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Employee Attitudes about the Impact of Visitation Dogs on a College Campus

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ABSTRACT Therapy and visitation dogs are becoming more common on college campuses to provide comfort and support to students, but little attention has been given to the concerns of faculty and staff who share space with the dogs in their workplaces. The purpose of this study was to assess the perceptions of faculty and staff with regard to both the benefits and the hazards (e.g., dander, bites, fleas) and risks associated with the presence of visitation dogs in their workplaces. One hundred and thirty-eight employees who worked in buildings with resident visitation dogs completed an online survey about their perceptions of the hazards and risks of the dogs and the effects of dogs on the wellbeing of both students and employees. In general, employees perceived that the dogs presented minimal risks, and most employees believed that they can reduce stress and provide comfort to students on campus. There were a few employees, however, who reported that the dogs did not improve the work environment and conferred no benefits to the staff or students. The findings of the present survey support the mostly positive attitudes that people have for dogs in the workplace, but they also highlight a potential challenge: accommodating individuals who believe very strongly that dogs do not belong in work environments.

Keywords: animal-assisted interventions, human–animal interaction, service dog, therapy dog, visitation dog

Dogs have been integrated into counseling and psychotherapy since the early 1960s when child psychologist Boris Levinson described how he incorporated his dog, Jingles, into his practice (Levinson, 1965, 1967). Today, therapy dogs, who have been trained basic or advanced skills to assist a healthcare professional within the scope of their practice (Parenti, Foreman, Jean Meade, & Wirth, 2013), are often used for this purpose. An occupational therapist might have a patient groom a therapy dog to increase fine motor skills (Casey, 1996), and a

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psychotherapist might facilitate the development of the patient–therapist relationship by having a therapy dog present (Tedeschi, Fine, & Helgeson, 2010). If the dog is present, but not directly involved in the therapeutic process, it is a visitation therapy dog. Visitation therapy dogs typically have basic obedience training and provide comfort and support to people in schools, nursing homes, or hospitals (Parenti et al., 2013).

There are generally two approaches to including dogs into clinical or educational settings. When dogs are incorporated into a goal-directed treatment plan, it is considered animal-assisted therapy (AAT) (O'Haire, 2010). If the dogs are used only for socialization or recreation, then it is considered animal-assisted activities (AAA) (O'Haire, 2010). AAA and AAT have been implemented in hospitals, nursing homes, and other settings, as research suggests that dogs may improve human health and wellbeing. Interacting with a dog can produce short-term reductions in heart rate, blood pressure (Friedmann, Katcher, Thomas, Lynch, & Messent, 1983; Handlin et al., 2011; Vormbrock & Grossberg, 1988), salivary cortisol (Handlin et al., 2011; Polheber & Matchock, 2014), serum cortisol (Barker, Knisely, McCain, & Best, 2005), and self-reported stress (Barker, Knisely, McCain, Schubert, & Pandurangi, 2010). The mere presence of a dog can increase social interactions among people (McNicholas & Collis, 2000; Wells, 2004), and AAA as well as AAT can reduce depressive symptoms (Souter & Miller, 2007), and anxiety (Barker & Dawson, 1998; Barker, Knisley, Schubert, Green, & Ameringer, 2014). The evidence is not conclusive, however, as concerns have been raised about the quality of some of the AAA and AAT research (Souter & Miller, 2007) and some studies did not see improvements with AAA or AAT (Motomura, Yagi, & Ohyama, 2004; Walsh, Mertin, Verlander, & Pollard, 1995).

Therapy and visitation dogs have become more prevalent in educational settings, particularly college campuses, where students experience a variety of stressors including homesickness and academic demands (Adams, Sharkin, & Bottinelli, 2017). The Yale Law School library received a great deal of attention from the media in 2011 when they introduced Monty, a visitation dog, who law students could rent for short periods of time (Aiken, 2012). A survey of college freshmen found that approximately 93% of respondents who had pets at home considered them an integral part of their lives, and 96% of all respondents were interested in a potential pet therapy program on their campus (Adamle, Riley, & Carlson, 2009). Dogs may also make professors appear more approachable, as college students who were shown pictures of professors' offices with either a dog, cat, or no animal perceived the offices with dogs to be more comfortable than the cat or no-animal offices, and the professor with the dog in the office was rated as friendlier than the others (Wells & Perrine, 2001).

Counseling centers on college campuses have begun to incorporate visitation and therapy dogs into their programming. The Florida State University Counseling Center includes therapy animals in its outreach programs and in crisis response situations (Kronholz, Freeman, & Mackintosh, 2015). Daltry and Mehr (2015) surveyed students who participated in counseling center outreach sessions at West Chester University in Pennsylvania and found that the sessions made students aware of the counseling center and its resources and helped relieve student stress. Similarly, students who participated in therapy dog outreach sessions at three Canadian universities reported that the dogs made them feel less stressed, less anxious, and in greater control of their emotions (Dell et al., 2015), and a 15-min AAA session with a therapy dog was found to reduce college students' perceived stress before final exams.

