

Mental Health Therapy Dog SIRA Evaluation 12-Month Follow-Up

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Executive Summary

- Animal-assisted interventions (AAI) are designed to provide complementary care to people with physical and mental health disorders.
- Animal-assisted interventions (AAI) have become more popular over the past 20-years, however, limited randomised control trials have been conducted to assess this type of intervention.
- A systematic review of the contemporary literature regarding AAI shows that animal therapy has led to improved clinical outcomes.
- While some employees benefited from this AAI, others did not. However, the overarching perception of the staff is that this AAI was more beneficial for the preschool children than the employees.
- The impact of Covid-19 may have introduced confounding of results and negated the beneficial effect of this AAI.
- Further assessment is needed for confirmation of the findings discussed in this report. In particular, we recommend an additional follow-up at 24-months post therapy dog to provide information about the childcare employees' experience having a fully trained therapy dog in their workplace. This can be achieved under the existing budget.

AAI	Animal-assisted interventions
AAA	Animal-assisted activities
AAT	Animal-assisted therapies
AAE	Animal-assisted education
CAP	Canine-assisted psychotherapy

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Review of Contemporary Literature

There has been an increased interest in the therapeutic benefit of companion and therapy animals, primarily canines, for peoples' emotional health and mental well-being. Due to the potential for animals to impact health-related issues in different populations, therapy animals are gradually being introduced to a variety of health care settings (e.g., Banks & Banks, 2002; Kanamori et al., 2001; Nepps et al., 2014; Nitkin & Buchanan, 2020). The current Evaluation assesses an animal-assisted intervention (AAI) at St Luke's Preschool in NSW.

AAI refers to a therapeutic modality that incorporates an animal with the aim of improving physical and psychosocial health and well-being (Fodstad et al., 2019). Animal-assisted therapy (AAT), animal-assisted education (AAE), and animal-assisted activities (AAA) are the three primary modalities of AAI (Cirulli, et al., 2011; Fodstad et al., 2019). During AAT and AAE there is a pre-determined goal to improve a specific aspect of physical, cognitive, emotional, or social functioning (Cirulli et al., 2011; Fodstad et al., 2019). In contrast, AAA have no pre-determined treatment goal (Cirulli et al., 2011; Fodstad et al., 2019).

There is considerable evidence to indicate that AAIs are beneficial for peoples' health and well-being, with both observational and self-report research supporting the therapeutic value of human-animal interactions (Martin & Farnum, 2002; Morrison, 2007; Nepps et al., 2014). Recent research has found correlations between AAT and improved mental and emotional functions. Specifically, AAT has been shown to reduce: psychological distress (Kamioka et al., 2014; O'Haire, et al., 2015); symptoms of depression (Kamioka et al., 2014; Morrison, 2007; Nepps et al., 2014; O'Haire et al., 2015); subjective distress (Fodstad et al., 2019); trauma symptoms (Hoagwood, et al., 2017; O'Haire, et al., 2015); anxiety (Crossman, Kazdin, & Knudson, 2015; Morrison, 2007; Nepps et al., 2014; O'Haire et al., 2015); stress levels (Binfet, Passmore, Cebry, Struik, & McKay, 2018; Holttum, 2018; Ward-Griffin et al., 2018); and negative affect (Crossman et al., 2015; Pendry, Carr, Roeter, & Vandagriff, 2018). Animal-assisted therapy has also been found to increase positive affect, mood, and well-being (Crossman et al., 2015; Grajfoner, Harte, Lauren, & McGuigan, 2017; Pendry et al., 2018).

Canine therapy has been found to lower significantly peoples' self-reported stress levels (Binfet et al., 2018; Holttum, 2018; Ward-Griffin et al., 2018), as well as physiological indicators of stress (Allen, Blascovich, & Mendes, 2002; Morrison, 2007). Pet owners and people in the presence of a companion dog have shown decreased blood pressure and heart rate (Allen et al., 2002; Morrison, 2007; Pendry & Vandagriff, 2019). In addition, improvements in mood and reduced cortisol levels, a marker of the Hypothalamic Pituitary Adrenal Axis, have been found after therapy dog sessions (Pendry & Vandagriff, 2019). High cortisol levels have been associated with the development of stress-related disorders (Pendry & Vandagriff, 2019). Thus, interacting with therapy animals could help to reduce physiological indicators of stress (Allen et al., 2002; Morrison, 2007; Pendry & Vandagriff, 2019).

Ward-Griffin et al. (2018) found that therapy dog sessions significantly reduced stress, and also increased happiness and energy levels. Improvements in negative affect and perceived social support were also noted immediately after therapy dog sessions (Binfet, 2017; Ward-Griffin et al., 2018). However, these effects have not been found to last long-term (Binfet, 2017; Ward-Griffin et al., 2018). Despite this, qualitative evidence has indicated that people believe they have had lasting benefits from interactions with therapy dogs (Dell et al., 2015).

A recent meta-analysis revealed substantial heterogeneity of studies published between 1980 and 2017, which indicate a large beneficial effect of canine AAs on depressive symptoms in older adults (Borgi, Collacchi, Giuliani, & Cirulli, 2020). Meta-analyses have also indicated AAT is associated with improvements in mental health, quality of life, and a decrease in the sense of isolation, depressive symptoms, and rumination (Schramm, Hediger, & Lang, 2015). In particular, significant differences have been found on the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) pre and post AAA for residents aged 65 years and older residing in a long-term care facility (Le Roux & Kemp, 2009). Additionally, Hoffman et al. (2009) implemented AAT with 12 acutely depressed patients (Hoffman et al., 2009), and found that scores on the State-Trait Anxiety Inventory (STAI) were significantly reduced after AAT (Hoffman et al., 2009).

Seven studies that utilised Canine-Assisted Psychotherapy (CAP) with adolescents aged 10 to 19 years revealed a positive impact on primary diagnoses and symptomology (Jones, Rice, & Cotton, 2019). Additional benefits to standard treatments for internalising disorders and post-traumatic stress disorder were also found, while equivalent effects to conventional mental health treatments were seen for anxiety, anger, and externalising disorders (Jones et al. 2019). Positive impacts on secondary factors, including increased engagement and socialisation behaviours, and reductions in disruptive behaviours within treatment sessions were also reported (Jones et al., 2019). However, there was insufficient evidence to suggest that CAP can improve self-esteem, subjective wellbeing, or coping (Jones et al., 2019).

