

**Old man's best friend: Animal-Assisted Intervention for older people with
dementia**

≈

By Ann-Marie Wordley

School of Psychology

The University of Adelaide

Submitted September 2010

Table of Contents

	Page
List of Tables	9
List of Figures	10
Abstract	11
1. Introduction	18
Historical perspective	19
Animal-Assisted Interventions (AAI) for people with dementia	25
Causes of Dementia	27
Theories about why AAI are effective for people with dementia	34
Summary of previous research on AAI for dementia	36
Limitations of previous research	38
The present study	40
The aims of the present study	43
Outline of the present program of study	44
2. Study One: Interview Study with Nursing Home Residents	46
Introduction	46
Aim of study	46

	Page
Previous research and theory	47
Limitations and gaps in literature	55
Method	57
Participants	57
Measures	58
Procedure	58
Design and Analyses	59
Results	65
Benefits of (previous) pet ownership	65
Losing pet/giving up pet when moved into nursing home	71
Benefits of visiting/resident animals in the nursing home	76
Discussion	84
Summary of findings	84
Similarities/discrepancies to previous research findings	85
Implications of findings	91
Limitations of this research	95
Directions for future research	96

	Page
3. Study two: Animal-Assisted Intervention Trial	99
Introduction	99
Aim of study & previous research	99
Limitations of previous research	114
Predictions based on previous research and theory	116
Statement of Hypotheses	123
Method	125
Participants	125
Measures	128
Procedure	134
Results	139
Preliminary analyses	139
Hypothesis testing	144
Changes in behaviour across the different intervention periods	145
Intervention days vs. Non-intervention days	156
Discussion	163
Summary of findings	163
Implications of findings	177
Limitations of this research	178

	Page
Directions for future research	182
4. Study three: Non-Dog Control Trial	188
Introduction	188
Aim of Study	188
Previous research and theory	189
Limitations and gaps in literature	190
Predictions based on previous research and theory	192
Statement of Hypotheses	197
Method	199
Participants	199
Measures	201
Procedure	201
Statistical Analyses	203
Results	204
Pro-social Behaviour	207
Disruptive Behaviour	208
Memory-related Problems	208
Depression	209

	Page
Systolic blood pressure	210
Diastolic blood pressure	211
Heart rate	211
Discussion	213
Summary of findings	213
Pro-social Behaviour	214
Disruptive Behaviour	215
Memory Problems	216
Depression	216
Physiological Measures	216
Implications of findings	219
Limitations of this research	221
Directions for future research	223
5. Study four: Follow up Interview Study	227
Introduction	227
Aim of Study	227
Previous research and theory	228
Limitations and gaps in literature	231

	Page
Method	233
Participants	233
Measures	234
Procedure	235
Design and Analyses	236
Results	237
Analyses	237
Observations of the effects of the AAI program on residents	238
Reasons why AAI programs are effective	255
Limitations of AAI programs	261
Future directions for AAI programs	262
Residents' comments	272
Discussion	279
Summary of findings	279
Similarities/discrepancies to previous research findings	280
Implications of findings	293
Limitations of this research	297
Directions for future research	299

	Page
6. Discussion	304
A summary of the four research studies	305
Integrated discussion of findings	308
Strengths and limitations of the present research	335
Directions for future research	340
References	350

Appendices

- A Information sheet and consent form used in study one
- B Interview questions used in study one
- C Behavioural checklists used in study two and three
- D Standardised Mini-Mental State Exam used in study two
- E Information sheet and consent form used in study two and three
- F Information sheet and consent form used in study four
- G Interview questions used in study four

List of Tables

		Page
Table 1	Means (and Standard Deviations) for dependent variables by intervention period	146
Table 2	Means (and Standard Deviations) for dependent variables for intervention/non-intervention days	158
Table 3	Median, Mean (and Standard Deviation) for dependent variables for intervention and control for the sundowner's group	206

List of Figures

		Page
Figure 1	Behaviour change across intervention periods	147
Figure 2	Physiological change across intervention periods	154
Figure 3	Behaviour change for intervention and non-intervention days	159
Figure 4	Comparison of intervention with control for Sundowner's group	207
Figure 5	Comparison of intervention with control for Sundowner's group	210

Abstract

Dementia results in the loss of memory, intellect, rationality and social skills and is often accompanied by behavioural and psychological symptoms such as agitation, aggression, wandering and noisiness. Previous research has demonstrated that Animal-Assisted Interventions have some promise in increasing social behavior and reducing the behavioural and psychological symptoms in people with dementia. The current program of research further investigated Animal-Assisted Interventions for people with dementia.