Although a great deal of research has been conducted on the therapeutic outcomes of AAA and AATs, less attention has been directed toward understanding the impact of dogs on employees in the work environments in which the activities and interventions are occurring. A

few studies have shown that dogs may not only impact students on campus, but also on the staff and faculty around them. For example, a survey of staff members at a regional cancer center found that the AAAs occurring there were generally accepted by the employees (Bibbo, 2013). In other studies, employees who brought their dogs to work had significantly lower self-reported stress at the end of the day than those employees who did not (Barker, Knisely, Barker, Cobb, & Schubert, 2012), and healthcare workers, who interacted with a therapy dog at work, had significant reductions in serum and salivary cortisol (Barker et al., 2005).

Although dogs may have positive effects on the students and employees on college campuses, there are hazards and risks that accompany them (Foreman, Glenn, Meade, & Wirth, 2017). These include allergens, bites, infectious diseases (bacterial, viral, and fungal) (Plaut, Zimmerman, & Goldstein, 1996), and trip and fall risks (Kurrle, Day, & Cameron, 2004; Stevens, Teh, & Haileyesus, 2010), among others. Although many people love dogs, some have fears and phobias of them (McCabe, 2015). These hazards and risks must be taken into consideration when adding a therapy or visitation dog to the campus environment. Guidelines for the management of the safety risks associated with AAA and AAT have been published (Brodie, Biley, & Shewring, 2002; DiSalvo et al., 2006; Khan & Farrag, 2000), but no studies have assessed the employees' perceptions of the risks of dogs in the workplace.

The goal of the present study was to assess employee perceptions of the potential benefits and risks of visitation dogs in their campus locations and work environments and compare perceptions across the locations. Knowing how employees perceive the presence of dogs may help others in the planning stages of incorporating AAA or AAT into their workplaces. Three locations where visitation dogs work at a large Mid-Atlantic university were selected: the Counseling Center, the building housing the Engineering school (hereafter, Engineering), and the building housing the Media Studies college (hereafter, Media Studies). The dogs in these locations live with faculty or staff members who work at those locations and accompany their owners to work each day. The dog (a Labrador Retriever/Standard Poodle mix) at the Counseling Center spends the day in the waiting room, the dog (a Labrador Retriever/Standard Poodle mix) in Engineering is located in the freshman engineering tutoring center, and the dog (a Standard Poodle) in Media Studies is located in a student lounge. At the time of the survey, the dogs at the Counseling Center and Engineering had been in their respective locations for approximately one year, and the dog in Media Studies had been there for approximately three months.

Methods

Participants and Procedure

Names and e-mail addresses for the employees who worked at the three on-campus locations were obtained from online university directories. Employees included administrative staff, faculty, and graduate teaching assistants. The owners of the dogs were not prevented from taking the survey. Survey invitations were e-mailed to 234 employees in Engineering, 72 in Media Studies, and 38 in the Counseling Center. Institutional Review Board approval was obtained for the study (WVU protocol # 1409429164) and respondents gave their informed consent before completing the survey.

E-mail invitations which included a link to the survey were sent to the employees at the three locations. Reminder e-mails were sent two weeks and four weeks after the e-mail invitation, only to those who had not yet completed the survey. The e-mail invitation included an "opt-out" option that, when clicked, would prevent the person from receiving any reminder e-mails.

Materials

The online survey was created and administered with the web-based software Qualtrics (Provo, UT, USA). The 58-item survey consisted of multiple choice questions. Respondents were asked demographic (age, race, ethnicity, country of origin), pet history (pet ownership during childhood through older adulthood and types of pets), and negative dog experience (e.g., minor dog bite, serious dog bite, chased by dog, etc.) questions, and questions about their perceptions related to: the degree of risk associated with potential hazards associated with the dogs (6-point scale: from 0 [No Risk] to 5 [Very High Risk]), the effects dogs may have on mental health and wellbeing (6-point scale: from 0 [No Effect] to 5 [Very Large Effect]), the effects of the dogs on morale and social interactions among employees and between employees and students (7-point scale: from –3 [Large Decrease] to 3 [Large Increase]), and the effects the dog may have on the visibility of their college (3-point scale: from –1 [Negative Effect] to 1 [Positive Effect]). Respondents were also asked how frequently they see the visitation dog in their building (7-point scale: 0 [Never] to 7 [Daily]) and how often they pet or talk to the dog when they see it (5-point scale: 0 [Never] to 5 [Every Time]).