The impact of AAT on treatment resistant major depressive disorder (TR-MD) was investigated with 33 patients who adopted a pet (Pereira & Fonte, 2018). Evaluations were conducted at baseline, four, eight, and 12 weeks using the Hamilton Depression Rating Scale (HAM-D-17; Hamilton, 1967) and Global Assessment of Functioning Scale (GAF; Luborsky, 1962; Pereira & Fonte, 2018). Higher response and remission rates as well as improvements in HAM-D-17 and GAF scores were observed in the pet group compared to the control group who chose not to adopt a pet (Pereira & Fonte, 2018). These findings support the therapeutic benefit of AAs and AAT in conjunction with conventional mental health treatments for people with depressive symptoms.

Contemporary research indicates that interacting with animals can act as a buffer against both physiological and psychological responses to stress and anxiety (e.g., Allen et al., 2002; Binfet, 2017; Binfet, Passmore, Cebry, Struik, & McKay, 2018; Friedmann & Son, 2009; Holttum, 2018; Morrison, 2007; Pendry & Vandagriff, 2019), and bolster peoples emotional health and mental well-being (Nepps et al., 2014; O’Haire et al., 2015). In contrast, some studies have indicated that AAT does not have a lasting impact on peoples’ health and well-being (Binfet, 2017; Phelps, Miltenberger, Jens, & Wadeson, 2008). One study in particular, found that AAT did not significantly improve depression scores, mood, or social interactions (Phelps et al., 2008). Additionally, the research on the effects of AAI on mental health is not consistent, with many studies being inconclusive (Chur-Hansen, Stern, & Winefield, 2010). A weakness in methodology, the inability to control for extraneous variables (e.g., human health habits, human social supports, and the level of attachment to the therapy animal), and a lack of randomised controlled trails contributes to the inconsistent and inconclusive findings on the health benefits of AAI (Chur-Hansen et al., 2010). However, it should be noted that AAT is intended for use in conjunction with other forms of therapy (Nepps et al., 2014).

Animal Assisted Therapy for Children

Investigations into the role animals play in childhood development have indicated that companion animals support the cognitive and socio-emotional development of children through providing outlets

for learning, play, and compassion (Anderson & Olson, 2006; Endenburg & van Lith, 2010; Martin & Farnum, 2002; Van Houtte & Jarvis, 1995). However, while animals have been found to have a positive effect on children's self-esteem and self-confidence (Anderson & Olson, 2006; Van Houtte & Jarvis, 1995), conflicting findings have indicated that there is insufficient evidence to indicate that canine-assisted psychotherapy (CAP) is able to improve self-esteem, coping, or subjective well-being (Jones, Rice et al., 2019). Yet, AAI has been found to be beneficial for children with Pervasive Developmental Disorders (PDD) in the improvement of behaviour, communication, and / or social skills (Martin & Farnum, 2002). Meta-analysis has also indicated that AAT has been found to improve outcomes in children with Autism-spectrum disorder (ASD), behavioural problems, or childhood trauma (Hoagwood et al., 2017; Nimer & Lundahi, 2007).

Animals have been found to help children cope with mildly stressful activities (McCullough et al., 2018; Nagengast, Baun, Megel, & Leibowitz, 1997; Tsai, Friedmann, & Thomas, 2010). A randomized controlled trial of AAI with children aged 3 to 17 years who were diagnosed with cancer also found significant reduction in state anxiety after four months of regular visits from a therapy dog (McCullough et al., 2018). Thus, AAT could have an immediate and / or lasting impact on children experiencing either situational or state anxiety. Alleviating children's anxiety can in turn increase peer engagement as well as students' willingness to engage with adults (Anderson & Olson, 2006). Similarly, CAP has been found to increase engagement and socialisation behaviours, while reducing disruptive behaviours among adolescents aged 10 to 19 years (Jones et al., 2019). The presence of a therapy dog in a classroom has also been found to facilitate learning lessons in responsibility, respect, and empathy, and also improve students' attitudes towards school (Anderson & Olson, 2006). As such, the presence of a therapy dog at St Luke's Preschool could be beneficial for the children's social and emotional development.

Social Well-Being

There are health benefits associated with human-animal relationships, such as increasing psychological support and promoting physical activity (Christian, Giles-Corti, & Knuiiman, 2010; Cutt, Knuiiman, & Giles-Corti, 2008; Nitkin & Buchanan, 2020; Knight & Edwards, 2008; Wood et al., 2015). Dogs in particular can provide opportunities for physical, social, and recreational activities as well as relaxation (Knight & Edwards, 2008; McNicholas & Collins, 2000; Wood, Giles-Corti, & Bulsara, 2005; Wood et al., 2015). Dog walking is one such activity that promotes social engagement with the local community, and has the added benefit of encouraging outdoor physical activity (Knight & Edwards, 2008). Research has found that people walk more after acquiring a dog (Cutt et al., 2008).

Having a close relationship and bond with an animal provides companionship (Knight & Edwards, 2008). Companion animals can play an important role in bolstering social support, particularly for people without close attachments to friends or family (Knight & Edwards, 2008; Netting, Wilson, Goodie, Stephens, Byers, 2013). It can be less threatening to interact with an animal than a person when we are feeling anxious (Holtum, 2018), as animals, in particular an animal one has formed a bond with, can have a calming or de-arousing influence (Baun, Bergstrom, Langston, & Thoma, 1984).

Animals can also facilitate socialization, as they have the potential to mediate uncomfortable interactions (Wood et al., 2015). Animals can act as an 'ice-breaker', which can encourage interaction between people (Knight & Edwards, 2008; McNicholas & Collins, 2000; Wood et al., 2015). Meta-analysis has also indicated that ATT can improve communication and social skills (Chitic, Rusu, & Szamoskozi, 2012), and owning a pet has been found to promote social integration and elicit pro-social behaviours (Knight & Edwards, 2008; Wells, 2009; Wood et al., 2015; Wood et al., 2005). Thus, companion animals can help people to connect with each other and also with the outside world (Wood et al., 2015).

St Luke's Preschool and Harvey

The mental health therapy dog involved in the AAI at St Luke's Preschool is an affable labradoodle named Harvey. At the time of this report, Harvey is approximately 15-months old and is undergoing training to be a therapy dog. He has been attending St Luke's Preschool for two to three days a week for approximately 14-months.

Vikki, the current director at St Luke's Preschool, reported that the children and staff regularly interact with Harvey, with staff members taking turns managing him when interacting with the preschool children. While Harvey primarily resides with Vikki, other staff members are given the opportunity to house him over weekends. Harvey has been welcomed by the St Luke's staff, children, and parents alike and has become a valued member of the St Luke's team. Harvey has provided the employees with opportunities to enrich their lives emotionally and physically.