The first study interviewed six elderly nursing home residents about their past experiences with pet ownership, having to give up their pet when they moved into care and also current experience with resident and/or visiting animals in the facility. The results indicated that the benefits of pet ownership included: love/attachment, companionship, unconditional love, caring, pleasure/joy and support. Losing/giving up a pet when the elderly person moved into care left most residents 'heart broken', however this grief was usually followed by acceptance of their loss. The benefits of visiting/resident animals in the care facility included: pleasure/joy, someone to talk to, physical benefits and love.

The second study implemented a six-week Animal-Assisted intervention program in a Residential Care Facility. Thirty residents participated in the program which consisted of volunteers visiting with accredited therapy dogs for one hour group sessions twice per week for the six week period. Observational behaviour measures of pro-social behaviour, disruptive behaviour, depression and memory-related problems were collected. Heart rate and blood pressure were also recorded. Measures were also collected during a four-week baseline

phase and a six-week follow-up phase. Residents' social behaviour (pro-social behaviour) was found to significantly increase during the intervention. Pro-social behaviour decreased during the follow-up phase however this was not significant. Residents' disruptive behaviour, memory problems and depressive behaviour were found to significantly decrease during the intervention.

The third study aimed to control for human-interaction effects by replicating the Animal-Assisted intervention without the dogs. A smaller group of seven residents, who also participated in the intervention study, took part in the control trial. Residents' social behaviour (pro-social behaviour) was found to be significantly higher for the intervention than the control condition. Residents' memory-related problems and depression scores were found to be significantly lower for the intervention than the control condition. There were no significant differences found for disruptive behaviour, diastolic blood pressure or heart rate for the intervention condition and the non-dog control condition.

The fourth study interviewed eleven people at the facility about their observations of the intervention sessions. Individuals interviewed included: facility staff, residents' family members and the volunteer dog handlers. Residents' comments at the sessions were also recorded. The interview participants observations of the effects on residents included: increased joy/pleasure, effects on memory, increased relaxation, improved focus, reduced agitation, reduced wandering, increased social behaviour and physical activity.

Results were discussed in relation to theory and previous research. Suggestions for future research include: further evaluation of group and individual Animal-Assisted programs and investigation of care facilities that allow resident animals.

Thesis Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution to Ann-Marie Wordley and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my thesis, when deposited in the University Library, being made available for loan and photocopying, subject to the provisions of the Copyright Act 1968.

I also give permission for the digital version of my thesis to be made available on the web, via the University's digital research repository, the Library catalogue, and the Australasian Digital Theses Program (ADTP) and also through web search engines, unless permission has been granted by the University to restrict access for a period of time.

Signed.....

Date.....

Ann-Marie Wordley

Acknowledgements

I would like to take this opportunity to say a few words about the many people who have helped me along the journey to the completion of my PhD and what this experience has meant to me.

There are so many people I would like to thank for their support, encouragement and wisdom. 'Thank you' really doesn't seem to go close to expressing what I would like to say. My road to completion of my PhD has been a difficult one and there were times I thought of giving up. My supportive group of family and friends were always there to believe in me when I didn't believe in myself.

A wise person once told me that doing a PhD is a life-altering experience and for me, it quite literally was. I have learnt so much about myself, the value of patience, persistence and determination and to never, ever give up no matter what life throws in your path. I can now move into the next chapter of my life with a stronger sense of self belief and a renewed passion for enjoying life and doing a little bit of good in this world. Mother Teresa once said:

"We can not do great things in this world – only small things with great love"

I would like to acknowledge the support, kindness and encouragement given by my supervisors: Dr Lisa Kettler and Professor Helen Winefield, who also read the final thesis draft and made insightful editorial comments and suggestions.

I would like to thank the residents and staff at Oaklands Residential Care Facility and the wonderful volunteers Jan and Nan and their talented dogs Jazz, Dayna and Ella. Without their support my project would not have been able to happen!

I would like to thank my mum Margaret and my dad Milton, for their love, support, encouragement and faith in me. I really could not have done it without you both. I would also like to thank Ray, Anne-Marie, Sam and Brooke.