The respondents were also asked to complete the Pet Attitude Scale—Modified (PAS-M) (Munsell, Canfield, Templer, Tangan, & Hiroko, 2007). The scale is an 18-item questionnaire that asks respondents about their relationship with their pet (e.g., "House pets add happiness to my life [or would if I had one]"), and each question has a 7-item Likert scale, from 1 (Strongly Disagree) to 7 (Strongly Agree). The Cronbach's alpha coefficient for this scale is 0.92 (Munsell et al., 2007). Previous research found that higher scores were associated with more grieving after the loss of a pet (Planchon, Templer, Stokes, & Keller, 2002), greater reductions in mean arterial pressure and systolic pressure when petting horses (Hama, Yogo, & Matsuyama, 1996), and greater empathy in children (Daly & Morton, 2006).

Respondents from the Counseling Center were asked two questions specific to counseling centers. The first question was: How do you think Gretel has affected the use of the Carruth Center by students in need of mental health services? The associated Likert scale ranged from 0 (Large Decrease) to 7 (Large Increase). The second question was: Do you think other colleges and universities should have visitation animals in their mental health centers? The answer choices were: Yes, No, or Not Sure.

Data Analysis

Non-parametric statistics were calculated using SAS, and statistical comparisons and associations were performed using the Mann-Whitney *U* test, the Kruskal-Wallis test, and Kendall's tau. The significance level was set at $p < 0.05$.

Results

One hundred and thirty-eight (138) employees completed the survey (40% response rate): 25 from the Counseling Center (66% response rate), 38 from Media Studies (53% response rate), and 75 from the Engineering (32% response rate). The demographic characteristics for each location and the totals across locations are shown in Table 1. The majority of the respondents from the Counseling Center and Media Studies were female (64 and 68%, respectively), and the majority (58%) of the Engineering respondents were male. Overall, 68% of the sample was 25 to 54 years of age. With regard to race and ethnicity, across sites, the sample was predominantly white (89%) and non-Hispanic or Latino (92%). Faculty members made up the majority of respondents (68%) in Engineering, and in Media Studies, approximately 39% of

Table 1. Demographic characteristics of the respondents in each of the three campus locations and the totals across the locations. Data are frequencies and percentages, except for Pet Attitude Scale Scores which are means with standard deviations in parentheses.

	Counseling		Engineering		Media Studies		Total	
Characteristics	***n***	**%**	***n***	**%**	***n***	**%**	***n***	**%**
Gender								
Male	6	24	44	58.7	11	28.9	61	44.2
Female	16	64	27	36.0	26	68.4	69	50
No Response	3	12	4	5.3	1	2.6	8	5.8
Age								
18–24	1	4	0	0	6	15.8	7	5.1
25–34	10	40	18	24.0	8	21.1	36	26.1
35–44	4	16	14	18.7	16	42.1	34	24.6
45–54	2	8	18	24.0	5	13.2	25	18.1
55–64	6	24	8	10.7	3	7.9	17	12.3
65–74	0	0	14	18.7	0	0	14	10.1
75+	0	0	1	1.3	0	0	1	0.7
No Response	2	8	2	2.7	0	0	4	2.9
Race								
White	20	80	69	93.2	35	87.5	124	89.2
Black or African-American	0	0	0	0	1	2.5	1	0.7
Asian	3	12	4	5.4	1	2.5	8	5.8
American Indian or Alaska Native	0	0	0	0	0	0	0	0
Native Hawaiian or Other Pacific Islander	0	0	0	0	1	2.5	1	0.7
Other	1	4	0	0	2	5	3	2.2
No Response	1	4	1	1.4	0	0	2	1.4
Ethnicity								
Non-Hispanic	19	76	73	97.3	35	92.1	127	92
Hispanic	1	4	0	0	1	2.6	2	1.4
No Response	5	20	2	2.7	2	5.3	9	6.5
Role								
Faculty	—	—	47	61.8	15	39.5	62	54.4
Staff	—	—	25	32.9	15	39.5	40	35.1
Graduate Student	—	—	3	3.9	8	21.1	11	9.6
No Response	—	—	1	1.3	0	0	1	0.9
Pet Attitude Scale Score	105.4	(12.5)	96.2	(21.2)	104.6	(13.6)	100.1	(18.6)

respondents were faculty and 39% were staff members (the question regarding work role was not included in the survey distributed to employees in the Counseling Center). On the Pet Attitude Scale—Modified, 95% of the sample reported having had a pet at some point in their lifetime, and 92%, 88%, and 81% of respondents in the Counseling Center, Media Studies, and Engineering, respectively, reported having had a dog at some point in their lifetime.