Being an essential service, the preschool remained open for their regular hours of operation throughout 2020 and 2021. However, the number of employees teaching face-to-face reduced from week 7 of Term 1 2020 until the end of Term 2 2020 due to Covid-19. During this time, approximately 5 to 10 children were attending the preschool each day, and the employees also supported at home learning. This involved preparing and distributing Take Home Packs weekly. During non-teaching days, employees completed administration tasks. Thus, for approximately 3-months there were low children numbers in the preschool, with regular numbers attending by Term 3. The potential impact of Covid-19 must be taken into account when interpreting the results of this Evaluation.

Using a mixed methods approach, the current Evaluation examines self-reported non-clinical changes in health and wellbeing after participating in an AAI in a childcare facility. This report compares pre-therapy dog (T1), 10-weeks post-therapy dog (T2), and 12-month post-therapy dog (T3) outcomes. It is also important to also consider the employees' thoughts about having a therapy dog in the workplace and how it has impacted them. This was achieved through in-depth qualitative interviews in May 2021 (T3). Interviews qualitatively explored the experiences and perceptions of the program participants.

Participants' initial responsiveness was good, with 15 of the 18 staff members completing both the first two phases of the Evaluation. However, due to some employees resigning from St Luke's during the period of the evaluation, only seven of the original staff members participated in the quantitative surveys at T3. However, 17 employees participated in qualitative interviews at T3.

The qualitative interviews revealed that Harvey is still a puppy and undergoing training to become a therapy dog, rather than a fully trained therapy dog. Thus, in order to determine the impact of a trained therapy dog on the health and wellbeing of childcare employees, a further assessment at 24-months post-therapy dog is recommended in May 2022.

Profile of Childcare Employees at St Luke’s Preschool: Pre and Post Mental Health Therapy Dog

Quantitative Analyses

Self-reported depressive mood (PHQ-9), anxiety (GAD-7), resilience (CD-RISC-2), self-efficacy (GSE), and health related quality of life (EQ-5D-5L) were assessed prior to the introduction of the mental health therapy dog to the childcare facility (T1), 10-weeks after the therapy dog had been regularly attending the facility (T2), and 12-months after the therapy dog had been regularly attending the facility (T3). There was a small attrition rate (n=2) from T1 to T2 and a larger attrition rate (n=8) from T2 to T3. This was mainly due to employees resigning from the preschool and no longer being eligible to participate in the 12-month follow-up.

Psychometric group data from seven of the original 17 participants is discussed in this report. Individual data from the PHQ-9, GAD-7, and CD-RISC-2 5L is also discussed. Group data on health and wellbeing from six of the original 17 participants is also discussed.

The seven participants (Female=6 [86%]; Male=1 [14%]) ranged in age from 22 to 53 years (M=34.44 years, SD=9.89). Among this group, the average time spent working in childcare was 11.14 years (SD=5.93).

The mean and standard deviations at T2 and T3 was calculated for seven questions about the impact of having a therapy dog in the workplace on aspects of employee health and wellbeing (see Table 1). The means and standard deviations at T1 and T3 were calculated for each of the five aforementioned psychometric measures, as well as a question about general health and wellbeing (see Table 2).

Paired samples t-tests along with bootstrapping (1,000 samples, due to the small sample size) were conducted to examine any differences between the time points (T2 and T3) for seven questions about aspects of employee health and wellbeing after having a therapy dog in the workplace (see Table 1), as well as differences between the time points (T1 and T3) for each psychometric measure and the question about general health and well-being (see Table 2).

Table 1. Profile of Health and Wellbeing of Childcare Employees at St Luke’s Preschool – Bootstrapped (N=1,000)

Health and Wellbeing	Time 2 (n=6) Mean (SD) Median	Time 3 (n=6) Mean (SD) Median	t 2-Tailed Probability	CI	Bias
Physical health	3.17 (1.47) 3.50	3.00 (2.00) 3.00	.28 <i>p</i> = .79	-1.38, 1.71	.60

Mental health	3.83 (1.72) 4.00	3.67 (2.07) 4.00	.19 $p = .86$	-.208, 2.41	.87
Confidence	3.83 (1.33) 4.00	3.67 (2.07) 4.00	.28 $p = .79$	-1.38, 1.71	.60
Sense of belonging	4.00 (1.10) 4.00	3.83 (1.72) 4.00	.26 $p = .81$	-1.52, 1.85	.65
Coping with work related stress	.66 ^c (.11) 5.00	.48 ^c (.28) 3.00	.161 $p = .17$	-.11, .47	.11
Ability to handle Unpleasant feelings	.62 ^c (.13) 4.50	.45 ^c (.28) 3.00	1.21 $p = .28$	-.19, .54	.14
Having a therapy dog in the workplace	.56 ^c (.15) 4.00	.41 ^c (.27) 3.00	1.10 $p = .32$	-.20, .50	.14

a. Unless otherwise noted, bootstrap results are based on 1,000 bootstrap samples

b. Based on 992 samples

c. Log10 transformations were performed on non-normal data

In the current sample, there was no significant difference at 10-weeks and 12-months post therapy dog on self-reported physical health, mental health, confidence, sense of belonging, ability to cope with work related stress, ability to handle unpleasant feelings, or overall experience having a therapy dog in the workplace (see Table 1). Therefore, spending 12-months with the therapy dog at work did not significantly impact this group of employees' self-reported health and wellbeing more so than it did after spending only 10-weeks with the therapy dog at work.

The scores for the self-reported health and wellbeing questions range between 1 and 7, with a lower score indicating little or no improvement and a higher score indicating greater improvement. The median scores indicate little improvement on these aspects of health and wellbeing from 10-weeks to 12-months post therapy dog for most employees.

When looking at individual participants, only one person indicated they believed their physical health, mental health, confidence, ability to cope with work related stress, sense of belonging, and ability to handle unpleasant feelings had continued to improve over the 12-months of having a therapy dog in the workplace. For this person this AAI may have had a positive impact on their health and wellbeing.

Two people indicated they believed their mental health, ability to cope with work related stress, and ability to handle unpleasant feelings had improved after spending 10-weeks with the therapy dog but not after spending 12-months with the therapy dog at work.

Another person also indicated they believed their ability to cope with work related stress had improved after spending 10-weeks with the therapy dog but not after spending 12-months with the therapy dog at work. However, they believed their sense of belonging had improved after spending 12-months with the

therapy dog at work but not after spending only 10-week with the therapy dog. This person also indicated they enjoyed the experience of having a therapy dog in the workplace more after spending 12-months with the therapy dog than they did after spending only 10-weeks with the therapy dog at work.

Conversely, three people indicated they enjoyed the experience of having a therapy dog in the workplace less after spending 12-months with the therapy dog than after spending only 10-weeks with the therapy dog at work.