I would like to thank my friends, especially Helen, Ari and Derani for their friendship and continued support, and also Pete, Sian, Mike, Kirrilli, Mark and Leighton who now owes me ten bucks!

I would like to thank Peter and Dr Stark for their support and kindness. I would also like to thank my boss Paul for giving me a job to help pay the rent in my last year of writing up and my flat mate John for his patience over this stressful time.

Finally I would like to thank Chloe, my Burmese cat and most wonderful friend!

Dedication

I would like to dedicate this PhD thesis to all the animals that have brought so much joy to my life – Woofa, Kit Kat, Fee Fee, Tosca, Kauri and to my baby Chloe.

And to my family – my mum, dad, brother and my late great Auntie Laurie, who have supported me, inspired me and helped me to become the person I am today.

And to my whole animal-loving family – the Wordley's and the Stanford's and I can still hear the famous words of my late great Auntie Rill, as in Rill Wirth of the Wirth Circus family. She said with a chuckle:

“The world's gone mad,
And me and Mindy (the dog),
we just sit here”

Forward

≈

By Milton Wordley

In the latter years of my life (I'm 57), I often, like many others grapple with what's it all been about – where do we go from here – has there been any purpose to it all.

It's definitely not been about money, things, achievements, world events, politics, sport or other of the many things that occupy as all day, every day, whether we like it or not.

What it's been about for me is my family and the various animals that have drifted through my life over the years. The animals started with a very beautiful Cocker Spaniel named 'Bridget' and I hope will continue till I am no longer with this earth in a physical sense.

Which brings me to 'Staffordshire Terriers', Staffies for short - describe in a well known dog breeders book, as a cult not a breed of dog.

Kauri is the Staffy in my life right now. She's 10 and starting to slow down.

We were at the Vet the other day, and Jess the young Vet said she might have a heart murmur and asked what I would like to do about it. What she really meant was how much am I prepared to pay for to find out what might be the problem. When I replied do what you need, she said well it could cost up to \$1,000 to find out. My reply was "Do what ever is necessary, money is no object"

Kauri, like most dogs and cats that have drifted through my life, is one of the most important things in my life on a day-to-day basis.

She gives absolute and unconditional love.

She is a joy to share the days with.

Chapter One

≈

Introduction

“Was it possible for a dog – to point humans to the things that really mattered in life? I believed it was. Loyalty. Courage. Devotion. Simplicity. Joy. And the things that did not matter, too. A dog has no use for fancy cars or big homes or designer clothes. Status symbols mean nothing to him. A waterlogged stick will do just fine. A dog judges others not by their color or creed or class but by who they are inside. A dog doesn’t care if you are rich or poor, educated or illiterate, clever or dull. Give him your heart and he will give you his. It was really quite simple, and yet we as humans, so much wiser and more sophisticated, have always had trouble figuring out what really counts and what does not.”

– John Grogan , *Marley & Me*

ANYONE WHO HAS EVER OWNED A PET WOULD PROBABLY IDENTIFY with this extract. Recent statistics report that there are almost as many domestic pets in Australia as people, with three in every five house-holds owning at least one pet (Australian Bureau of Statistics, 1994). The reasons people give for keeping pets include: companionship, recreation and protection. A study that investigated the motives people had for acquiring pets, found that companionship was the principal reason people gave. This was not only for

people living alone, but also for people living in families (Endenburg, Hart & Bouw, 1994). Pets are even thought of as 'family members' (Cohen, 2002), especially in today's modern society where people are waiting longer to have children or choosing not to have children at all. Another study looked at the "surrogate" role of companion animals in women's lives and found that the women showed stronger attachment to their animals either before the birth of their children, or following their children leaving home (Turner, 2001).

Historical perspective

Our relationship with pets, or companion animals as they are often referred to, is not new. Dogs and humans have lived together for thousands of years. Fossil evidence from half a million years ago indicates an association between *Homo erectus* and a canine-like species (Messent and Serpell, 1981). Multiple burial sites, dating back 12,000 years, have also been discovered in Palestine. In one tomb a person was buried with one arm around a puppy and in another a person was buried with two adult dogs (McHugh, 2004). The scientists who discovered the fossil, claim that the arrangement of the burial offers evidence that an affectionate relationship existed between the person and animal (Davis and Valla, 1978). Similar remains have been unearthed in China, Iraq and Chile

(McHugh, 2004). While dogs were the first animal to be domesticated (McHugh, 2004), cats were the last of the familiar domestic animals to be domesticated. Cats were domesticated in ancient Egypt in around 2000 BC (Rogers, 2006). While cats were initially kept as rodent and snake killers, they soon became a cherished pet. From about 1450BC, the family cat regularly appears in party scenes represented on Egyptian tomb walls, typically sitting under furniture (Rogers, 2006), much like its descendants do today!