In general, respondents in all three locations reported overall positive effects of the dogs on the work environment, and the mean scores across locations are shown in Table 2 under the Dogs and Work Environment heading. The scores could vary between –3 (a large negative effect of the dog) to 3 (a large positive effect of the dog). Most of the respondents reported that the dogs did not affect or increased productivity and morale, respectively, as indicated by

Table 2. The mean scores (with standard deviations in parentheses) for survey questions related to Dogs and Health and Dogs and the Work Environment for all locations and the number of respondents in each location (n). For the Dogs and Health questions, mean scores could range from 0 (no amount or no effect) to 5 (large amount or large effect). For the Dogs and Work Environment questions, mean scores could range from –3 (Large Decrease in productivity, morale, etc.) to 3 (Large Increase), and a score of 0 reflected No Change. For the Dogs and College Visibility questions, mean scores could range from –1 (Decrease in visibility, recruitment, etc.) to 1 (Increase in visibility, recruitment, etc.), and a score of 0 reflected No Change.

Question	Location							
	Counseling (*n* = 25)		Engineering (*n* = 76)		Media Studies (*n* = 38)		All (*n* = 139)	
Dogs and Health								
To what extent do you think pets can improve a person's mood?	4.13	(0.93)	3.47	(1.21)	4.17	(0.90)	3.77	(1.14)
To what extent do you think the presence of a dog can reduce a person's stress level?	4.21	(0.76)	3.10	(1.26)	3.69	(1.22)	3.46	(1.25)
To what extent do you think a dog can provide comfort and support to someone who is experiencing emotional distress?	3.88	(1.01)	3.34	(1.25)	3.97	(1.07)	3.61	(1.20)
In your opinion, how bothersome do you think the dog is to those with allergies to dog dander?	0.65	(0.81)	1.65	(1.38)	1.11	(0.84)	1.33	(1.23)
Dogs and Work Environment								
How do you think the dog affects the productivity of students and faculty?	0.92	(1.19)	0.55	(1.30)	0.61	(1.06)	0.63	(1.23)
How do you think the dog affects the morale among employees?	—	—	1.07	(1.30)	1.75	(1.09)	1.29	(1.27)
How do you think the dog affects the frequency of day-to-day interactions among faculty and staff?	1.17	(0.90)	0.67	(1.14)	1.28	(1.04)	0.92	(1.11)
How do you think the dog affects the quality of day-to-day interactions among faculty and staff?	1.38	(1.32)	0.66	(1.14)	1.33	(0.88)	0.97	(1.16)
How do you think the dog affects the frequency of day-to-day interactions between employees and students?	—	—	0.65	(1.06)	1.28	(0.96)	0.86	(1.07)
How do you think the dog affects the quality of day-to-day interactions between employees and students?	1.61	(1.13)	0.67	(1.09)	1.39	(0.86)	1.03	(1.11)

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Table 2. The mean scores (with standard deviations in parentheses) for survey questions related to Dogs and Health and Dogs and the Work Environment for all locations and the number of respondents in each location (n). For the Dogs and Health questions, mean scores could range from 0 (no amount or no effect) to 5 (large amount or large effect). For the Dogs and Work Environment questions, mean scores could range from –3 (Large Decrease in productivity, morale, etc.) to 3 (Large Increase), and a score of 0 reflected No Change. For the Dogs and College Visibility questions, mean scores could range from –1 (Decrease in visibility, recruitment, etc.) to 1 (Increase in visibility, recruitment, etc.), and a score of 0 reflected No Change.

Question	Location							
	Counseling (*n* = 25)		Engineering (*n* = 76)		Media Studies (*n* = 38)		All (*n* = 139)	
Dogs and College Visibility								
How do you think the dog has changed the visibility of the College within the University?	—	—	0.54	(0.52)	0.75	(0.43)	0.61	(0.51)
How do you think the dog has changed the visibility of the College among universities with similar colleges?	—	—	0.49	(0.53)	0.56	(0.5)	0.51	(0.52)
How do you think the dog has changed the way people perceive the College?	—	—	0.54	(0.58)	0.67	(0.47)	0.58	(0.55)
How do you think the dog will affect the recruitment of students to the College?	—	—	0.47	(0.53)	0.67	(0.47)	0.54	(0.52)
How do you think the dog will affect the recruitment of faculty to the college?	—	—	0.10	(0.38)	0.34	(0.47)	0.18	(0.43)

mean scores that are positive and close to zero. A handful of respondents did report, however, that the dogs had a negative effect on the work environment. Two (2.6%) respondents and eight (21%) respondents in Engineering and Media Studies, respectively, reported that the dogs decreased productivity, and four (5.3%) respondents and one (2.6%) respondent in the respective locations reported that the dogs decreased morale. The survey contained four questions about the effects of the dogs on the frequency and quality of social interactions among the faculty and staff and between the faculty and staff and students and the mean scores are also listed in Table 2 under the Dogs and Work Environment heading. Overall, respondents in all three locations perceived that the dogs either didn't affect or increased the frequency and quality of social interactions among faculty and staff and between the faculty and staff and students. Only a small number of respondents believed that the dogs had a negative effect on social interactions. Two (2.6%) respondents in Engineering reported that the presence of the dog resulted in moderate and large decreases in the frequency and quality of interactions among both groups. Two (8%) respondents in the Counseling Center reported that the presence of the dog resulted in small decreases in the quality of interactions among the staff, and one (4%) respondent also reported that the number of interactions between staff and students also decreased slightly as a result of the dog.