This indicates that some people experienced an early improvement in health and wellbeing after spending 10-weeks with the therapy dog at work, however, this initial benefit was not sustainable over a 12-month period.

Table 2. *Psychometric profile of Childcare Employees at St Luke’s Preschool – Bootstrapped (N=1,000)*

Psychometric Measures	Time 1 (n=7) Mean (SD) Median	Time 3 (n=7) Mean (SD) Median	t 2-Tailed Probability	CI	Bias
PHQ-9	.73 ^c (.13) 6.00	.74 ^c (.31) 7.00	-.08 <i>p</i> = .94	-.22, .21	.09
GAD-7	.74 ^c (.27) 4.00	.82 ^c (.25) 7.00	-.50 <i>p</i> = .64	-.48, .33	.16
CD-RISC-2	6.00 (1.12) 6.00	5.43 (.98) 5.00	1.92 <i>p</i> = .10	-.16, 1.30	.30
GSE	1.48 ^c (.03) 30.00	1.45 ^c (.08) 29.00	1.06 <i>p</i> = .33	-.04, .10	.03
EQ-5D-5L Index Value	-.10 ^c (.07) .81	-.12 ^c (.08) .78	.64 <i>p</i> = .55	-.06, .10	.03
EQ-5D-5L VAS Score	1.87 ^c (.05) 80.00	1.83 ^c (.10) 70.00	1.06 <i>p</i> = .33	-.06, .14	.04
Health and wellbeing	3.29 (.76) 3.00	3.00 (.58) 3.00	.80 <i>p</i> = .46	-.59, 1.17	.36

a. Unless otherwise noted, bootstrap results are based on 1,000 bootstrap samples

b. Based on 992 samples

c. Log10 transformations were performed on non-normal data

Depressive mood: PHQ-9

While the group mean score on the PHQ-9 was higher at T3 than T1 (see Table 2), there was not a significant difference between the two time points. Therefore, interacting with the therapy dog did not significantly impact the employees self-reported depressive mood at 12-months, when considering the group as a whole.

Scores ranging from 0 to 4 indicate normal mood, scores ranging from 5 to 9 indicate mild depression, scores ranging from 10 to 14 indicate moderate depression, scores ranging from 15 to 19 indicate moderately severe depression, and scores ranging from 20 to 27 indicate severe depression on the PHQ-9. Scores >15 generally warrant treatment for depression. At both time points the group mean score indicates slightly elevated depressive mood (mild depression).

When looking at individual participants, one person who self-reported mild depressive mood at T1 reported normal mood at T2 and T3. Conversely, one person who self-reported mild depressive mood at T1 and T2 reported moderate depressive mood at T3. Additionally, Four people reported mild depressive mood at both T1 and T3. Of these four, one person reported normal mood at T2. This indicates that while one person may have responded to this AAI, others may not. While it is reasonable to expect people to respond differently to therapeutic interventions, as it is not one size fits all, we must also take into consideration that Harvey is still undergoing training to become a therapy dog.

Anxiety: GAD-7

While the group mean score on the GAD-7 was higher at T3 than T1 (see Table 2), there was not a significant difference between the two time points. Therefore, interacting with the mental health therapy dog did not significantly impact the employees self-reported anxiety at 12-months, when considering the group as a whole.

The cut-off scores of 5, 10, and 15 indicate mild, moderate, and severe anxiety respectively on the GAD-7 (Spitzer, et al., 2006). Examining the group data, at both time points the mean self-reported anxiety score was less than five.

When looking at the individual data, three people scored five or higher at T1 and four people scored five or higher at T3, indicating they were experiencing anxiety symptoms. Of those people, one person self-reported mild anxiety at T1 and T2 but not at T3; one person self-reported severe anxiety at T1 and mild anxiety at T2 and T3; and one person self-reported mild anxiety at both T1 and T3. In addition, two people who did not self-report anxiety symptoms at T1 reported moderate anxiety at T2 and T3. This indicates that while some people may have benefited from spending time with the therapy dog at work, others may not. Again, we must take into consideration that Harvey is still undergoing training to become a therapy dog. We must also acknowledge outside influences that impact peoples health and wellbeing.

Resilience: CD-RISC 2

The CD-RISC 2 was developed as a measure of 'bounce-back' and adaptability (Vaishnavi et al., 2007). It has a score range from 0 to 8, with lower scores being observed among psychiatric groups with depression (5.12), generalised anxiety disorder (4.96), and Post Traumatic Stress Disorder (PTSD; 4.70; Vaishnavi et al., 2007).

While the group mean score on the CD-RISC 2 was higher at T1 than T3 (see Table 2), there was not a significant difference between the two time points. Therefore, interacting with the mental health therapy dog did not significantly impact the employees self-reported resilience at 12-months. However, the group mean scores for the childcare employees at both time points was slightly below that of the mean score in a general population survey of US adults ($M=6.91$; Vaishnavi et al., 2007). Yet, it was not so low as to be on par with psychiatric groups with depression, generalised anxiety disorder, or PTSD when considering the group as a whole.

When looking at individual participants, one person self-reported a score on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD at T1 and T2 but not at T3. Two people self-reported scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD at T3 but not at T1 or T2. For these two people, their self-reported resilience actually increased from T1 to T2. Additionally, two people self-reported scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD at both T1 and T3. Again, this indicates that while some people may have benefited from having a therapy dog in the workplace, others may not.

Self-Efficacy: GSE

In the current sample, there was no significant difference between T1 and T3 on the GSE (see Table 2). Therefore, interacting with the mental health therapy dog did not significantly impact the employees self-reported self-efficacy at 12-months.

The total score for the GSE ranges between 10 and 40, with a higher score indicating higher self-efficacy. With group mean scores of approximately 30 at both time points, the childcare employees self-reported self-efficacy was comparable to that of an American adult population ($M=29.48$, $SD=5.13$; Schwarzer, 2014).

Health Related Quality of Life: EQ-5D-5L

Participant's self-reported health related quality of life, as approximated by the EQ-5D-5L, was higher at T3 ($M=-.12$, $SD=.08$) than at T1 ($M=-.10$, $SD=.07$). However, there was not a significant difference between the two time points. Therefore, interacting with the mental health therapy dog did not significantly impact the employees self-reported health related quality of life at 12-months. However, the mean EQ utility score in the current study is lower than that reported in a study of a group of adults ($n=2,908$) aged 15 and over residing in South Australia, where it was reported that the mean EQ utility score was .91 ($SD=.14$; McCaffrey, Kaambwa, Currow, & Ratcliffe, 2016), indicating a lower self-reported health related quality of life in this sample.