Our long history with companion animals has, not surprisingly, attracted much literary and research interest. There have been thousands of books and articles written about companion animals. The field of human-animal interaction research has emerged, and we have begun to investigate more closely how companion animals may be of therapeutic benefit to humans. Pet ownership has been found to be of benefit to human health and wellbeing in numerous ways, particularly for elderly people who are often isolated in the community. Large-survey studies in Australia, the United States and Germany have found that pet ownership is associated with better self-reported physical and psychological health, and also fewer visits to the doctor (Headey, 1999; Siegel, 1990; Headey, Grabka, Kelley et al. 2002). The Australian study estimated that dog or cat ownership saved the National health expenditure \$988 million for the 1994-1995

financial year, and argued that governments should subsidise older people to keep pets (Headey, 1999). The American study investigated 938 elderly people aged over 65, and found that people who owned pets visited the doctor significantly less than non-pet owners (Siegel, 1990). Another American study of 369 heart attack victims, reported that pet ownership was a predictor of survival, one year after acute myocardial infarction (Friedman & Thomas, 1995). A study of 148 female university students, found that having a pet was associated with decreased loneliness, and the finding was true for both dog and cat owners (Zasloff & Kidd, 1994). The question of causation has been raised: do pets cause health benefits or do people who are healthy in the first place tend to acquire pets? More experimental research on the effects of pet ownership has been called for (Pachana, Ford, Andrew, Dobson, 2005). One rare experimental study in this area randomly allocated people to adopt a pet (Allen, Shykoff & Izzo, 2001). The participants were non-pet owning stockbrokers with hypertension. Half of the sample was randomly allocated to adopt a pet cat or dog, and all were started on anti-hypertensive medication, which is effective in lowering blood pressure. The study found that those who had adopted a pet demonstrated smaller blood pressure increases while under stress than those who had not acquired a pet. This experimental study suggests that it was the pets that caused the positive health benefits. A British Longitudinal study investigated giving a pet to people

who had not recently owned one, and following their lives over 10 months (Serpell, 1991). The study reported improvements in physical and mental health in the new pet owners and dog owners engaged in more exercise. As well as the documented health benefits of pet ownership in community samples, research has also begun to investigate the therapeutic benefits of companion animals in health-care settings. A recent review of research stated:

“Human-animal interactions are becoming a focus of research in an attempt to document claims that animals make humans feel better and serve as aids to communication, reaching those who show little response to other stimuli”

(Filan & Llewellyn-Jones, 2006, p.1)

One of the earliest scientific articles discussing the possible therapeutic benefits of animals was that of Arline Siegel in 1962, titled *“Reaching the Severely Withdrawn through Pet Therapy”*. At this time, the possibilities of using dogs or cats or other pets therapeutically had been noted, but no systematic study had ever been undertaken. The article reports that as early as 1800, pets were considered of therapeutic benefit to patients at the famous Retreat at York, England. Siegel speculated as to why pets may have a therapeutic effect:

“The animal does not judge but offers a feeling of intense loyalty to persons who need that feeling. It is not frightening or demanding, nor does it expose its master to the ugly strain of constant criticism. It provides its owner with the chance to feel important, knowing that the pet’s dependency is on him.”

(Siegel, 1962)

One of the earliest recorded accounts of the therapeutic use of animals was that of Boris Levinson in 1984 (Katcher & Beck, 1983; Ruckert, 1987; The State Hospital, 2007). A case study was described of a child who had been making no progress during psychotherapy until the child incidentally met up with Levinson’s dog, and the meeting marked an upturn in the child’s progress towards greater wellbeing.

Today, while still in its infancy, the use of animals therapeutically is a growing mode of therapy. A small number of animal therapy programs are currently offered in health care settings such as nursing homes, rehabilitation centres, developmental centres, acute care, psychiatric centres, and hospices (Velde, Cipriani & Fisher, 2005). The focus of the present study is on Animal-Assisted Interventions for people with dementia. I would like to digress to discuss a current animal therapy centre in a psychiatric facility that is, to the best of my

knowledge, the only one of its kind in the world and is a pioneer in this area. This centre could be replicated and trialed in other health care settings such as nursing homes for people with dementia.

