
PAWSing Student Stress: A Pilot Evaluation Study
of the St. John Ambulance Therapy Dog Program on
Three University Campuses in Canada
Museler le stress chez l'étudiant : Étude pilote
d'évaluation menée sur trois campus universitaires au
Canada dans le cadre du programme de zoothérapie
canine d'Ambulance Saint-Jean

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ABSTRACT

Student mental health is a concern on university campuses, and animal-assisted interventions are one response. This article presents the immediate and three-month follow-up outcomes of a pilot evaluation study of the St. John Ambulance Therapy Dog program at three Canadian universities. Analyzing a sample of 403 students and 16 handlers/observers at the events and 87 students at follow-up, we found that the therapy dogs offer love and support. Love is understood as having reciprocal love for the dogs and gaining

positive feelings from visiting with them. Support is understood as destressing and relaxing by interacting with the dogs. Implications for mental health supports for university students are suggested.

RÉSUMÉ

La santé mentale des étudiants est une préoccupation sur les campus universitaires, et les interventions en zoothérapie constituent une façon d'y répondre. Dans cet article, on présente les résultats immédiats et ceux d'un suivi de trois mois d'une étude pilote d'évaluation menée sur trois campus universitaires canadiens dans le cadre du programme de zoothérapie canine d'Ambulance Saint-Jean. À partir d'un échantillon de 403 étudiants et de 16 manieurs/observateurs lors des événements et de 87 étudiants lors du suivi, on en est venu à la conclusion que les chiens utilisés pour la thérapie offrent de l'amour et du soutien. Le terme « amour » désigne ici le fait de manifester un amour réciproque pour les chiens et de développer des sentiments positifs à leur contact. Le soutien désigne le fait de ressentir moins de stress et de se détendre en interagissant avec les chiens. On y suggère certaines implications pour les mesures de soutien de la santé mentale destinées aux étudiants universitaires.

Animals are firmly embedded in many family units and are often included in how families define themselves (Tedeschi, Fitchett, & Molitor, 2005; Vanier Institute, 2009). More than one half of North American households have an animal living in them (McNicholas & Collis, 2006; Perrin, 2009; Stats, Pierfelice, Kim, & Crandell, 1999), with nearly half of those animals being dogs (Humane Society of the United States, 2014). Young adults who move away from the family home to attend university often leave behind important supports in their lives, including companion animals. With student mental health a growing concern on Canadian university campuses in recent years, therapy dogs were first formally introduced in 2012 at the University of Ottawa. This article begins by situating the mental health needs of students on Canadian campuses and the growth of animal-assisted interventions as one response. The goals of the St. John Ambulance (SJA) Therapy Dog program—to offer love and support—are then established. Next, the immediate and three-month follow-up outcomes of a pilot evaluation study of the program at three Canadian universities (University of Saskatchewan, University of Regina, and McMaster University) are reviewed during a final examination period. It was found that the therapy dogs unequivocally offer love and support to students. Love was understood as having reciprocal love for the dogs and gaining positive feelings from visiting with them. Support was understood by students as destressing and relaxing from interacting with the dogs and to a much lesser extent with the handlers. These findings, coupled with recent literature, also raise concern about female students identifying a greater level of stress in their lives than males. This article makes an important contribution to the flourishing practice of, but dearth of empirical understanding about, animal-assisted activities on university campuses. Implications for mental health supports for university students are suggested.

Animal-Assisted Interventions

Animal-assisted interventions (AAIs) is the umbrella term for any intervention that includes or incorporates animals as part of a therapeutic process (Fine & Beck, 2010). Canine-specific AAIs include animal-assisted therapy (AAT), where, for example, a dog is part of a therapeutic counselling session. AAIs also include animal-assisted activities (AAAs), which are the focus of this article. Animal-assisted activities “provide opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life” (Kruger & Serpell, 2006, p. 23). Specially trained professionals, paraprofessionals, and volunteers visit in a variety of contexts with animals that meet specific criteria (Pet Partners, n.d.). An AAA is typically “informal, takes place in a variety of environments, and is not targeted at any specific medical condition or person” (Huss, 2012, p. 444). While AAAs are explicitly not therapy (i.e., treatment goals are not identified), they can be therapeutic. The human-animal bond was introduced as a concept in psychiatry, psychology, and sociology as early as the 1940s (Young, 2012). Today, the American Veterinary Medical Association recognizes that

[t]he human-animal bond is a mutually beneficial and dynamic relationship between people and animals that is influenced by behaviors that are essential to the health and well-being of both. This includes, but is not limited to, emotional, psychological, and physical interactions of people, animals, and the environment. (American Veterinary Medical Association, n.d.)

Young (2012) describes the mental and physiological experience of AAT and AAAs as “a tactile process whereby unconditional attachment bonds form between animals and humans, inducing relaxation by reducing cardiovascular reactivity to stress” (p. 218). Yet there is ongoing skepticism toward AAIs because of a historic absence of empirical research measuring outcomes (Borrego et al., 2014). The past decade, however, has seen a modest increase in research relevant to the AAI field. Several studies have identified how simple social interaction with a dog can decrease cortisol and increase oxytocin levels in humans (Handlin et al., 2011; Miller et al., 2009). Others have found that petting an animal for a brief period of time can reduce anxiety among individuals in a stressful situation and reduce blood pressure among healthy subjects (Bell, 2013; Friedmann, Thomas, & Eddy, 2000). A 2014 randomized control study by Havey, Vlasses, Vlasses, Ludwig-Beymer, and Hackbarth found that “daily visits with a specially trained dog—even for just five minutes—can significantly reduce the need for pain medication in patients recovering from joint replacement surgery” (as cited in Anson, 2014). A recent systematic review of AAI randomized control trials on psychosocial outcomes concluded that they may be of benefit to a wide range of individuals, and that there is a need for more research (Maujean, Pepping, & Kendall, 2015). The practice of AAAs on university campuses has been growing rapidly in North America (Adamle, Riley, & Carlson, 2009; Huss, 2012). Several studies on offering AAAs during examination periods have concluded that therapy dogs are

helpful for relaxation and destressing (Baun, Oetting, & Bergstrom, 1991; Huss, 2012; Shiloh, Sorek, & Terkel, 2003). In a review of American campuses, Bell (2013) found that “several institutions have seen the correlation between their stressed-out students and the benefits derived from therapy animals and have implemented programs to integrate the two” (p. 2). A study by Adamle, Riley, and Carlson (2009) also found that therapy dog visits could be beneficial to college freshman during their first year away from home to “temporarily fill the absence of previous support systems and be a catalyst for establishing new social relationships” (p. 545). Huss (2012) similarly found that AAAs can “help students who are homesick” (p. 446). A Canadian study of the SJA Therapy Dog program at the University of Toronto campus by Bell (2013) presented a review of the lessons it learned in offering an “overwhelmingly positive [program]; students were very appreciative” (p. 1). With AAI research being so new, little attention has been allotted to the influences of diversity. Some researchers, however, have accounted for gender in the general companion animal literature. For example, the work of Somerville, Kruglikova, Robertson, Hanson, and MacLin (2008) examined the physiological impacts (e.g., blood pressure, pulse rate) of petting an animal, and found no significant difference between males and females in either systolic or diastolic blood pressure, but they did find that females had a significantly higher pulse rate. Another study by Demello (1999) found that, independent of gender, “cardiovascular measures reduced significantly more during conditions where a pet was present” (p. 865).