Similarly, there was no significant difference between the mean EQ VAS at T1 ($M=1.87$, $SD=.05$) and T3 ($M=1.83$, $SD=.10$). These scores are comparable to a survey of adults ($n=2,908$) aged 15 and over residing in South Australia, where it was reported that the mean EQ VAS was 78.55 ($SD=16.57$; McCaffrey, Kaambwa, Currow, & Ratcliffe, 2016). However, the mean EQ VAS score in the current study is lower, again indicating a slightly lower self-reported health related quality of life in this sample.

Qualitative Analysis

Semi-structured qualitative interviews were conducted with 17 employees from St Luke's Preschool during May 2021. Interviews were transcribed verbatim by a University of Sydney approved transcription service and the data were analysed using framework analysis. Framework analysis has been established as a sound method of qualitative data analysis in health service research (e.g., Connell, Brazier, O'Cathain, Lloyd-Jones, & Paisley, 2012; Gorecki, Nixon, Madill, Firth, & Brown, 2012; Tavernor, Barron, Rodgers, & McConachie, 2013). The software package NVIVO Version 12 (QSR International Pty Ltd, 2018) was used to analyse the qualitative data.

The analysis produced seven salient dimensions: health and wellbeing, preschool children, training, task management, work culture, weekends, and exercise. Each of these dimensions is discussed in detail below, with relevant quotes illustrating the themes that were consistently identified during the interviews.

Health and Wellbeing

41% of employees spoke of primarily engaging with Harvey by giving him a pat throughout the day or taking him outside for a break, and expressed that they enjoyed this interaction: "it's kind of like a nice little moment to just take a breather and just be with him" (Participant 25, female, 27-years old); "a quick pat here and there, we know that that releases oxytocin." (Participant 10, female, 33-years old); "...he always makes me smile. You come out and give him a pat and you just sit with him. I find that lovely having him here in that respect." (Participant 13, female, 40-years old); and "at the end of the day I'll give him a little cuddle and a little pat" (Participant 20, female, 33-years old).

41% of employees discussed how having a therapy dog in the workplace benefited their health and wellbeing: "I get really bad anxiety, diagnosed anxiety and the difference I feel with him around, you can't even put it into words." (Participant 4, female, 35-years old); "I've had quite a bit of grief and trauma over the last couple of years and I have found that... he's just a bit of a distraction from things sometimes." (Participant 15, female, 40-years old); "...because I suffer from anxiety... (having) Harvey there was a bit of a relief, actually, when I wasn't coping and I could just spend some time with him and talk to him and pat him and play a ballgame or something. I felt that, in those times, it was really important to have him there, something that you don't get from another person, like an animal can bring." (Participant 12, female, 49-years old); and "I get anxiety anyway and just having him, I think it makes a huge difference to my personal mental health, absolutely." (Participant 23, female, 20-years old).

Conversely, 12% of employees found having a therapy dog in the workplace increased their work related stress: "if anything personally – having Harvey there is more stress than when he's not there." (Participant 9, male, 23-years old) and "Some days on those stressful days, sometimes him being there too, if he's having a bit of a behaviour - he loves to go in all the bins in the staff room - that can sometimes make it stressful as well" (Participant 21, female, 39-years old).

12% of employees mentioned that while they had a fear of dogs: "I've always just had that fear of dogs." (Participant 24, female, 41-years old) and "I've had a huge fear of dogs all my life" (Participant 15, female, 40-years old), interacting with Harvey had helped them to overcome their fear: "Yeah in terms of myself, I think my confidence has grown and I just definitely feel more at ease around dogs in general." (Participant 24, female, 41-years old) and "I feel a lot more comfortable with him now because he's in the centre – he visits regularly." (Participant 15, female, 40-years old).

Even employees (12%) who did not feel they derived a personal benefit from having Harvey in the workplace acknowledged the benefit of a therapy dog for the preschool as a whole: “I would say probably not me personally, but I do see the benefits of him for the children and staff who need it.” (Participant 11, female, 30-years old) and “I think the children definitely have a big benefit from it. And I think the staff do as well.” (Participant 14, male, 27-years old).

Preschool Children

23.5% of employees indicated they believe that Harvey has had a positive impact on the preschool children, particularly those with special needs and those who experience stress when separating from their parents (separation anxiety): “Their social skills and their wellbeing, we can see the difference between the days he’s here and the days he’s not here...” (Participant 4, female, 35-years old); “We had a little boy a couple of weeks ago and he had quite a bit of a meltdown. Harvey just was around the space and then Harvey just came and sat next to him. It just calmed the little boy.” (Participant 16, female, 33-years old); “I’ve seen it more helps our kids who maybe have some separation anxiety from their parents, and it gets them excited to come in to preschool because he’s there.” (Participant 3, female, 28-years old); and “...we kind of see the ones that really gravitate towards him and just instantly calm.” (Participant 25, female, 27-years old).

47% of employees expressed a belief that having a therapy dog in the preschool is more beneficial for the children than the staff: “I definitely think his purpose would be more for the, in my eyes more for the kids than the staff.” (Participant 9, male, 23-years old); “I’d say he’s more for the children. The staff love him, but I’d say the children more so gravitate towards (him) if they are having meltdown or a bit upset and really want to see him. Yeah, it’s more so for their sake, I would say.” (Participant 25, female, 27-years old); “I feel that the children have really benefited from having him here. I know he’s for staff but I feel the children actually respond to him as well.” (Participant 16, female, 33-years old); “I think that the benefits for children are probably greater than for the staff. I think we’ve seen more of an increase in children who have got separation anxiety or have been in the past afraid of dogs that have really benefitted from him being in the environment.” (Participant 11, female, 30-years old); and “I know we got the grant or whatever for us as the staff, but I feel like it’s turned more into supporting the kids” (Participant 3, female, 28-years old).

Training

47% of employees acknowledged that Harvey could be challenging at times, as he is still a puppy and undergoing training: “So him being a puppy, I think is definitely a lot more stressful because he’s learning just like the kids” (Participant 9, male, 23-years old); “I think to be honest, because he’s still training, sometimes it makes it harder. Because he does bark and we’re working on that and he’s been doing better.” (Participant 10, female, 33-years old); and “...it’s been tricky training him and getting him not to bark and not to do this and that and go in the bin and all that stuff.” (Participant 4, female, 35-years old). Despite this, 18% of employees mentioned that they found their role in training and caring for Harvey enjoyable and rewarding: “...sometimes looking after him is feel – it feel really rewarding” (Participant 21, female, 39-years old); “It’s been challenging. But I’ve really enjoyed it.” (Participant 6, female, 54-years old); and “He’s a puppy, so he’s full-on and he’s a challenge, but he’s a joy as well, so I really enjoy having him round.” (Participant 12, female, 49-years old).