Pet Attitudes

The PAS-M was used to assess the respondents' attitudes toward pets. The higher the score, the greater the affinity for pets. The Cronbach's alpha was 0.94. Mann-Whitney *U* test results show a statistically significant and higher response in PAS-M scores for females when compared with males ($Z = -2.0564$, $p = 0.0397$). Although there was a significant difference, the median scores for both groups were relatively high, 105.0 females and 101.5 males. The range of possible values for the PAS-M is 18 to 126. There was not a significant correlation between age and PAS-M scores, and there was no significant difference in PAS-M scores among respondents in the three sites.

To examine whether respondents' attitudes toward dogs could be affected by their history with dogs, unpleasant experiences (e.g., bitten, scratched, knocked over) with dogs were summed and compared with the PAS-M scores. There was not a significant correlation between the number of aversive events with dogs and PAS-M scores; respondents who reported more unpleasant experiences did not have lower PAS-M scores.

Pet Attitudes and Dog Interactions

Respondents were asked how frequently they interact with the therapy dogs in their campus locations. The respondents in Media Studies saw the therapy dog more frequently than the respondents in Engineering: 16% of the Engineering sample had never seen the therapy dog in their building, but all respondents in the Media Studies sample had seen the dog at least once. (The question did not apply to Counseling Center employees because the dog works in their waiting room. Employees see the dog every day.) Many of the respondents reported petting the dogs every time they saw them, 27%, 31%, and 58% of the respondents in the Counseling Center, Engineering, and Media Studies, respectively. There was a significant positive correlation between the frequency of petting and PAS-M scores (Kendall's tau = 0.2631, $p = 0.0002$).

Many of the respondents also reported talking to the dogs every time they saw them, 50%, 23%, and 29% of the respondents in the Counseling Center, Engineering, and Media Studies, respectively. There was a significant positive correlation between the frequency of talking to the dogs and PAS-M scores (Kendall's tau = 0.2391, $p = 0.0006$).

Table 3. Perceptions of potential risks and hazards of the dogs in each location, listed from highest to lowest mean risk for all locations (standard deviation in parentheses) and the number of respondents in each location (*n*). The mean risk scores can range from 0 (No Risk) to 5 (Very High Risk).

Potential Risks and Hazards	Location			
	Counseling (*n* = 25)	Engineering (*n* = 76)	Media Studies (*n* = 38)	All (*n* = 139)
Barking	0.70 (0.55)	1.18 (1.06)	0.72 (0.65)	1.22 (1.14)
Unpleasant smells	0.43 (0.58)	1.35 (1.12)	0.72 (0.73)	1.22 (0.94)
Shed fur	0.83 (0.87)	1.53 (1.21)	0.83 (0.90)	1.19 (1.06)
Chew and damage furniture	0.39 (0.57)	1.03 (1.03)	0.67 (0.62)	1.17 (0.95)
Dog waste around the building	0.48 (0.50)	1.31 (1.07)	0.64 (0.63)	1.02 (1.02)
Urinate or defecate in building	0.57 (0.58)	1.31 (0.98)	0.69 (0.62)	1.01 (0.90)
Track mud and water	0.96 (0.62)	1.41 (1.05)	1.00 (0.78)	0.99 (0.96)
Tripping hazard	0.96 (0.62)	1.41 (1.22)	0.89 (0.81)	0.97 (0.92)
Fleas	0.83 (0.70)	1.40 (1.03)	0.92 (0.76)	0.92 (0.86)
Bites	0.55 (0.58)	1.15 (0.93)	0.66 (0.67)	0.82 (0.90)