University Student Stress

The transition into university life is an exciting time for some young adults, while for others it is challenging. According to Hystand, Eid, Laberg, Johnsen, and Bartone (2009), “leaving home for the first time, examinations, writing term papers, and all other requirements of academia are experienced as immensely stressful by many students” (p. 421). Despite this, limited published literature exists within the Canadian context. Academic stress, and specifically that associated with writing exams, is frequently identified as the most significant type of stress experienced by students (Abouserie, 1994; Pierceall & Keim, 2007; Robotham & Julian, 2006). Students also face stress in areas related to university life, such as creating new friendships, learning how to manage time, and fears of failing or not living up to expectations (Pierceall & Keim, 2007; Robotham & Julian, 2006). A study by Abouserie (1994) on sources of academic and life stress in second-year university students found that “78% of students were in moderate range of stress, 10% were in the category of serious stress, and 12% reported no stress problems” (p. 325). Studies about stress among university students have also found it is higher in females than males (Abouserie, 1994; Campbell, Svenson, & Jarvis, 1992; Hudd et al., 2000; Mahmoud, Staten, Hall, & Lennie, 2012; Pierceall & Kiem, 2007). A recent study at a large midwestern university in the United States similarly found that international female students experience more stress than international male students (Bang, Muriuki, & Hodges, 2008). For some students, new academic and

life challenges encourage them to draw upon healthy coping behaviours, while for others the experience can be “painful and debilitating” and lead to negative health consequences (Thurber & Walton, 2012). A study by Hudd et al. (2000) found that “[s]tudents with high levels of stress ... are more prone to practice a number of poor health habits” (p. 7). Pierceall and Keim (2007) similarly concluded from their research that a significant proportion of students choose unhealthy coping habits to deal with stress: 39% of students coped by drinking, 36% by smoking, and 15% by using illegal drugs. Baer (as cited in Park, Armeli, and Tennen, 2004) states that “of the different motives underlying college students’ alcohol use, coping with stress is believed to be most closely linked with the development of problem drinking” (p. 126).

Therapy Dogs on Canadian Campuses

Student mental health has been identified in Canadian media as a crisis on university campuses, with a need for novel and effective responses (Canadian Mental Health Association and the Canadian Association of Colleges and University Student Services, 2013; Lanua, 2012). Consequently, nearly half of Canada’s 98 universities currently offer therapy dog programs during examination periods and, for some institutions, regularly throughout the term. The programs have been carried out primarily by student-led groups and university health programs, and oftentimes by the two in partnership (J. Gillett & M. Brydges, personal communication, January 15, 2014). It is not known when and where therapy dogs were formally introduced onto campuses in Canada as there are no known published articles in this area, but a news report suggests that in 2012 the University of Ottawa was the first to offer an AAA consistently throughout the academic term (Wallace, 2012). In the United States, in addition to therapy dogs being brought onto the Harvard Medical School campus to visit, a dog can be signed out from the school’s library to accompany students on breaks from studying (Weinberg, 2014). The University of Northern Colorado has expanded its recognition of the human-animal bond on human well-being by allowing dogs and cats to live in student housing to help relieve the stress associated with college life (Connelly, 2014), and dogs have also been “brought to campus in the aftermath of a traumatic event” at other institutions (Huss, 2012, p. 446).

A variety of organizations offer therapy dog services to campuses on a volunteer basis in Canada, including Therapy Dogs International, Therapeutic Paws of Canada, SJA, and the Society for the Prevention of Cruelty to Animals (SPCA). Evaluations of these programs have been limited because, although they have a specified service goal (e.g., to improve well-being), they often lack identifiable objectives (i.e., clear statements about how the content of the program is meant to achieve its goals) (Daschuk, Dell, & Duncan, 2012). Complications also arise because the nuances of the approach can vary between each handler and dog team. Some services, though, do have specified goals, and one—the SJA Therapy Dog program—has goals that can be operationalized and measured. In 1992, the SJA Therapy Dog program was introduced in Peterbor-

ough, Ontario. The success of the local program gained national attention and has since been implemented in all of Canada's provinces and territories. The goal of the program coincides with that of the organization—to offer charitable, humanitarian care to the sick and injured. The Therapy Dog program has two goals: to offer (a) support and (b) love to the individuals with whom the dogs and handlers visit (St. John Ambulance, 2015). The SJA Therapy Dog program is an animal-assisted activity, as defined above. The Therapy Dog program was launched in Saskatchewan in 2007, and there are currently more than 130 therapy dog teams throughout the province that worked over 6,000 hours in 2013. In Ontario, 1,663 therapy dog teams volunteered a total of 133,220 hours in 2013. The city of Hamilton has 52 therapy dog teams that completed 4,031 hours of volunteer service in 2013.

In all provinces and territories, the SJA therapy dog handler must be 18 years of age or older and physically and mentally capable of performing the activities that are reasonable for the type of service they are providing. The process for becoming a therapy dog team consists of screening the humans (e.g., character) and dogs (e.g., temperament and obedience), orientation (watching a video and completing test questions), evaluation (done by dog obedience trainers volunteering with SJA), placement (consisting of facility orientation and supervised visitation by a SJA representative), and establishment of a regular visitation schedule. The team commits to volunteering at least once a month and provides an annual veterinary record of vaccinations and any behaviour-related issues with the dog to SJA. The handlers sign an annual attestation form to verify that the information on their required criminal record check is current and must provide an updated check every three years. The human-dog team is retested if the dog has had any significant health issues or if they have not visited for a period of 6 months. Once a therapy dog team completes 60 hours or one year of visitation, they are eligible to undergo an evaluation to work with children (St. John Ambulance Therapy Dog Program, 2015).