18% of employees expressed a belief that having a therapy dog that was already trained would have been more beneficial: “...I think if it was an older dog that just came in, already knew what to do, it’d be a lot easier.” (Participant 25, female, 27-years old); “when I thought of a therapy, you have a dog that is

sort of calm presence that you can just spend a bit of time patting him or just spending a bit of time with him, go for a walk or whatever” (Participant 14, male, 27-years old); and “I think he's too young to really be much of a therapy dog as such” (Participant 22, female, 43-years old).

Yet, 47% of employees acknowledged that Harvey is making progress with training: “as he’s starting to train a bit more it’s getting definitely a lot easier.” (Participant 9, male, 23-years old); “obviously training is hard but in the long run I really do see the benefits for the children and staff. He is really worth it in the long haul.” (Participant 16, female, 33-years old); “I think I can see the future benefits of it. Once he's fully trained, we do see progress with him.” (Participant 11, female, 30-years old); and “trying to stop those puppy behaviours can be a bit difficult. But I think once he gets over that and finishes his training, it will be better.” (Participant 20, male, 33-years old).

Task Management

29% of employees indicated that having Harvey in the workplace did not add to their workload: “I don’t feel that he is a big, like an extra task...” (Participant 15, female, 40-years old); “It doesn't bother me at all. I'm happy to do that. I've just incorporated that into my normal workday if he's here.” (Participant 17, female, 23-years old); and “...it hasn't ever impeded on my capacity for work.” (Participant interview 16, female, 33-years old).

Conversely, 29% of employees indicated that, as Harvey is still undergoing training to be a therapy dog, his being at the preschool has added to their workload: “So that’s a bit hard in the sense that you’re trying to engage with children at their level... while trying to still discipline and train a dog.” (Participant 9, male, 23-years old); “...we do work in a very fast paced, very hands on workplace, where you've got children who are dependent on you. So having another thing that's dependant can be a challenge.” (Participant 14, male, 27-years old); and “So that's kind of tricky because then it stops me from doing my task to have to get up and help and support him and then support whoever else has come to the door.” (Participant 25, female, 27-years old).

12% of employees also mentioned that managing Harvey alongside their regular tasks added to work related stress: “...it’s probably more stressful having Harvey...” (Participant 9, male, 23-years old) and “...he’s kind of just there, around, and is quite distracting sometimes when I’m trying to do work.” (Participant 3, female, 28-years old). However, employees acknowledged that Harvey is making progress with his training and becoming easier to manage in conjunction with their regular tasks: “At first it was quite challenging, but yeah it’s definitely getting easier.” (Participant 9, male, 23-years old) and “...more so the barking is probably the only thing that I find challenging, but I know we're working on that.” (Participant 10, female, 33-years old).

Work Culture

18% of employees indicated that the work culture at St Luke’s preschool has not changed pre to post therapy dog. However, they acknowledged that the culture was positive before Harvey joined the preschool: “We’ve got a really good culture here at St Luke’s, we always have. We’re quite an open team and we let each other know what’s going on.” (Participant 4, female, 35-years old) and “Probably not because we are a very tight team anyway and have been together for a long time.” (Participant 22, female, 43-years old).

Conversely, 35% of employees indicated that Harvey has brought them closer together as a team: “having Harvey around is a connection point.” (Participant 10, female, 33-years old); “I think probably building team because everyone’s responsible for him.” (Participant 6, female, 54-years old); “he's like a

mascot...something that brings everyone together and they can love and support and cheer for.” (Participant 22, female, 43-years old); and “He's part of our preschool family... so it brings that family element of 'that's our dog. Let's talk about what Harvey's up to'... So I think in that respect it brings on conversation and lightens up people's days.” (Participant 12, female, 49-years old).

59% of employees indicated they often talk about Harvey to other employees: “So I think if anything, it's probably made people a bit more conversational and talking about their own lives.” (Participant 11, female, 30-years old); “definitely it's opened up more conversations.” (Participant 6, female, 54-years old); “It brings another element of humour and we can have a laugh and just talk about how he's growing and how tall he's got and then what he loves the most and 'where is his tickle spot' and stuff like that.” (Participant 12, female, 49-years old); “he is a big talking point as well. It's like, “Harvey did this,” or staff took him for a weekend or an afternoon, “Oh, we went and did this.”” (Participant 20, female, 33-years old). 12% of employees mentioned that discussing Harvey is a good ‘ice-breaker’: “I guess as a bloke, most blokes feel uncomfortable just sitting here talking face-to-face.... It helps break tension a little bit.” (Participant 9, male, 23-years old) and “Sometimes it's kind of one of those buffers in a conversation.” (Participant 16, female, 33-years old).

35% of employees indicated that Harvey gives them a common goal: “...we've all got this common goal with him as well.” (Participant 4, female, 35-years old) and “When he has a little win, you see the team get really excited. ‘He hasn't gone into the bin today.’ and stuff like that.” (Participant 9, male, 23-years old).

23.5% of employees mentioned that people who are ‘dog people’ enjoy having Harvey in the workplace more than those who are not ‘dog people’: “I know some gravitate towards him, and they really enjoy, because they're really dog people as well, they really enjoy just being with him. (Participant 25, female, 27-years old); “I think if anything, it's kind of for the people that are dog people, that kind of sparks more conversation around personal lives.” (Participant 11, female, 30-years old); “But then there's some that aren't dog people, and it's a bit tricky.” (Participant 25, female, 27-years old); and “You can definitely see who's a dog person and who's not a dog person.” (Participant 12, female, 49-years old).

Weekends

While some employees acknowledged that they are welcome to take the therapy dog ‘Harvey’ home on weekends: “... the others also know anytime they're more than welcome. But not many have, as yet.” (Participant 4, female, 35-years old) and “Vicki is very open to any staff taking him home for the weekend.” (Participant 15, female, 40-years old), interviews revealed that very few (18%) of the employees regularly interacted with Harvey outside work hours: “No, I haven't. I have my own dog. He's quite high maintenance, so yeah, no, I haven't.” (Participant 11, female, 30-years old). However, those who did indicated that it was a positive experience: “...he's stayed at our house with my family as well, so he's come for a weekend. That was a really positive experience for myself and my family...” (Participant 10, female, 33-years old), and “He's been to my place a couple of times.” (Participant 6, female, 54-years old).

Plans to have weekend meet ups with Harvey and the employees have been discussed: “One of the things that we've talked about... is having our dogs... coming together to have a dog play-date at school one afternoon...” (Participant 4, female, 35-years old) and “...we're in the process of planning for anyone who's got a dog or anyone who just wants to come to do a kind of a picnic thing.” (Participant 11, female, 30-years old).