Perceptions of Risk

When dogs enter the workplace, they bring with them some potential risks and hazards. Respondents were asked about their perceptions of the degree of these risks, and the results are shown in Table 3 in the form of mean risk scores. Mean risk scores for each hazard were calculated by summing and dividing across respondents (ranging from No Risk = 0 to Very High Risk = 5). They are listed in order from highest overall perceived risk (barking) to lowest (bites). There were statistically significant differences among risk perceptions at the three sites, as determined by the Kruskal-Wallis test ($T = 17.0293$, $p = 0.0002$). Using Mann-Whitney *U* tests for post-hoc comparisons, the average Engineering risk perception score was significantly higher than the average scores for Media Studies ($Z = -3.7129$, $p = 0.0015$) and for the Counseling Center ($Z = -3.3858$, $p = 0.0007$). (There was no significant difference in average scores between Media Studies and the Counseling Center [$Z = -0.7167$, $p = 0.4735$]). In general, most participants rated the hazards and risks as low risk, very low risk, or no risk. Mean risk scores for each respondent were calculated by summing and dividing across types of hazards and risks (ranging from No Risk = 0 to Very High Risk = 5). There was a negative correlation between mean risk and PAS-M scores (Kendall's tau = –0.29311, $p < 0.0001$). To examine whether the risk scores were different depending on how frequently the employees saw the dogs, the mean score for those who saw the dogs several times a month or more frequently were compared with the mean score of those who saw the dogs once a month or less. Mann-Whitney *U* test results show a statistically significant difference in risk scores based on the frequency of encountering the dogs, ($Z = 2.3864$, $p = 0.0170$). The median risk score for the group that saw the dogs more frequently (1.85) was significantly lower than the score for those who saw the dogs less frequently (2.30).

The respondents were asked to state their agreement with the statement, "if the proper safety and health protocols are in place, visitation dogs should be permitted in the workplace" on a 7-point scale, from very strongly agree to very strongly disagree. Overall, 87% of

respondents agreed, strongly agreed, or very strongly agreed, 7% had no opinion, and 6% disagreed, strongly disagreed, or very strongly disagreed. For Counseling respondents specifically, 100% agreed, strongly agreed, or very strongly agreed. For Media Studies respondents, 92% agreed, strongly agreed, or very strongly agreed, 6% had no opinion, and 2% very strongly disagreed. For Engineering respondents, 81% agreed, strongly agreed, or very strongly agreed, 11% had no opinion, and 8% disagreed, strongly disagreed, or very strongly disagreed. There was a significant positive correlation between the agreement and PAS-M scores (Kendall's tau = 0.3672, $p < 0.0001$). Six of the respondents who disagreed were from Engineering and one was from Media Studies. The respondents who disagreed were asked a question about what influenced their opinion and could select any of the following that applied: religious beliefs, cultural beliefs, or other. Respondents indicated that cultural and personal beliefs influenced their opinions. Respondents also selected "other" and wrote in "allergies," "work place is for work," and "fear of dogs."

Allergies are a concern when dogs are brought into the workplace (Foreman et al., 2017), and despite the answers to the question in the previous paragraph, when asked specifically whether visitation dogs should be permitted in the workplace if an employee has allergies, the results were mixed. Approximately half (51%) of the respondents were Unsure, 28.4% chose Yes, and 20.1% chose No.

Perceptions of Health Effects of Dogs

Employees were asked to what extent pets can improve a person's mood, to what extent the presence of a dog can reduce a person's stress level, and to what extent a dog can provide comfort and support to someone who is experiencing emotional distress. The answers to these questions for respondents in each location and the totals across locations are shown in Table 2 under the Dogs and Health heading. The answers are reported as mean scores which could vary from 0 (no effect of the dog) to 5 (very large effect of the dog). All respondents in the Counseling Center and Media Studies reported that dogs could produce at least a small improvement in mood or better, and 42% and 44% of respondents in the Counseling Center and Media Studies, respectively, believed dogs could produce a very large improvement in mood. Only 19% of the Engineering respondents believed that dogs could produce a very large improvement in mood, although only 5% reported that dogs had a very small effect or no effect on mood, which is reflected in a lower mean score (3.47) when compared with Counseling (4.13) and Media Studies (4.17).

Across sites, most respondents reported that dogs can decrease a person's stress levels. All respondents from the Counseling Center, 76% from Engineering, and 88% from Media Studies reported that dogs could produce moderate to very large decreases in stress levels. A minority of respondents (5 and 3% of respondents from Engineering and Media studies, respectively) reported that dogs had no effect on stress levels. Regarding the amount of comfort and support a dog can provide to someone who is in emotional distress, all of the respondents in the Counseling Center and Media Studies and all but two of the respondents in Engineering believed that dogs can provide at least a very small amount of emotional support. A majority of respondents in all three sites believed that dogs can provide a moderate to very large amount of emotional support.

Effects of Dog on Counseling Center

The Counseling Center survey contained two questions asking the employees about how the therapy dog had affected the use of the Center by students in need of mental health services, and

whether or not they believed other colleges and universities should have visitation animals in their mental health centers. Approximately 29% of respondents believed that the therapy dog had resulted in a moderate to large increase in services, 54% reported that there was a small increase, and 16% reported that there was no change. All respondents from the Counseling Center agreed that other institutions should have visitation animals in their mental health centers.