Love and Support in Human-Animal Relationships

The concepts of love and support are recognized by SJA. Social support can be described as the self-perception that one is loved, admired, and connected to a shared responsibility (Cobb, 1976). Companion animals fall within these descriptors as they are often “perceived as nonjudgemental, noncritical, and to be there in times of trouble” (Wells, 2009, p. 531). The fact exists that people develop love and affection toward companion animals (Fook, 2014; Julius, Beetz, Kotrschal, Turner, & Uvnas-Moberg, 2013). This type of love experience has been described as “exceptionally private and unambiguous—unknowable in human relationships, because, at its deepest level, it is essentially wordless” (Gavriele-Gold, 2011, p. 98).

In human-animal relationships, love and support appear to be mutually inclusive such that one emerges with the other. For example, love has been identified as a perceived nonjudgemental presence (Putney, 2013, p. 63) that lends a sense of emotional support (Allen, Blascovich, & Mendes, 2002; Corson & Corson,

1981), social relatedness, and belonging (Blazina, Boyraz, & Shen-Miller, 2011). However, much of the literature on AAls referring to the concept of social support is primarily related to individuals who are psychosocially at risk (Fine, 2010). But all people can experience periods of personal difficulty and stress (Hart, 2010). According to Hart (2010), “companion animals can buffer and normalize a stressful circumstance, offering engaging and accepting interactions without reflecting back the concern and agitation of the difficult situation” (p. 76). Thus, the reprieve from the situation permits one to cope, with a perceived sense of comfort, happiness, and joy (Walsh, 2009). In this study the concepts of love and support are broadly conceived of as shared above. This allows for the emergence of understanding from the students’ experiences. Their descriptions will inform the future development of these terms.

The aim of this study was to evaluate the goals of the SJA Therapy Dog program at three university campuses in Canada during a final examination period—University of Saskatchewan (U of S), University of Regina (U of R), and McMaster University. With the objectives of the SJA Therapy Dog program being to offer love and support, it follows that our outcome designed evaluation questions are

1. Are participants receiving love and support from the therapy dog?
2. Are participants receiving support from the therapy dog handler?
3. How are the participants experiencing the love and support they receive from the therapy dog and/or handler?

METHOD

This study was designed as an exploratory pilot evaluation; it was undertaken on a limited scale to identify the program outcomes such that the findings could help guide the design of a future, robust study. A mixed methods approach was employed that best permitted strength of depth in understanding through the use of multiple data sources (Hesse-Biber, 2010). Data collection included qualitative, open-ended inquiry to document participants’ subjective experiences, meanings, and processes via questionnaires (Denzin & Lincoln, 2008; Kirby, Greaves, & Reid, 2006; Speziale & Carpenter, 2007). This enabled participants to “describe the meaning of the lived experience of the phenomena” (Starks & Trinidad, 2007, p. 1373). This approach recognized that others’ perspectives lend to the co-creation of individuals’ stories such that they can collaboratively unfold (i.e., observations of the students by the handlers and observers) (Creswell, 2013).

Two large (McMaster University, University of Saskatchewan) and one medium-sized (University of Regina) universities were chosen as a convenience sample. The goal of the SJA Therapy Dog program was consistent across all three sites. The U of S offered its program over three days, providing individual and group appointments. Free hand and body massages (offered by massage therapy students completing hours for licensure), snacks, study tips, swag (e.g., ear plugs), and information on stress reduction techniques were also available. At the U of R,

the Therapy Dog program ran for six days, providing individual appointments. At McMaster University, individual appointments were provided over the two days. Data were not collected on the average length of visits or whether attendees returned a second day, but it was observed that visits were as brief as a few minutes to up to 60 minutes and an estimated 15% of attendees returned on a second day. All participants at the three universities were asked to complete a paper evaluation form (questionnaire) as they exited from the visit, with a plush dog draw prize being offered as incentive. Ethics exemption was granted from the University of Saskatchewan Human Research Ethics Board, given the evaluative focus of the project, and went through both U of R and McMaster University ethics approval processes. This work was also approved by the U of S's Animal Research Ethics Board and adhered to the Canadian Council on Animal Care guidelines for humane animal use.

Participants

A total of 726 individuals participated in the therapy dog visits across the three campuses, with 403 completing a questionnaire: 85% (343) for group visits and 15% (60) for individual visits. Nearly 90% of the participants were students, followed by staff (9%), faculty (1%), and other visitors to campus (0.5%). Response rates varied across the three sites: 49% at the University of Saskatchewan, 26% at the University of Regina, and 91% at McMaster University. The large majority of respondents were female (79%). Four students identified as transgendered. Most participants reported having a companion animal/family pet (61%), but only 16% reported that their pet lived with them during the school year. These demographic characteristics were nearly identical for the student and nonstudent populations. Additionally, 10 handlers and 6 observers (15 females, 1 male) completed questionnaires on their observations of the program attendees. A total of 187 participants gave permission to be contacted for the follow-up, with 87 (47% response rate) completing the follow-up questionnaire by telephone or online, approximately three months after the original event. The gender (83% female) and staff/student (13% staff) ratios of follow-up respondents were similar to the initial data collection.

Data Collection

The data collection occurred twice. The first round took place in April 2013 and was repeated three months later. We chose a three-month follow-up period because it is the common program evaluation timeframe in fields such as family therapy and addictions (Keiley, Martin, Liu, & McNab, 2005; McCaffrey, 1996). Participants at the event were asked to rate, on a 5-point Likert scale, the following items:

1. the dogs helped me to destress;
2. I felt comforted by the dogs;
3. I felt supported by the handlers;

After my session with the dogs, I feel more

4. anxious,
5. calm and relaxed,
6. in control of my emotions (that is, balanced and in the moment),
7. stressed out or tense.

Five qualitative questions were also asked of the participants at the event:

1. What was your reason for coming to the therapy dog event?
2. Are you glad that you came to the event, and why?
3. What words would you use to describe your experience with the therapy dogs?
4. Would you recommend the event to other students, and why?
5. Any additional thoughts?

At follow-up, respondents were asked to report their gender and role on campus, and to respond to three qualitative questions: (a) What things do you remember about the therapy dog event? (b) Did the event impact in any way how you now handle stress in your life? If it did, can you please share an example? and (c) Is there anything else you'd like to share about the event?

Data Analysis

For each Likert scale item in the questionnaire, χ^2 analyses and two-proportion z -tests were used to determine whether there were any significant differences for gender, role (student/other), and program type (group/individual). A pragmatic, inductive thematic analysis was used to understand participants' experiences with attending the Therapy Dog program and the handler and observers' insights as part of the interactions. This process involved identifying themes by analyzing words and segments of text, comparing across several other themes, and clustering content based on similarity in meaning (Saldaña, 2010). The frequencies reported below may not sum to the sample size because sentences can be thematically coded more than once. The themes were reviewed by our research team (and all authors of this article) for discussion and contextualized understanding within the goals of the SJA Therapy Dog program. Themes that did not meet the goals of the SJA program were still considered, as they added a fuller description of participants' experiences. Thus, negative cases provided novel insights and explanations for understanding.