Exercise

Interviews revealed that few (18%) employees increased their exercise as a result of interacting with Harvey.

12% of employees indicated that caring for Harvey encouraged them to get more exercise outside work hours: “I would say that that is a game changer in the sense of also that getting out and exercising. So, that just changes your mindset in the mornings.” and “I now will go on my own confidently and be happy to go out. Where before I wouldn’t.” (Participant 4, female, 35-years old) and “We take him down a lot to Fairy Meadow Beach, the off-leash beach, and he can run and do that.” (Participant 20, female, 33-years old).

Additionally, one employee indicated that Harvey encouraged them to get outside more during work hours: “sometimes I’ll just (take) him outside for a run, throw a few balls and let him run around and that gives me a little bit of a break as well. It’s a bit of a mind break and we both get some fresh air.” (Participant 12, female, 49-years old).

Summary

Overall, the qualitative interviews revealed that many employees enjoy having Harvey in their workplace, with some believing he has brought them closer as a team. Some employees also believed that having a therapy dog in the work place has helped them to manage anxiety symptoms. However, many employees believed he was mostly beneficial for the children, particularly those with special needs or those who experience stress when separating from their parents. Additionally, some employees mentioned that having a puppy that is still undergoing training to become a therapy dog has been challenging, and this has added to work related stress for a few employees.

Findings from our qualitative analysis support recent research on the benefits of AAs for peoples’ health and wellbeing (e.g., Martin & Farnum, 2002; Morrison, 2007; Nepps et al., 2014). Specifically, that AAT can help to reduce anxiety for some people (e.g., Crossman, Kazdin, & Knudson, 2015; Morrison, 2007; Nepps et al., 2014; O’Haire et al., 2015). Additionally, in line with previous research (e.g., Chitic, Rusu, & Szamoskozi, 2012; Knight & Edwards, 2008; McNicholas & Collins, 2000; Wood et al., 2015), we also found that the therapy dog facilitated socialization and communication, and that Harvey at times acted as an ‘ice-breaker’ for employees to engage in conversation.

Previous research has indicated that animals can have a positive effect on children’s self-esteem and self-confidence (Anderson & Olson, 2006; Van Houtte & Jarvis, 1995), can help them cope with mildly stressful activities (McCullough et al., 2018; Nagengast, Baun, Megel, & Leibowitz, 1997; Tsai, Friedmann, & Thomas, 2010), and can help increase engagement and socialisation behaviours (Jones et al., 2019). Although it was outside the scope of this Evaluation to assess the impact of the therapy dog on the preschool children, many employees did report specific instances where they had observed children who were mildly stressed or upset calm down when engaging with Harvey.

As previously mentioned, it has been found that people walk more after acquiring a dog (Cutt et al., 2008). While this was certainly true for Harvey’s primary caregiver, having a therapy dog at work has not increased exercise for the majority of the employees. This is primarily due to his spending the majority of his off duty hours with one primary caregiver. tttt (e.g., Christian, Giles-Corti, & Knuiman, 2010; Cutt, Knuiman, & Giles-Corti, 2008; Nitkin & Buchanan, 2020; Knight & Edwards, 2008; Wood et al., 2015). Specifically, in line with previous research (e.g., Knight & Edwards, 2008; McNicholas & Collins, 2000; Wood, Giles-Corti, & Bulsara, 2005; Wood et al., 2015), we also found that Harvey provided the staff

with opportunities for increased physical activity (i.e., taking him outside to go to the bathroom), social interaction (i.e., talking about Harvey with other employees), and relaxation (i.e., patting him throughout the day).

Individual Participant Summary

One person (Participant 4, female, 34-years old) reported reduced anxiety symptoms (severe to mild) after spending 10-weeks with the therapy dog and also after spending 12-months with the therapy dog at work. They also reported increased resilience after 12-months spent interacting with the therapy dog, but not after spending 10-weeks with the therapy dog at work. While they reported mild depressive mood pre and 12-months post therapy dog, they reported normal mood 10-weeks post therapy dog. Additionally, they believe their physical health, mental health, confidence, sense of belonging, ability to cope with work related stress, and ability to handle unpleasant feelings has improved since having a therapy dog in the workplace. Their qualitative interview revealed they believed they had personally benefited from interacting with the therapy dog. Specifically, they felt that spending time with Harvey at work helped them to manage symptoms of anxiety. Thus, for this person, this AAI may have contributed to improving their anxiety symptoms and adaptability over the 12-month period.

One person (Participant 10, female, 32-years old) reported reduced anxiety symptoms after spending 12-months with the therapy dog, but not after spending only 10-weeks with therapy dog at work. They also reported improved mood (mild depressive mood to normal mood) after spending only 10-weeks with the therapy dog at work and also at 12-months post therapy dog. However, they self-reported resilience scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD both pre and post therapy dog. They also indicated they believed their mental health, ability to cope with work related stress, and their ability to handle unpleasant feelings initially improved after spending 10-weeks with the therapy dog, however, not after spending 12-months with the therapy dog at work. Additionally, they enjoyed the experience of having a therapy dog in the workplace less after 12-months than they did after 10-weeks. Their qualitative interview revealed that while they believe in the overall benefit of therapy animals, as Harvey is still undergoing training, his being in the workplace can be challenging at times. For this person, interacting with the mental health therapy dog may have contributed to improving their mood and anxiety over the 12-month period. However, the challenge of having a puppy still in training may have impacted how they perceived their mental health, ability to cope with work related stress, and ability to handle unpleasant feelings.

One person (Participant 9, male, 22-years old) who self-reported mild depressive mood pre therapy dog and 10-weeks post therapy dog reported moderate depressive mood after spending 12-months with the therapy dog at work. They also self-reported no anxiety symptoms pre therapy dog and moderate anxiety both 10-weeks and 12-months post therapy dog. They self-reported resilience scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD after spending 12-months with the therapy dog, but not pre therapy dog or after spending 10-weeks with the therapy dog at work. Additionally, they believed their mental health, ability to cope with work related stress, and ability to handle unpleasant feelings had improved after spending 10-weeks with the therapy dog, but not after spending 12-months with the therapy dog at work. Their qualitative interview revealed that they did not believe having a mental therapy dog in the workplace has been beneficial for their health and wellbeing. They also mentioned that they found the added task of training and managing Harvey to be stressful. For this person, the challenges of having a therapy dog in training in the workplace may have become more stressful as time went on.