Perceptions of the College and Recruitment

Employees in the Engineering and Media Studies were asked about their perceptions of the dogs' effects on their respective colleges. The mean scores for these questions are shown in Table 2 under the Dogs and College Visibility heading. The scores could range from –1 (decrease in visibility and recruitment or more negative perceptions) to 1 (increase in visibility and recruitment or more positive perceptions), with 0 representing no change. A majority of respondents in both colleges perceived that the dogs increased the visibility of their colleges within the University and among other universities, as indicated by positive mean scores, and only one respondent in Engineering believed the dog had decreased visibility. A majority of respondents in both colleges reported that they believed the dogs had resulted in more positive perceptions of their respective colleges, and only three respondents in Engineering reported that the dog had resulted in more negative perceptions. Approximately half of the respondents in Engineering and 67% in Media studies believed that the dogs would increase recruitment of students. A majority of respondents in both colleges did not believe that the dogs would affect recruitment of faculty to their colleges, as indicated by mean scores close to 0.

Discussion

This study consisted of a survey distributed to university employees who work in campus locations with visitation dogs, asking them about their attitudes toward pets in general, attitudes toward dogs in the workplace, and health and safety concerns. In general, most respondents had positive attitudes toward pets and the presence of dogs in the workplace, and perceived the dogs to be relatively low risk in terms of health and safety. There were a few respondents in two of the campus locations, Engineering and Media Studies, who had negative perceptions of the presence of dogs in the workplace and perceived them to be high risk in terms of health and safety.

Pet Attitudes

Pet attitudes were assessed with the PAS-M, and females had significantly higher scores than males. This is consistent with the findings of other studies that assessed gender and pet attachment (Barlow, Hutchinson, Newton, Grover, & Ward, 2012; Poresky & Daniels, 1998; Preylo & Arikawa, 2008), although others have found no gender differences (Stallones, Marx, Garrity, & Johnson, 1988). Both groups in the present study, however, had relatively high median scores, 105.0 for females and 101.5 for males. The high PAS-M scores in our study may reflect a sampling bias—individuals with more positive attitudes toward pets may be more likely to answer an invitation to a survey about dogs in the workplace.

Effects of Dog in Workplace

Most respondents reported that dogs increased or had no effect on productivity and morale. Twenty-one percent (21%) of respondents in Media Studies reported that the presence of the dog decreased productivity. At the time of the survey, the dog in the Media Studies location had only been coming to work for approximately one month, therefore it is possible that the perceptions of decreased productivity may have been due to the novelty of the dog's presence.

Longitudinal assessments of perceptions of dogs in the workplace could determine whether perceived reductions in productivity are a transient effect or are maintained over long periods of time.

Most respondents also reported that the frequency and quality of social interactions at work were unchanged or increased with the presence of the dogs. An increase in social interactions is consistent with experimental studies showing that strangers are more likely to talk to someone in public when they are accompanied by a dog than when they are alone or accompanied by an inanimate object or a plant (Guéguen & Ciccotti, 2008; Wells, 2004). It is also consistent with studies conducted in nursing homes which found increases in social interactions with the implementation of animal visitation programs (Bernstein, Friedmann, & Malaspina, 2000; Hall & Malpus, 2000; Kongable, Buckwalter, & Stolley, 1989). Additionally, in a study in which college students were shown pictures of a professor's office with a dog, cat, or no animal superimposed into the picture, students who viewed the image that included a dog or cat perceived that there would be a greater number of social interactions with the professor than those who viewed the picture without the animal (Wells & Perrine, 2001). Observational studies could be conducted within workplaces to more accurately assess the effects of dogs on the frequency and duration of social interactions among employees before and after the introduction of the dogs.

Pet Attitudes and Dog Interactions

Between 27% and 50% of the respondents in each location reported petting and talking to the dogs every time they saw them, and those who petted and talked to the dogs frequently also had high PAS-M scores. The relatively large proportion of respondents who interacted with the dogs every time they saw them may be a further indication that those with greater affinity for the dogs were more likely to initiate and complete the survey.

Perceptions of Risk

When asked to rate several potential hazards and risks of dogs in the workplace (e.g., bites, destruction of property, fleas and ticks), most respondents rated them as either low, very low, or no risk. Similarly, in a study in which healthcare staff were surveyed after four weeks of AAA visitation, the majority of staff members disagreed that the dogs presented an increased risk of infection (Bibbo, 2013). Employees who saw the dogs more frequently had lower perceived risk scores. It is possible either that people who perceive the dogs as lower risk are more likely to seek them out and interact with them, or repeated exposure to the dog lowers one's perceived risk of the dog. In a study in which health workers were surveyed before and after the implementation of a dog visitation program, after the visitation program was in place, workers perceived the dogs to be lower risk than before implementation (Moody, King, & O'Rourke, 2002).