FINDINGS

Participants at the Event

Results of the Likert scale items are presented in Table 1 and, taken together, indicated that participants found the experience to be very positive. Furthermore, *strongly agree* was rated with a higher frequency than *agree* for five of the seven

items. Examining the data by gender (female and male), there are a few differences to acknowledge. Given that only four respondents identified as transgendered, this category was not compared. Applying a z test for two-population propor-

Table 1
Spending Time with the Therapy Dogs

Survey questions completed at the event		Strongly agree (%)	Agree (%)	Disagree (%)	Strongly disagree (%)	Unsure (%)
The therapy dogs helped me to distress	Female $n = 310$	57*	35	0.3	3	5
	Male $n = 84$	37	58*	0	1	4
	All $N = 398$	52	40	0.3	3	5
I felt comforted/loved by the dogs	Female $n = 310$	63*	30	1	3	3
	Male $n = 85$	48	47*	0	1	4
	All $N = 399$	60	34	1	3	3
I felt supported by the dog handler	Female $n = 310$	69*	25	1	3	2
	Male $n = 85$	49	47*	0	1	2
	All $N = 399$	65	30	0.5	3	2
I did not feel anxious after spending time with the therapy dogs	Female $n = 297$	66*	28	0	0	6
	Male $n = 78$	50	41*	1	0	8
	All $N = 379$	63	31	0.3	0	6
I felt calm and relaxed after spending time with the therapy dogs	Female $n = 298$	47*	48	0.3	1	4
	Male $n = 78$	31	67*	0	0	3
	All $N = 380$	44	52	0.3	1	3
I felt in control of my emotions (that is, balanced and in the moment) after spending time with the therapy dogs	Female $n = 298$	34*	49	0.3	1	16
	Male $n = 78$	22	49	4*	1	24*
	All $N = 380$	32	48	1	1	18
I did not feel stressed out or tense after spending time with the therapy dogs	Female $n = 296$	64*	25	2	1	7
	Male $n = 78$	53	35*	4	1	8
	All $N = 378$	62	27	2	1	8

*Significantly proportionately higher than counterpart at $p < .05$

tions to determine if there is a difference between the two proportions on a single category, females were consistently more likely than males to “strongly agree” and at an average difference of 16% (range of 12% to 20% higher). For example, for the item “The dogs helped me to destress,” a significantly higher proportion of females (57%) indicated *strongly agree* compared to males (37%), difference = 20%, $z = 3.18$, $p < 0.05$. The data were also examined by role (student versus faculty/staff), and no significant differences were identified. Third, the data on type of session (individual versus group) were compared, and again there are no significant differences to report.

The findings for the qualitative data emerged from 403 participants who were asked to respond to five open-ended items; here the response rate ranged from 99% to 40%. The five open-ended questions and findings are as follows:

I. REASONS FOR ATTENDING THE THERAPY DOG EVENT

A main reason indicated for attending the event was the love of dogs and positive feelings when with them. The foremost reasons given by participants for attending the therapy dog events were, not surprisingly, to see the dogs and more specifically included to simply spend some time with a dog (122); their love of dogs, including to experience being loved by one (103); they miss their own dog/pet and being around dogs/animals (34); and other positive dog-related reasons (e.g., to be happy) (33). Students expressed their reasons in the following ways in each category: “Because time with a dog can only be good time” (male, U of S, group visit); “Needed love from a happy dog” (female, U of S, individual visit); “Homesick for my dogs back home and I’ll take any opportunity to spend time with a dog” (female, U of R, individual visit); “I wanted to see dogs. I’m glad to see and touch them. I am exhausted because of the rush schedule of my finals but they made me happy” (female, U of S, group visit).

The second reason cited by students for attending the event was to destress and relax (128). Other reasons were to take a break from studying (48) and curiosity about the event (58). Students said the following about each: “Very stressed out, miss my dogs like crazy, needed some help continuing with exams” (female, McMaster, group visit); “Just to take my mind off things with the exams” (female, U of R, individual visit); “I hear about this stress-relieving thing with dogs ... so I thought to check it out” (male, U of S, group visit).

Overall, there were minimal differences between genders, but proportionately more females (29%) than males (14%) identified that they attended the event to destress; conversely, proportionately more males (52%) than females (30%) identified that it was just to be with the dogs.

2. GLAD THEY VISITED THE THERAPY DOGS AND REASONS WHY

When students were asked if they were glad they visited with the therapy dogs, 397 of 403 (98.5%) agreed; the remaining few were unsure. The most prominent reason was because they simply got to spend time with dogs (184), followed closely by because the event gave them positive feelings like happiness (170). Students

shared in both areas: “It was nice to be around the dog after a long exam” (female, U of R, individual visit); “I’m always happy to spend time with dogs” (female, U of R, individual visit).

They also shared that the event helped them to destress and relax (111), they love dogs and felt loved by them (56), the event provided a break from studying (41), they were reminded of their own dogs and the comfort that provided (12), and it was a novel social event (10). Respondents mentioned: “I love dogs. I was stressed and now I’m not!” (female, McMaster, group visit); “Enriching, it makes me feel loved because they are so happy to see everyone” (female, of S, group visit); “Dogs are awesome, and I feel relaxed. It was a way to really take a break instead of trying to and then feeling stressed” (female, U of S, group visit); “I relaxed. Spent a good time without work stress. Rejuvenate my memories with dogs” (male, U of S, individual visit); “I love the experience and it’s wonderful to know more about it” (female, U of S, group visit).

Males were proportionately more likely than females to share the reason they were glad they visited with the therapy dogs: because they just wanted to spend time with them (59% versus 46%). It is likewise noteworthy that proportionately more females shared that they were glad they visited with the dogs so they could reduce their stress (33% versus 17%).

3. WORDS USED TO DESCRIBE EXPERIENCES WITH THE THERAPY DOGS

The words students most commonly used to describe their experiences with the therapy dogs were happiness-related (e.g., fun, comforting, supportive) (400); relaxing, calming, and stress-reducing (179); loving (38); wonderful to visit with (22); a good study break (4); nostalgia about own dog (4); and meeting new people (1). Some of the responses for each category are “Relaxing, fun, calming, enjoyable, friendly, nonjudgemental!” (female, U of S, group visit); “Relaxing, like being in a little bubble where the outside world matters less” (female, U of S, group visit); “Fun, loving, enjoyable” (female, U of S, group visit); “Wonderful, fun, loving, comfy, soft, worthwhile” (female, McMaster, group visit); “It made me smile and forget about my next exam” (female, U of S, group visit); “Relaxing, adorable, tearful” (female, McMaster, group visit); “Joy, emotions, meeting new people, feeling welcomed” (female, U of S, group visit). There were no noteworthy differences by gender other than females identifying a higher proportion of words related to love than males (12% versus 5%).

