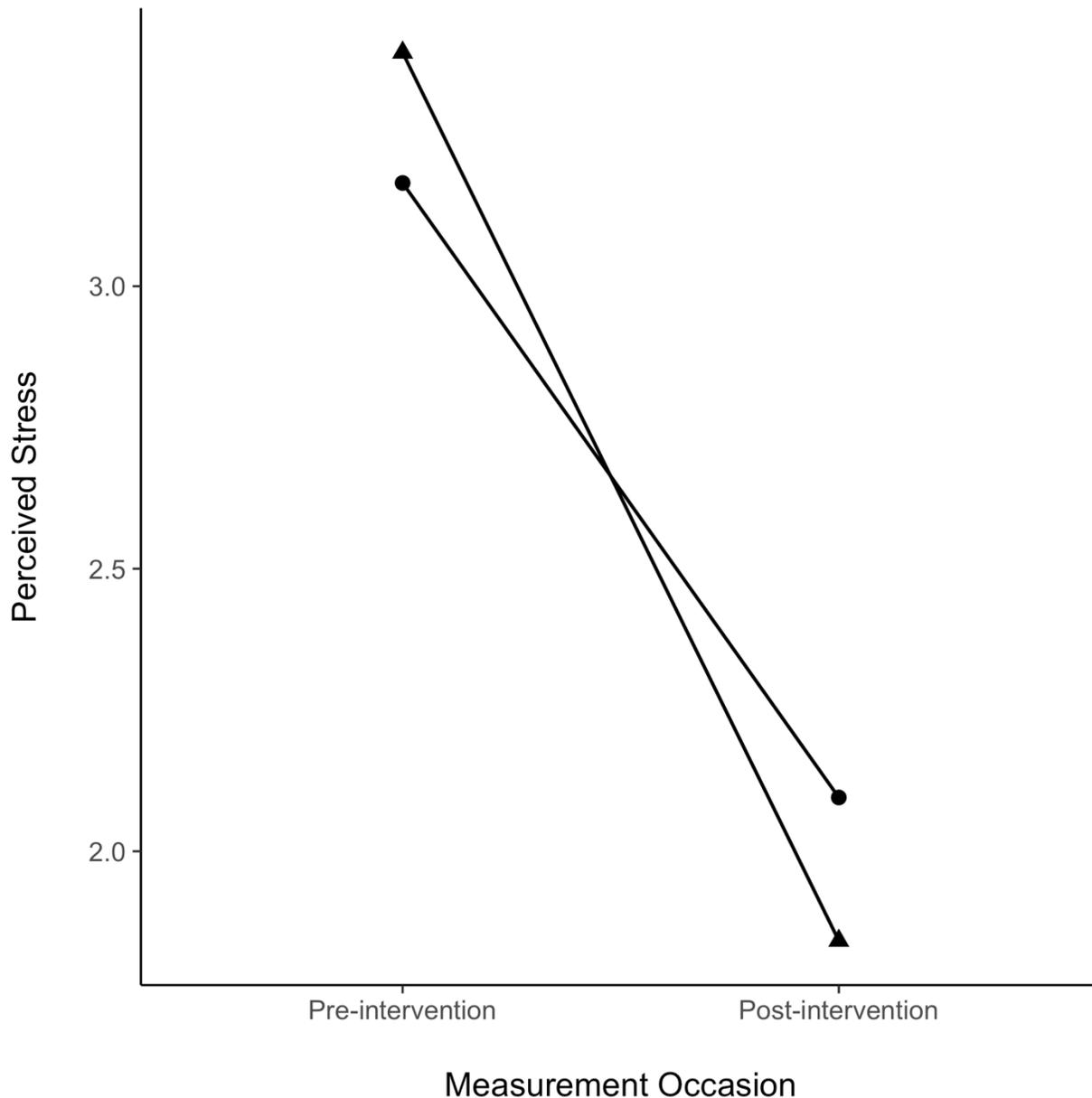
Figure 1. This figure illustrates pre-to-post-intervention reductions in stress, by employee type. The solid triangles represent civic employees and the solid circles represent RCMP.