Eighty-seven percent (87%) of respondents agreed that if the proper protocols are in place, visitation dogs should be permitted in the workplace. There were, however, six respondents who disagreed and reported that religious and cultural beliefs, allergies, and fears influenced their opinion. Although the dissenters make up a small proportion of the sample, their answers indicate that employers may want to make sure to address religious, cultural, and health concerns of employees in the process of introducing dogs to the workplace and that all employees feel like their concerns are being addressed (Foreman et al., 2017).

Allergies were an issue of concern for the respondents as half of the respondents were unsure and approximately 20% reported that dogs should not be permitted in the workplace

if an employee is allergic to dogs. Allergies in the workplace have been addressed in the guidance documents related to service dogs (Batiste, 2011), and employers may wish to follow these recommendations when visitation dogs are present. Such accommodations include offering the employee with allergies an enclosed workspace, placing portable air purifiers at each workstation, and asking visitation dog handlers to use dander care products on their dogs regularly. Employers may want to develop clear policies for accommodating employees with allergies in the workplace before visitation dogs are introduced.

Perceptions of Health Effects of Dogs and Effects on Colleges

Most of the respondents reported that dogs can improve a person's mood, reduce their stress, and provide comfort and support to someone who is experiencing emotional distress. Given that almost all (95%) of the respondents are currently or have been pet owners, these results are consistent with studies conducted with pet owners and their relationships to their pets. For example, in a study of elderly pet owners, approximately 83% believed that their pets knew how they felt about things and 92% believed that their pets added to their happiness (Stallones et al., 1988). In a survey of 502 Norwegian dog owners, a majority of owners agreed with the statement "My dog helps me get through tough times" (Andreassen, Stenvold, & Rudmin, 2013). In terms of the effects of dogs on others, the results are similar to a study conducted with healthcare staff members in a facility where AAAs were conducted: staff members in general agreed that the activities were beneficial to the patients and should be continued (Bibbo, 2013). Similarly, health workers in a hospital in which a pet visitation program was introduced for pediatric patients expressed strong agreement with statements that the dogs' visits relaxed the children (Moody et al., 2002).

Most of the respondents in Engineering and Media Studies reported that the dogs increased the visibility of their colleges within and outside the university. We suspect that mental health centers, colleges, and other departments on university campuses may see the adoption of a resident therapy dog as a "win-win" for both the students and the center, college, or department because they can provide stress relief and comfort to students and serve as a "mascot" in promotional materials or advertisements. To provide insight into the decision making processes of university administrators and department heads, survey research could be conducted on the considerations that are made when weighing whether or not to add a therapy dog to their departments.

Limitations

A major limitation of the present study is that the respondents were a convenience sample of employees in the three locations at the same organization. The respondents who took the survey may be more enthusiastic about dogs and biased toward favoring the presence of the dogs in their workplaces, compared with those who did not take the survey. Offering an incentive could attract respondents who are not drawn to the subject matter of the survey, and incentives have been shown to increase response rates of internet surveys (Singer & Ye, 2013). For example, including an incentive, such as entry into a raffle for a gift card upon completion of the survey, could improve the response rates in future surveys. Additionally, the respective owners of the visitation therapy dogs were not barred from taking the survey. It is not known whether they took the survey as it was designed so that the respondents were unidentifiable, but they would likely be biased in favor of having the dogs in their workplaces. Another limitation is the relative homogeneity of the sample: approximately 89% identified as white and 92% identified as non-Hispanic.

Conclusions

In response to the growing interest in using dogs to positively impact students' wellbeing on college and university campuses, the present study sought to investigate employee attitudes toward the dogs in three campus locations. In general, the dogs were considered to present minimal risks to those in the work environment and most respondents believed that the dogs improved the wellbeing and decreased the stress of students with whom they interacted. The findings of the present survey support the mostly positive attitudes that people have for dogs in the workplace, but they also highlight a potential challenge: accommodating individuals who believe very strongly that dogs do not belong in work environments. It is important to take into consideration the diversity of opinions of employees and ensure that there is a mechanism for them to express support or displeasure for the presence of dogs or other visitation animals in the workplace. Making recommendations regarding the addition of dogs to a workplace is beyond the scope of the present study, but this topic has been addressed in the literature (Foreman et al., 2017). The results of this survey do suggest, however, that for many individuals, the benefits of a visitation dog in the workplace may outweigh the perceptions of the risks.

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Authors' Note

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention.

Conflicts of Interest

The authors have no conflicts of interest to declare.

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