4. RECOMMENDING THE EVENT TO OTHER STUDENTS

The majority of respondents (378 of 403; 93.5%) indicated that they would recommend the event to other students, three were unsure, and the rest did not respond. The reasons for recommending the event included that it helps students to destress and relax (168), followed by it was enjoyable (e.g., fun, rewarding) (146), a great break (47), the dogs bring happy and good feelings (47), love of dogs (25), beneficial to mental health during the exam period (21), and a new experience or meeting new people (3). Written responses in each area included “Best destressor

ever. Super happy mood” (male, McMaster, group visit); “Relaxing, fun, calming, enjoyable, friendly, nonjudgemental!” (female, U of S, group visit); “Great way to take a study break that actually feels productive rather than the internet” (female, U of S, group visit); “It helped me and I would say I feel I have the best mind set going to my exam” (female, U of S, group visit); “Because it was so unique and the room had such a lovely vibe—I didn’t want to leave!!” (female, U of S, group visit); “It can help mental health” (male, U of S, group visit); “Not only were the dogs healing, but the event also brought a valuable opportunity to communicate with various people” (male, U of S, group visit).

Of interest is that, when suggesting the reason they would recommend the event to other students, females identified that they would because the event was enjoyable (52%) followed by destressing (46%), and males identified destressing first (37%) followed by enjoyable (30%).

5. ADDITIONAL THOUGHTS

The final, open-ended question asked students if they had any additional comments. Their responses concentrated on sincere gratitude for having the therapy dogs on campus for the reasons cited above and expression of a desire for the Therapy Dog program to continue. There were no differences by gender. Written comments reflecting each include “Great job! I love dogs, dogs are lovely, the handlers were phenomenal, it made me so happy” (female, McMaster, group visit); “Thank you for helping students at this critical time in our lives” (male, U of S, group visit); “Continue the program!!” (male, U of S, individual visit); “THANKS for putting this on, dogs should be everywhere on campus” (female, U of S, group visit).

The responses for transgendered respondents were similar to those of males and females. The reasons for coming to the therapy dog event for transgendered students were “I saw them before and it feels great to meet new dogs”; “To pet some dogs. Was hoping for puppies though”; “My friend invited me”; and “Having a bad time this month.” All respondents shared that they were glad they came to the event, and the reasons included “I got a massage and met 3 new dogs! Dogs rock”; “The dog was not very affectionate and it shed a lot. It ignored the other person I was with. She might have given off cat energy though”; and “The lady was really nice and Dude was so cute.” Words used to describe their experiences with the dogs were “happy and calming”; “good, nice, cool dog”; “good, fun dog”; and “calming and loving.” All four respondents said they would recommend the event to other students, with the reasons being “Because it is fun,” “It’s a nice little break,” and “Everyone loves dogs.”

Observers and Handlers at the Event

The quantitative data was derived from 16 observers and handlers who rated three items using a 3-point scale (*Yes, No, Unsure*). The handler and observer data were analyzed separately and then combined, as there were no differences observed between the two.

Of the 16 respondents, 14 identified that they believed the attendees felt loved by spending time with the therapy dogs, and the remaining two were unsure. Nearly all (15) felt that spending time with the therapy dogs made the attendees feel supported; the same number shared that they felt that spending time with the therapy dog handlers made the attendees feel supported. Reflecting on their experiences at the therapy dog event generally, and specifically to their experiences with the therapy dogs and why they attended, the key themes to emerge were that the students just wanted to see a dog and spend time with a dog to help destress, relax, and take a break. The handlers highlighted that the students missed their own pets at home and that the therapy dogs offered a positive energy when they were interacting with and being petted by the students. The observers noted that the overall atmosphere of the therapy dog event was a relaxing hang-out for the students. A theme identified by the handlers and observers, but not by the students, was the handlers' attentive listening. Both handlers and observers noted that the students ultimately experienced relaxation. As one of the handlers shared:

I think the students attended because they were stressed with exam time and were feeling lonely in some ways. Study time is a time of isolation for many students. I think also that they were missing home, at least some of the ones that lived away from home, and specifically were missing their pets (dogs and cats). I also think they liked to be hugged or to hug the dogs. (U of S, group visit).

An observer shared: "From what I could gather in speaking with the students briefly, they needed a few moments to relax after their exams, and some came in prior to their exams to 'clear their heads'" (U of S, group visit). Another handler stated that the students came "to get a break. The students that came had very positive memories of their own dogs. Many were thinking of home. Some came with friends. All told stories of their own pets" (U of S, individual visit).

Participants Postevent: Three Month Follow-Up

I. WHAT WAS REMEMBERED ABOUT THE EVENT

In response to the question about what they remembered about the Therapy Dog event, participants identified just being with the dogs (64), positive feelings (e.g., fun, happy) (27), it was a good way to take a break and destress (19), the friendly people and therapy dog handlers (16), it was really enjoyable (7), lovely event with loving dogs (4), it was helpful (2), and it made them miss their own pets (2). The participants expressed their memories of the event in the following ways for each: "It was a wonderful experience and I remember how the dogs hugged and loved us all the same" (female, U of S, student); "It was really fun. I was really tired and stressed" (female, U of S, student); "It was a really nice study break! Engineering student and it was a really busy semester!! I love animals and when I get around them my spirits just lift!" (female, McMaster, student); "The dogs, the massage, the feeling of community" (female, U of S, student); "I remember the puppies and how they gave me a nice break in my day and made me smile

and made me forget the stress of my day, at least for a little while” (female, U of S, staff); “It was a nice event. Dogs are very helpful to reduce stress. Today life is busy, nobody has time, so dogs can be a good friend, they can give us company in our loneliness” (female, U of S, student); “That it was really helpful” (female, U of S, student); “The Great Dane, the variety of dogs, how friendly the dogs were, that I missed my own pets” (male, U of S, staff). One of the staff attendees specifically shared:

I remember playing with the dogs! Thinking it was a great idea. I saw a lot of happy students. I interact with a lot of students, and so I see an average of 3,000 students a day, not so many happy faces around exam time. Happy faces in room with dogs, so nice change! Kids get really stressed at exams, and they mope around and look exhausted, so this was good to see! (male, McMaster)

There were minimal differences by gender, with both females and males identifying that being with the dogs was what they remembered most about the event. Of interest is that the females’ second most prominent memory is the happiness of the experience followed by the friendly people, whereas the males remembered that the event relieved their stress followed by it being a happy experience.