At the recent *International Companion Animal Welfare Conference* held in Italy in 2008, I was fortunate enough to meet with Alexandra More from The State Hospital in Scotland. The State Hospital, a high security psychiatric facility, recently produced a booklet "*Animals as Therapy in Mental Health*" which reports the therapeutic benefits of their Garden and Animal Therapy Centre (*The State Hospital, 2007*). In the centre they have a wide variety of animals including: rabbits, guinea pigs, pygmy goats, ducks, fish, a chipmunk, a blind cat and visiting dogs. The majority of patients have a primary diagnosis of schizophrenia and participate in group and individual animal therapy sessions. The State Hospital has carried out two small research projects. Reported benefits of the Garden and Animal Therapy Centre include: increases in social interaction and decreases in physical and verbal aggression. Dr John McGinley, Psychology Director, at the hospital states:

"Sparked by the enthusiasm of staff, patients' lives have been normalized through a shared experience of common ownership of the large variety of animals within the Centre;

we see them as important sources of social support that provide non-judgemental companionship. Patients' engagement with pets could well be the key that opens the door to engagement in other therapeutic programmes and must be considered as an important adjunct to a holistic approach to patient recovery of health and wellbeing."

Animal-Assisted Interventions for people with dementia

As stated above, the present study will investigate Animal-Assisted Interventions for people with dementia. There is currently international consensus about what is meant by "Animal-Assisted Interventions". Animal-Assisted Interventions can be: "Animal-Assisted Therapy" or "Animal-Assisted Activities". These are the current preferred terms according to The Delta Society¹. The term "Pet Therapy" has also been widely used in the past, and recently "Dog-Assisted Therapy" and "Dog-Assisted Activities" have been suggested as dogs are mostly involved (Perkins, Bartlett, Travers & Rand, 2008).

The Delta Society defines "Animal-Assisted Therapy" (AAT) as:

"a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process. AAT is directed and/or delivered by a health/human service professional with specialized expertise, and within the scope of practice of his/her profession"

¹ The Delta Society is an internationally-recognised non-profit organisation that aims to advance human health and wellbeing through positive interactions with animals and by incorporating therapy, service and companion animals into people's lives.

The Delta Society distinguishes between Animal-Assisted Therapy and Animal-Assisted Activities and defines “Animal-Assisted Activities” (AAA) as:

“AAA provides opportunities for motivational, educational, recreational, and/or therapeutic benefits to enhance quality of life. AAA are delivered in a variety of environments by specially trained professionals, paraprofessionals, and/or volunteers, in association with animals that meet specific criteria.”

As this emerging field of research has evolved, the terminology and definitions used by researchers and professionals has also evolved. Previous research has largely used the terms “Animal-Assisted Therapy” and “Pet Therapy” interchangeably to describe Animal-Assisted interventions whether they were delivered by professionals or volunteers. The current thesis will use these terms when describing previous research in order to remain consistent with the terminology used in the previous scientific papers. The term “Pet Therapy” was also used in the current research interview studies with residents, family and staff members as this still remains the most widely-used term in the non-scientific community. However, the current research will use the term “Animal-Assisted Activities” (AAA) to describe the Animal-Assisted intervention implemented in studies two and three as the intervention more closely fits with

the definition of AAA (rather than AAT). The intervention was not goal directed and was delivered by volunteers in association with their animals that met specific criteria. It is hoped that these points of definition will help to further this emerging field.

It is also necessary to define “dementia”. Low, Gomes and Brodaty (2008) explain that dementia is the umbrella term used to describe the symptoms of a heterogeneous group of disorders which cause a progressive decline in a person’s functioning. Dementia symptoms include the loss of memory, intellect, rationality, social skills and what would be considered normal emotions. Dementia can strike anybody but it is more common after the age of 65 years. Age is the greatest risk factor for dementia (Low et al. 2008).