One person (Participant 3, female, 27-years old) who did not self-report anxiety symptoms pre therapy dog reported moderate anxiety both after spending 10-weeks with the therapy dog and after spending 12-months with the therapy dog at work. They also reported mild depressive mood both pre therapy dog and 12-months post therapy dog. Additionally, they believed their ability to cope with work related stress had improved at 10-weeks but not at 12-months post therapy dog. However, they believed their sense of belonging had improved after spending 12-months with the therapy dog at work but not after

spending only 10-week with the therapy dog. They also indicated that they enjoyed the experience of having a therapy dog in the workplace more after spending 12-months with the therapy dog than after spending 10-weeks with the therapy dog at work. Yet, their qualitative interview revealed they found the presence of the therapy dog in the workplace to be distracting at times. While this person may enjoy having a therapy dog at work, the challenges of having a dog in training may have mitigated the therapeutic benefits of this AAI for this person.

One person (Participant 16, female, 32-years old) self-reported mild anxiety and depressed mood both pre and 12-months post therapy dog. This person also self-reported resilience scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD both pre and 12-months post therapy dog. This indicates that for this person the AAI did not impact their health and wellbeing.

One person (Participant 6, female, 54-years old) reported mild depressive mood pre therapy dog and 12-months post therapy dog. Their qualitative interview revealed that although it had been challenging, they have enjoyed having a therapy dog in the workplace. However, they also indicated that they enjoyed the experience of having a therapy dog in the workplace less after spending 12-months with the therapy dog than after spending 10-weeks with the therapy dog at work. This indicates that while they may have enjoyed having a therapy dog in the workplace, at least initially, this AAI may not have impacted their health and wellbeing.

One person (Participant 13, female, 40-years old) self-reported a resilience score on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD after spending 12-months with the therapy dog but not pre therapy dog or after spending 10-weeks with the therapy dog at work. For this person, their self-reported resilience initially increased from pre therapy dog to 10-weeks post therapy dog. Their qualitative interview revealed that they enjoyed having a therapy dog in the workplace. However, they also indicated they enjoyed the experience of having a therapy dog in the workplace less after spending 12-months with the therapy dog than after spending 10-weeks with the therapy dog at work. This indicates that while they may have enjoyed having a therapy dog in the workplace, at least initially, they have also found this challenging at times.

Overall Implications

The outcome data in this report was obtained from semi-structured interviews with employees of St Luke's Preschool, survey questions, and validated tools to measure self-reported depressive mood (PHQ-9), anxiety (GAD-7), resilience (CD-RISC-2), self-efficacy (GSE), and health related quality of life (EQ-5D-5L). Descriptive statistics (using rating scale data) and content analysis of text data with interpretation was used to address the evaluation objective. The small number of participants in the evaluation limits the ability to draw general conclusions.

Overall, analysis of quantitative pre/post data indicated there was no significant differences in depression, anxiety, resilience, self-efficacy, health related quality of life, or general health and wellbeing pre to post therapy dog (see Table 2) when considering the sample as a whole. Additionally, there was no significant difference at 10-weeks and 12-months post therapy dog on self-reported physical health, mental health, confidence, sense of belonging, ability to cope with work related stress, ability to handle unpleasant feelings, or overall experience having a therapy dog in the workplace (see Table 1) when considering the sample as a whole. These findings suggest that interacting with the therapy dog over a 12-month period did not have a measurable impact on the majority of the participants' overall health and wellbeing. However, there was a sub-group of people (n=2) who did respond to having a mental health therapy dog in the workplace.

Not all participants who experienced depressed mood and/or anxiety showed improvements after 12-months spent interacting with the therapy dog, with some people self-reporting an increase in depressive mood and/or anxiety symptoms from pre to post therapy dog. Yet, the one person who self-reported a decrease in depressed mood and anxiety from pre to post therapy dog also reported that they believed in the therapeutic benefit of therapy dogs. They also indicated their mental health, ability to cope with work related stress, and their ability to handle unpleasant feelings had improved after spending 12-months with the therapy dog at work. Conversely, the one employee who self-reported an increase in depressed mood and anxiety from pre to post therapy dog did not believe their health and wellbeing had benefited from spending time with the therapy dog at work. Again, this indicates that while some people may have benefited from this AAI, others may not. They also self-reported resilience scores on par with psychiatric groups with depression, generalised anxiety disorder, and PTSD after spending 12-months with the therapy dog at work, but not pre therapy dog.

Ward-Griffin et al. (2018) found that therapy dog sessions significantly reduced stress and increased happiness. While the results of the qualitative analysis did not indicate that having a therapy dog significantly reduce depressed mood or anxiety for the majority of participants, the qualitative interviews with some employees who indicated they had anxiety revealed that they believed having a therapy dog was beneficial for them, and interacting with him in the workplace helped to alleviate anxiety symptoms.

Meta-analyses have indicated AAT is associated with improvements in quality of life (Schramm, Hediger, & Lang, 2015). Findings from this Evaluation indicated this group of employees, who have a lower self-reported health related quality of life compared to a group of Australian adults (see McCaffrey et al., 2016), did not show improvements in health related quality of life after 12-months spent interacting with the therapy dog.

In line with previous research (Binfet, 2017; Phelps et al., 2008; Ward-Griffin et al., 2018), these findings indicate that the introduction of a mental health therapy dog to St Luke's Preschool has not had or yet

had a measurable impact on the health and wellbeing of the majority of the childcare employees to date. Despite this, some people do feel they have benefited from this AAI. Additionally, the qualitative comments from the majority of the employees did indicate that having a therapy dog in training has been a positive, enjoyable experience for them.

As Harvey is still undergoing training to be a therapy dog, we recommend that this evaluation be extended to encompass a further 24-month follow-up (May, 2022). Further assessment at 24-month follow-up would help to determine the impact of interacting with a fully training mental health therapy dog for this group of employees, as opposed to the impact of having a therapy dog in training in a preschool. This can be achieved under the existing budget.

Limitations

A limitation of this research is the low sample size, and essentially the samples' normal levels of distress and positive wellbeing measures like self-efficacy and resilience. It is more difficult to see change when the sample is basically normal.

Additionally, as previously mentioned, Harvey is not yet a fully trained therapy dog. Due to this we were unable to assess the impact of having a trained therapy dog in the preschool.

The potential impact of Covid-19 must also be taken into consideration. Additional stresses related to the pandemic may have increased stress in staff over the 12-months spent with the therapy dog at work, and may have had a significant influence over the time of the Evaluation. This may have negated any beneficial effect of the therapy dog on the health and wellbeing of the preschool staff. Again, an additional 24-month follow-up should allow us to further assess the impact of Covid-19 on the preschool employees.

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