2. IMPACT OF THE EVENT ON HOW STUDENTS HANDLE STRESS TODAY

When the students were asked if the event had a lasting impact on how they handle stress in their life, the majority (68; 81%) responded with an affirmative statement. This was divided into 30 individuals (34%) directly responding that yes, there has been a lasting impact and the remaining 38 (45%) sharing it had an impact at the time of the event (not directly stating whether it did or did not have a lasting impact). Thirteen individuals (15%) stated that it did not have a lasting impact, and 6 (7%) were unsure or their answer was unrelated. Responses included “When I feel stress or upset, I always look at the pictures taken with the dogs during the event” (female, U of S, student); “The dogs at the event helped me to temporarily forget about the stress and pressure of exams, by taking my mind off of them” (female, U of S, student); “Not really” (male, McMaster, student).

Among the students who shared an affirmative statement about the dogs having an impact on how they handle stress, the largest number identified the benefits of their own companion animals and animals generally in their lives (45), followed by recognizing the benefit of being cheered up at a time of stress (27), and the importance of taking a break from stress (14). Comments about realizing the roles of animals in reducing stress in the students’ lives were the most detailed, and so several are included as illustrations here: “Sort of, I spend more time with my own dog and [am] able to conjure up peaceful images and breath[e] during the day to allow myself a break from the stress of the day” (female, U of S, student); “I definitely know that when I got home I spent more time with my dog, and taking him for a run if I feel stressed, and a comforting thought to think about dogs and watch dog videos if I’m studying!” (female, U of S, student); “Yeah definitely, sometimes I go to Pet Land to see dogs because I don’t have a pet!”

(male, U of S, student). Illustrative comments about the other two themes are “The dogs made me happy ... I will go to more events like this” (male, U of S, student); “It reminded me that I need to take a break from stress and have some time for myself away from whatever situation is stressing me out” (female, U of S, student). Comparisons by gender were not done because of the way in which participants answered the question.

3. OVERALL VALUE OF THE EVENT

Approximately three quarters of the Therapy Dog event participants who followed up (50 female and 13 male) provided additional comments about the event in response to the question “Is there anything else you would like to share?” The responses centred foremost on describing the event as an important one (61) for the reasons already identified, and mentioned that it should continue (27). For example: “Honestly, I was quite happy, content and stress-free for the rest of that day and I believe the university should have this event more frequently” (female, U of S, student). Another student stated:

Not only did this event help me with the exam stress, but was a wonderful moment that I will remember forever. It's so nice to have the dogs loving us all without judging what we look like or how we dress or any another preconceived notion. Thank you for having this event on campus! (female, U of S, student).

DISCUSSION

Given the pilot nature of this study, the goals of the SJA Therapy Dog program—to offer love and support—were approached with no a priori understandings other than the broadly reviewed literature. This enabled meaning to be inductively developed in the context of students visiting with the dogs on campus. The emergent understanding was framed within the evaluation outcome directed questions of the study: (a) Are participants receiving love and support from the therapy dog? (b) Are participants receiving support from the therapy dog handler? and (c) If yes, how are the participants experiencing the love and support they receive from the therapy dog and/or handler?

Goal 1: Love

Love was understood by students in the university Therapy Dog visiting context as having reciprocal love for the dogs and gaining positive feelings from visiting with them. Nearly all of the students who attended the Therapy Dog event reported that they felt loved/comforted by the dogs. This was supported by the quantitative and qualitative data from the handlers and observers. The students shared that their reason for attending the event was their love of dogs, including the opportunity to be loved by one, and the positive feelings they have when they spend time with them. This was also the key reason for the gladness they expressed about their decision to visit with the therapy dogs. They used words such as happy,

loving, and wonderful to describe their visiting experiences with the therapy dogs. It was also the primary reason they shared that they would recommend the event to fellow students. The students' love for dogs was likewise shared in their general comments expressing gratitude for having the therapy dogs on campus and desire for the program to continue. The absence of dog-related experiences in the students' lives while at university was reflected in the students' nostalgia about their own dog/pet that they were away from, and was expressed in their reason for attending the therapy dog event, words they used to describe their experience, and the handlers' observations in their interactions with the students. At the three-month follow-up, having reciprocal love for the dogs and gaining positive feelings from visiting with them was identified as a key reason why students chose to attend the event, as well as what they remembered most about it, with specific attention to the benefit of being cheered up at a time of particular stress in their lives. The AAI literature identifies dogs' innate ability to offer and receive nurturance (Chandler, 2005; Levinson, 1984; Melson & Fine, 2010). They present with nonjudgemental warmth, companionship, and bonding, which in turn nurtures the ability of humans to love and trust (Arkow, 2011). The literature supports the idea that animals can trigger happy memories, improve mood, and bring a sense of happiness, joy and a general sense of well-being (Arkow, 2011). Further, some researchers (e.g., 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). Perceived shifts in participants' feelings and mood may also be influenced by beneficial hormones and neurochemicals (including oxytocin, prolactin, dopamine, beta endorphins, and phenylethylamine) that are released when petting an animal (Odendaal & Lehmann, 2000). For example, when humans release the hormone oxytocin into their system after doing something intimate such as eye or physical contact, it encourages the formation of an emotional bond. Oxytocin is commonly recognized in the literature as the mother-infant bonding hormone and for its suggested relationship with maternal responses; it is commonly referred to as the love hormone (Nagasawa, Kikkusui, Onaka, & Ohta, 2008). The same has been identified in studies of human-companion animal interactions (Johnson, Odendaal, & Meadows, 2002; Odendaal & Meintjes, 2003). Interestingly, it has also been reported that dogs are similarly impacted by changes in these same neurochemicals following a positive interaction with humans (Odendaal & Lehmann, 2000). Students may have been drawn to the event to seek a comforting feeling from dogs based on past experiences, and may also have experienced it while there. McGonigal (2013) offers an additional explanation for the benefits of oxytocin. In her TEDGlobal presentation she states that the "cuddle hormone" can also be useful to humans during times of stress, as it "fine tunes your brain's social instincts" that can lend to the enhancement of close relationships. This is a compelling consideration, given student stress during exam time and the number of students who sought out visits with the dogs. It also appears consistent with the social relationship literature that reports a multitude of benefits provided to

humans through their interactions with animals. For example, it has been reported that interacting with dogs can, for some, parallel the social support experienced in human-human relationships (Fine & Beck, 2010).