Participant Characteristics

Male and female participants did not report significantly different levels of stress at T1 according to a Wilcoxon rank sum test ($W = 6040$, $p = .80$). Mean difference scores suggested that female participants subsequently experienced a greater decrease in perceived stress from T1 to T2 ($M = 1.43$) than their male counterparts ($M = 1.28$) however, an unpaired Wilcoxon rank sum test comparing mean difference scores indicated that this difference was not significant ($W = 6410$, $p = .16$). Although participant age was associated with an
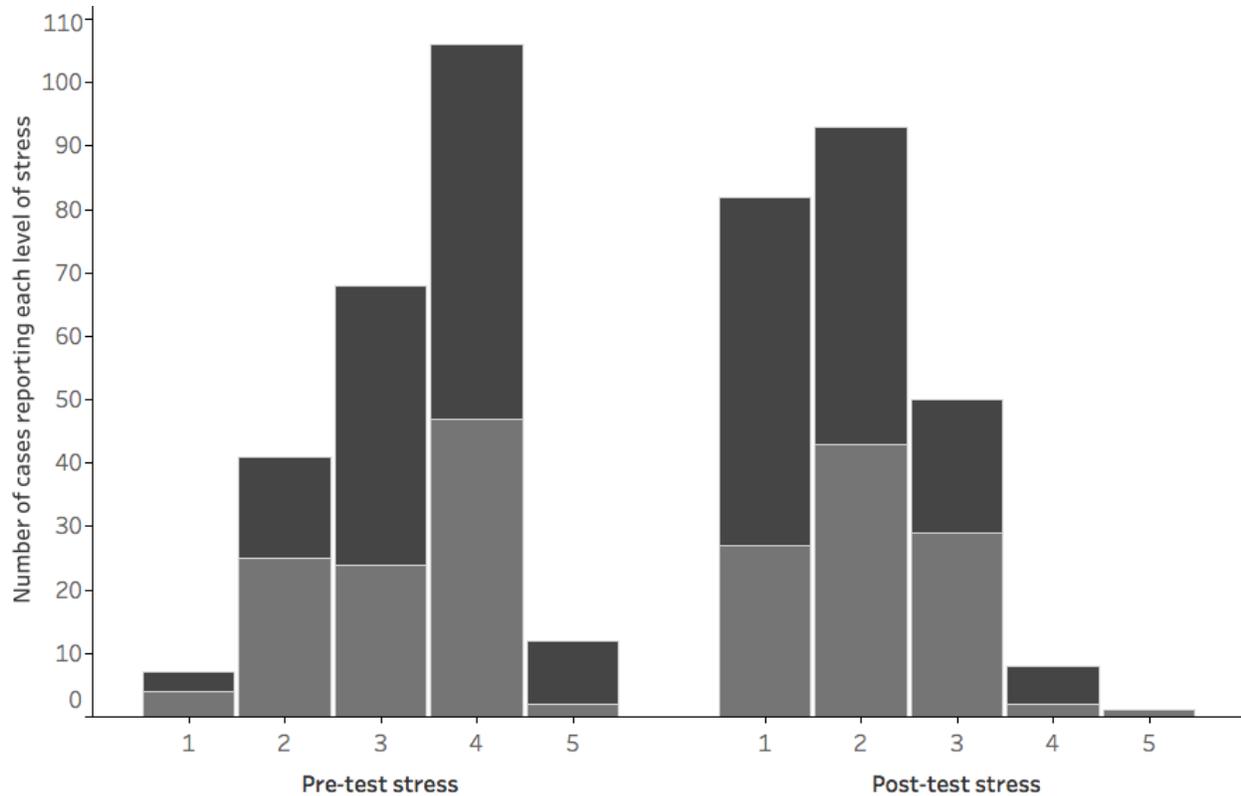
Figure 2. Total number of cases reporting each level of stress at both pre- and post-test. Darker colored bars indicate civic employees and lighter colored bars indicate RCMP.

increased effect of the intervention, ($r = -.23$, $p < .001$, 95% CI [.10, .37]), years spent at the organization was not significantly related to the effectiveness of the intervention ($r = -.01$, $p = .45$, 95% CI [−.14, .16]). A Wilcoxon rank sum test suggested that the intervention was more effective for civic employees ($M = 1.6$) than for RCMP ($M = 1.1$; $W = 4727$, $p < .001$).