Goal 2: Support

Support was understood by the students as the therapy dogs and, although to a lesser extent in comparison to the therapy dogs, the handlers. The university Therapy Dog visiting context was described as destressing and relaxing by interacting with the dogs. The responses from the Likert scale questions relayed that nearly all of the students reported that the therapy dogs helped them to destress. A similar number reported feeling calm and relaxed after spending time with the therapy dogs, and conversely not feeling more anxious. Eight out of 10 (80%) said they felt in control of their emotions (that is, balanced and in the moment). Destressing from studying and relaxing were identified as the next most prominent reasons for attending the therapy dog event, as well as why students were glad they attended. The students also identified the benefits and importance of their taking a break from studying to visit the dogs. Words such as relaxing, calming, and stress-reducing were chosen by the students to describe their experience with the therapy dogs. It was the key reason students said they would recommend it to others. This was supported in the handlers' and observers' noting that the students generally felt supported by spending time with the dogs; more specifically, handlers believed a "positive energy" developed between the students and dogs, and the observers shared there was an overall relaxed atmosphere. Some mention was made of the social aspect of the event. The students also noted support at the three-month mark following the event; they shared that they remembered the event was a good way to destress and take a break from studying and that this understanding has had a lasting impact. It was reported by a sizable number of students in their follow-up that by attending the event they were also reminded about the benefits of their own companion animals and animals in their lives generally, including their role in reducing stress.

The AAI literature shares that an animal can instill relief from stress (Allen et al., 2002). The work of Arkow (2011) refers to therapy dogs as "a form of stress-reducing or stress-buffering social support" (p. 2). Kruger and Serpell (2010) suggest that they can be calming and reduce anxiety, and serve as a buffer from anxiety-generating stimuli. Physiological changes in humans can occur when interacting with an animal, including lowered blood pressure, heart rate, levels of cholesterol and triglycerides, and increased dopamine production, which reduces the stress hormone cortisol (Kruger & Serpell, 2010, as cited in Arkow, 2011; Wilson, 1987). Arkow (2011) also shares that "[a]n animal may induce an immediate, physiologically calming state of relaxation simply by attracting and holding our attention" (p. 2). It is believed that companion animals, and especially dogs, live in the present and not in the future. This is useful for helping humans to be present (B. Doan, personal communication, November 14, 2014). Individuals can gain a sense of comfort from being with the animal, in the here and now.

Furthermore, Harris (as cited in Johnson, 2011) states that “by expressing their pure joy at seeing us, our pets teach us that living in the moment is not only a healthy thing to do, but also helps us to feel happier” (p. 33).

The need for further consideration of reducing female students’ stress is suggested by three findings. Not only were the majority of the Therapy Dog event attendees female, but also a higher proportion of females than males reported attending to reduce their stress. A significantly higher proportion of females than males also indicated that they “strongly agree” with the statement that “the dogs helped me to destress.” Alternatively, the findings could also indicate that males are just less likely to report stress, drawing on the influence of gender norms and stereotypes (Tamres, Janicki, & Helgeson, 2002; Thoits, 1991). It was found that females did not report that they would suggest the event to others to reduce stress, but rather because it is enjoyable. It is unknown if this reflects the gender of the students to whom they were thinking of recommending it. Similarly, females did not mention stress reduction as what they remembered about the event, but rather being with the dogs, having happy feelings, and a friendly environment. Males mentioned being with the dogs most often, followed by the event relieving their stress.

At the same time, only two items on the Likert scale measuring time visiting with the Therapy Dogs—“feeling calm and relaxed” and “in control of emotions/balanced and in the moment”—were not strongly agreed with by the majority of female respondents. Gender-specific conclusions about female students experiencing elevated levels of stress in comparison to male students is well supported in the research literature on college students’ mental health (Abouserie, 1994; Campbell et al., 1992; Hudd et al., 2000; Mahmoud et al., 2012; Pierceall & Kiem, 2007). As well, recent Canadian survey reported that females were more likely than males to report mental health problems (Statistics Canada, 2014).

Further, gender differences in emotions are well supported in the literature (Langer, 2010), with males less emotionally expressive and emotionally intense than females (Gentzler, Kerns, & Keener, 2010; Kring & Gordon, 1998; Langer, 2010). For example, in a study where participants were asked to self-report on specific emotions, women experienced the emotions love, joy, affection, warmth, and feelings of well-being more intensively and frequently than men (Brody & Hall, 1993). On the Likert scale questions in this study, females were consistently more likely than males to “strongly agree” when they did agree. Similarly, it may help explain female students’ proportionately higher use of the word “love” when describing their experiences with the therapy dogs in this study.

As stated, the handler was also identified as a source of support for student destressing and relaxing in the university Therapy Dog visiting context. Nearly all of the students agreed in the Likert scale responses that they felt supported by the handler. The handler and observer data reported the same. Written examples of this were threaded throughout the student, handler, and observer responses. The observers specifically shared that the handlers were attentive listeners. The students were not asked an open-ended question about handler support. The

visits facilitated informal conversations and opportunities to query the students about their own animals. From some of these conversations a window emerged into the students' experiences of their perceived well-being, including statements of stress and anxiety. A handler's offer of support alongside the therapy animal has only recently been acknowledged in the AAI literature (Adams et al., 2015), and thus a dearth of understanding exists. There is, however, growing understanding regarding how animals can assist with increased communication and verbalization and consequently can encourage people to share more freely. For example, studies are demonstrating the impact of the incorporation of dogs in reading and literacy programs (Gee, 2011; Roux, Swartz, & Swart, 2014) and the use of therapy and service dogs for children with autism (Grandin, Fine, & Bowers, 2010; Solomon, 2010). Research has also identified an increased therapeutic alliance where, for example, the presence of a dog in counselling sessions can facilitate a client's communication and feelings of comfort. Kruger and Serpell (2010) state that this occurs because the animal is "a benign, external topic of conversation on which to focus, which may further hasten and enhance the development of a working alliance" (p. 40). This is further illustrated by Wesley, Minatrea, and Watson (2009) in a study with a substance abuse program. They concluded that, in the presence of a dog, clients were more likely to open up about their histories of violence and trauma. We have seen glimpses of this as well with Hodgson and Darling's work (2011) on the physician pet query, in which a primary care provider can better determine their patients' environmental history and social context by strategically asking about pets.