Treatment Characteristics

Participants who spent more time with the intervention reported greater reductions in stress ($r = -.17$, $p = .008$, 95% CI [.03, .30]). Number of sessions attended was associated with a non-significant increase in pre-intervention stress ($r = .09$, p

$= .10$, 95% CI [−.05, .24]) and a significantly greater reduction in stress from T1 to T2 ($r = .30$, $p < .001$, 95% CI [.17, .43]).

Results of the analysis of participants' perception of their work environment mirrored the findings examining perceived stress. As number of sessions increased, pre-intervention perception of work environment became more negative ($r = -.09$, $p = .17$, 95% CI [−.09, .25]) and there was a greater difference in pre-to-post-intervention perception of work environment ($r = -.12$, $p = .09$, 95% CI [−.06, .31]), however neither of these relationships were significant. Table 2 illustrates the three most prevalent descriptors provided by both RCMP and civic employees at both pre- and post-test.

Table 2
Most prevalent descriptors of workplace environment in the Pre-test measure

Group	Most prevalent words	Frequency	Valence
RCMP			
Pre-test	Busy	23	Neutral
	Stress	10	Negative
	Good	7	Positive
Post-test	Busy	21	Neutral
	Calm	12	Positive
	Good	10	Negative
Civic Employee			
Pre-test	Busy	30	Neutral
	Stress	23	Negative
	Good	7	Positive
Post-test	Busy	19	Neutral
	Stress	18	Negative
	Good	7	Positive

Note: This table illustrates the most prevalent words used to describe participants' work environment. Words are sorted by employee group, and by pre- and post-intervention. Frequency and Valence categorization are also displayed.

Discussion

Recall that the overarching aim of this exploratory study was to examine whether, within the context of an urban RCMP precinct, spending time with therapy canines was a viable way to reduce officer and staff stress. Our findings contribute to advancing both the fields of animal-assisted visitation interventions and stress reduction in law enforcement as this was the first study of its kind, to our knowledge, to situate a canine-assisted intervention within the context of an urban detachment. Our finding that both officers and civic employees reported significant reductions in stress is in accord with other research attesting to the benefits of spending time with therapy canines (Barker et al., 2012, 2016; Crossman & Kazdin, 2015; Pendry & Vandagriff, 2019).

Examining participants' self-reports of stress reduction more closely, it was evident that civic employees in this study arrived at sessions with higher levels of stress and experienced correspondingly greater reductions in stress when compared to their officer counterparts who, for the most part, experienced a relatively smaller reduction in stress from attending sessions. This is not to dismiss the stress levels of officers as our findings indicate that, upon arrival to sessions, 47% of officers reported feeling *somewhat* or *very* stressed. This trend that sees elevated stress in civic employees is consistent with previous research conducted by Carleton and colleagues (2018) who compared mental health outcomes for civilian employees working for police with active members and found employees had compromised mental well-being across most mental disorders.

Though the purpose of this study was not to identify the sources of officer and staff stress, the elevated stress levels of civic employees working within a precinct may be understood within the framework of an emotional contagion model (Bakker et al., 2006; Hatfield et al., 2014). Certainly, it is expected that officers who, as part of their routine work responsibilities, serve as first-responders and encounter stressful and traumatic events, would experience heightened stress. Our finding that civic employees who support officers are also characterized by elevated stress, despite these employees not being exposed to or involved with first-responder situations, lends support to the notion that spillover stress or emotional contagion emanating from officers to staff may contribute. Additional research teasing apart the relationship between stressed individuals within a precinct, sources of occupational stress, and the passing of stress among law enforcement personnel is warranted.

Supplementing our finding that visitors to the canine sessions experienced a reduction in stress, our qualitative data, in which we asked participants to provide descriptions of their workplace environment, shed light on both participant uptake of the intervention and their perception of their work environment. Participants who attended multiple sessions were more likely to report negative descriptors of their work environment and, as a group, high consumers of the intervention reported higher pre-test stress. There are two possible interpretations of this finding: 1) that over time these participants were becoming more stressed; and more likely, 2) that employees who experienced relatively high stress made use of the intervention with greater frequency than low-stress individuals. See Table 2 for a summary of prevalent descriptors from both officers and civic employees. It merits noting that although the descriptors did not change

markedly from pre-to-post test, the average valence did change, with descriptors being more positive following the intervention.