Dogs on university campuses as part of student stress reduction and wellness efforts is a new phenomenon. For the first time, the findings of this pilot evaluation study offer preliminary evidence that the SJA Therapy Dog program is achieving its goals of offering love and support, and specifically how they are experienced by students on three university campuses during a final examination period. Although this study did not intend to measure stress, students reported that the impact of the program, and specifically their experiences of love and support with the dogs, were helpful in their stress reduction. The study also identified the long-term (three months after the event) impacts of the Therapy Dog program on student stress; this has been an area of skepticism and lacking in research attention. Future studies that explore how stress reduction occurs through the use of a Therapy Dog program would contribute to the knowledge base. The findings of this study also have implications for how the work of the therapy dog and handler team is both understood and undertaken in practice and research.

PRACTICE AND RESEARCH IMPLICATIONS

The implications for student mental health supports on university campuses are numerous. With the understanding that students are seeking out a caring and supportive environment during the examination period to reduce their stress, this can encourage universities to review and potentially augment mental health

services and interventions currently offered. This can include, for example, attention to students' recognition of their interacting with the dogs "in the moment." It would parallel increasing work on the health benefits of mindfulness, which is "paying attention in a particular way: on purpose, in the present moment, and nonjudgementally" (Kabat-Zinn, 1994, p. 3). The Western College of Veterinary Medicine at the University of Saskatchewan, for example, offers its students a third-year elective course in mindful veterinary practice. A recent study concluded that "mindfulness-based stress reduction or other mindfulness programs may be useful in decreasing alcohol problems on college campuses via the effects on stress" (Bodenlos, Noonan, & Wells, 2014, p. 371).

Existing mental health services could also draw on the understanding that the majority of students who came to the Therapy Dog event have a companion animal they do not live with. This is an area of significance in many students' lives and therefore a potential opportunity to identify a topic to connect with them on. This could be in much the same way that individual therapy dog sessions have been found to be a mediator for connecting with department members in a student counselling centre at a Pennsylvania university (Daltry & Mehr, 2015). With more than half of Canadian campuses offering a Therapy Dog program, this is important information for those looking to continue this program and those that are considering offering it (J. Gillett & M. Brydges, personal communication, January 15, 2014). It also encourages ongoing research in the area. Given the perceived mental health benefits of the Therapy Dog program in this study, it will also be important for universities to consider how they are linking this service to existing mental health services on campus. At the University of Saskatchewan, for example, based on the findings of this pilot evaluation study, weekly therapy dog visits are now being held in Student Health Services space. Given the findings here, specific attention to female students' experience of stress could be considered. The potential to link with other student services could also be explored. For example, the *What's Your Cap?* student binge drinking prevention initiative, also on the University of Saskatchewan campus, partnered with the Therapy Dog program to produce a door hanger that states, "Gone to the dogs to PAWS my stress. Petting a dog can increase levels of the stress-reducing hormone oxytocin and decrease production of the stress hormone cortisol" on the front and, on the reverse side, "Alcohol is a depressant and increases feelings of stress. If you choose to drink, follow Canada's low-risk drinking guidelines" and lists them. Evaluation of the impacts of this intervention is an important next step. Although the findings of this pilot evaluation study were overwhelmingly positive, it must not be overlooked that not all students shared this experience. A select few reported attending this event but having no reduction in their stress. There needs to be follow-up attention on this, inquiring into why this might have been their experience. For example, was it because they came to the event afraid of dogs and wanted to touch one for the first time? Was it because they were not stressed to begin with? Some students were also reminded of their deceased dogs and were concerned that this could be potentially troubling for them, as one student shared: "Seeing the dogs brought

back good memories of my now deceased dogs. This also made me leave soon before becoming upset.”

Limitations

This pilot evaluation study has six key limitations. First, it is highly likely that the vast majority of students who attended the event liked dogs, and this may explain the exceedingly positive findings. At the same time, the Therapy Dog program is designed specifically for these students. Second, there is a disproportionate presence of females in comparison to males in the study sample. There is also an underrepresentation of transgendered individuals. It follows that the gender-specific findings require further investigation. A third limitation reflects the absence of the experiences of international students. Cultural differences regarding animals may have influenced the students choosing to attend the event and, given this, their experiences. Fourth, the data collection sites were not identical. For example, the U of S site offered massages. However, it is important to note that the event was advertised as the Therapy Dog Event and a general observation was made that the therapy dogs were the focus of attendees' attention.

The fifth main limitation of this pilot evaluation study is that there are the common self-report measurement limitations of the questionnaire. These include response bias due to social desirability, the impact of extreme feelings at the time it is completed, and the fact that it is voluntary. For example, it is known that one individual attended the therapy dog event on two of the days, for 60 minutes each time, but did not fill out a questionnaire. We also did not ask students an open-ended question to understand their strong agreement that the handlers provide them with support. The three-month follow-up question about the lasting impact of the therapy dog event was variously interpreted by respondents and could not be analyzed by gender. And some of the attendees at the Therapy Dog event on the University of Saskatchewan campus identified themselves as both student and staff, and the decision was made to include all staff data in the study.

Finally, it is not known if the effect on student stress levels was impacted by the students' interactions with the handlers and/or the provision of food, general time out, and/or free hand and body massages. Questions analyzed from the survey were related only to the students' experiences of love and support with the dogs, support with the handlers, and if the dogs helped them to destress. Thus, care should be taken in the interpretation and generalization of the findings on the impact of Therapy Dog programs on student stress. Indeed, the absence of random assignment or control groups prevents conclusions about causality from being made.

CONCLUSION

Animals are a large part of the campus culture of many universities in noncompanion roles, including as patients and research subjects at veterinary medicine colleges. Dogs have been informally visiting university campuses in Canada for decades, most often with university professors to keep them company in their

offices. More recently, with recognition of the positive health benefits of the human-animal bond, AAIs are being offered on campuses to help address growing concern about student mental health. The findings of this pilot evaluation study are important for a number of reasons. First, there are few studies evaluating the outcomes of AAA programs on university campuses, and none in Canada that measure the outcomes of the SJA Therapy Dog program. Drawing on data collected at three institutions, the immediate and three-month follow-up outcomes of the SJA Therapy Dog program were reviewed. It was found that the therapy dogs unequivocally offer love and support to students. Love was understood as having reciprocal love for the dogs and gaining positive feelings from visiting with them. Support is understood as destressing and relaxing by interacting with the dogs and to a lesser extent the handlers. The findings, coupled with recent literature, also raise particular concern about the heightened levels of stress students may be experiencing, particularly female students. These findings can contribute substantially to current policy discussions and emerging research in the university student mental health and AAI fields.

Acknowledgements

We would like to acknowledge the St. John Ambulance Therapy Dog program volunteer dog and handler teams. We are also grateful for our research funder, the Canadian Institutes of Health Research-Institute of Neurosciences, Mental Health and Addictions, project number 316447, and the reviewers of this article for their helpful input.

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