There are a number of implications arising from our research. First, a brief stress reduction intervention comprised of bringing therapy canines to an urban RCMP detachment was well-received and had strong uptake from both officers and civic employees. Second, we posit that the strong uptake by officers and staff may lie in the intervention being integrated into the day-to-day work routine within the detachment. Further, our sessions did not require a priori registration or sign-up, our data collection measures were quick and efficient, and participants' data was collected anonymously—all factors contributing to an ease of uptake. Our finding that participants visited, on average, 11 minutes with our therapy dogs is in alignment with previous research employing brief interactions (e.g., Banks, McCoy, & Trzcinski, 2018) and reflects strong ecological validity—officer and civic employee stress can be reduced over the course of a short coffee break.

Limitations and future research

Applied research of this nature is a complex undertaking and can be challenging to conduct given the varied stakeholders involved and the busy, public nature of the research site. Despite best intentions, this study was not without limitations. First, as this was an initial exploratory study, no control condition was incorporated into the study design. Thus, we cannot definitively claim that officer and staff self-reports of stress reductions are attributable to spending time with our dog-handler teams. A follow-up study comparing participants in both control and treatment conditions will advance our understanding of the role therapy canines play in reducing the stress of law enforcement personnel. Second, though our findings suggest that both officers and civic employees were eager to spend time with

therapy canines and experienced a corresponding reduction in pre-to-post visit stress, still little is known about the workplace factors contributing to elevated employee stress. Thus, both a limitation and a consideration for a future study would be to incorporate more extensive qualitative methodologies into the design to explore the lived experiences of law enforcement personnel seeking to reduce their stress. For example, a series of semi-structured interviews could be done to uncover the underlying factors contributing to, and exacerbating, employee stress. Related to our asking participants to provide descriptors of their workplace, we should have had participants assign a valence (+ or −) as ambiguous descriptors such as "busy" can be difficult to code without knowing the participant's interpretation. A third limitation lies in the narrow approach to measuring employee stress. Though the use of a 1-item VAS is an efficient way to assess self-reports of stress, the use of a more elaborate (e.g., Cohen's 10-item Stress Scale) and the use of multiple raters (employee him/herself, peer-ratings, supervisor ratings) would increase the reliability of our findings. Fourth, as the intervention took place over several weeks and particularly stressful events can skew the stress (and the corresponding attendance at sessions) of participants, a future study must incorporate documentation of the nature and number of incidents responded to each week. Fifth, though participation in the sessions offered over the course of the study was strong, we do not yet understand the level of each participant's engagement within a given session. We do know that, on average, participants spent 11 minutes interacting with the therapy dogs however what remains to be explored is the nature of their interactions including the extent to which they interacted with handlers, the extent to which they had hands-on contact with the dogs, and the extent to which the dogs served as a catalyst for interactions with fellow precinct employees. A future study examining these particular aspects of the human-animal interaction within this context is warranted. As we did not track the number of visits each individual employee made over the course of the eight-week intervention, a future study should examine the effects of single versus multiple visits on employee well-being. Last, future investigations of the effects of canine-assisted interventions on reducing the occupational stress of law enforcement officers and staff should incorporate a follow-up assessment, administered after post-test, to assess long-term effects (or "stick").

Conclusion

The elevated workplace stress of law enforcement personnel places officers and civic employees at-risk for suboptimal mental health and potential maladaptive outcomes that compromise their ability to protect and serve the public. As officers and staff can be reticent to seek help and make use of the resources available to them to reduce their stress, the integration of well-being initiatives into employee work routines is key to increasing uptake. Our aim was to explore whether integrating a weekly canine-assisted intervention into an urban precinct would be both accessed by officers and staff and contribute to their experiencing a reduction in workplace stress. Results from our exploratory study show promise on both fronts and our findings contribute to better understanding the impact of a canine-assisted intervention in an applied setting and with participants known to experience high occupational stress.

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