Causes of Dementia

Low et al. (2008) describe the following forms of dementia and their causes. There are many different forms of dementia and each has its own cause. The most common form of dementia is Alzheimer’s disease. Between 50% and 70% of all dementia cases diagnosed are attributed to Alzheimer’s disease. Alzheimer’s disease is a progressive, neurodegenerative illness. There is currently no consensus on the causes of Alzheimer’s disease. It is currently

understood that as brain cells shrink or disappear, abnormal material builds up as neurofibrillary tangles in the centre of the brain cells, and beta-amyloid plaques outside the brain cells. These disrupt messages within the brain, damaging neuronal connections between brain cells. The brain cells eventually die and this means that information cannot be recalled or assimilated. As the disease affects each area of the brain, certain functions or abilities are lost, such as memory and impairment to thinking and problem-solving capabilities (Low et al. 2008).

The second most common form of dementia is Vascular dementia, which is the broad term for dementia associated with problems of circulation of blood to the brain. Other forms of dementia include: alcohol-related dementia (Korsakoff's syndrome), Dementia with Lewy bodies and Fronto Temporal Lobar Degeneration (FTLD). A mixture of different types of dementia can occur in some people. Dementia also often accompanies other diseases such as: Parkinson's disease, Huntington's disease and Creutzfeldt-Jacob disease. It is important to note that most cases of dementia are not inherited. The early signs of dementia are very subtle and may include the common symptoms of: progressive and frequent memory loss, confusion, personality change, apathy and withdrawal, and loss of ability to perform everyday tasks. Subtle changes in

cognition and function can occur up to ten years before symptoms are apparent. The median survival time after symptom onset is 4.5 years; this varies with age and dementia subtype. There is currently no known prevention or cure for most forms of dementia. However, some medications have been found to reduce some symptoms (Low et al. 2008).

It is estimated that around 200,000 Australians aged 65 years or older currently have dementia and with the projected rise of Australia's aged population, it is estimated that the number of people living with dementia will increase to almost 465,000 by 2031 (Department of Health and Ageing, Australian Government, 2008). This will result in a substantial increase in the burden imposed by the disease together with increased demand for dementia care (Australian Institute of Health and Welfare, 2007).

Dementia greatly impacts on sufferers and very frequently behavioural and psychological symptoms (BPSD) such as agitation, aggression, wandering and noisiness accompany dementia. These behaviours often increase during the sundown time of day, which occurs late in the afternoon when the sun is setting. "Sundown Syndrome" is a common and recognisable phenomenon for those who provide care for people with dementia. During sundown, orientation seems

to be disrupted by the dim light and other changes that sundown brings in the sensory environment (Paiva, 1990). Behavioural changes of sundown syndrome include increased restlessness and verbal behaviour (Evans, 1987) confusion, aimless wandering; paranoia; agitation and aggressive behaviour, such as hitting, kicking and biting directed towards staff, family or other patients (Churchill, Safaoui, McCabe and Baun, 1999).

Dementia also greatly impacts on family members and care givers who, in severe cases, can no longer communicate with their loved one. Most people in Australia with advanced dementia live in Residential Care Facilities as their care needs increase with the progression of the disease (Australian Institute of Health and Welfare, 2007). It is estimated that up to three-quarters of residents in Australian Residential Aged Care Facilities have either possible or probable dementia and the management of dementia symptoms is central to their care (Australian Institute of Health and Welfare, 2007).

As stated above, there is currently no known cure for most forms of dementia but some medications have been found to reduce some symptoms. Until recently, pharmacological regimes were used to treat the problematic behaviours of dementia, but increasing concerns over their modest efficacy, significant side

effects such as reduced responsiveness, and reduced quality of life for sufferers (Moniz Cook, De Vugt, Verhey & James, 2009; Ballard & Cream, 2005) have resulted in calls for non-pharmacological approaches as the first line interventions (Moniz Cook et al. 2009; Howard, Ballard, O'Brien & Burns, 2001; NICE, 2006). Non-pharmacological therapies for dementia include, but are not limited to: aromatherapy, massage, reminiscence therapy, physical activity programs, snoezelen (defined below) and music therapy. Aromatherapy is the use of pure essential oils from fragrant plants (such as Peppermint, Sweet Marjoram and Rose) to help relieve health problems and improve quality of life. A recent review of current research investigating the use of aromatherapy for dementia reported some positive effects on measures of agitation and neuropsychiatric symptoms, but the authors recommended that more large-scale randomized controlled trials be conducted before firm conclusions can be reached about the effectiveness of aromatherapy (Holt, Birks, Thorgrimsen, Spector, Wiles & Orrell, 2009). Massage and touch interventions are also used for people with dementia. A recent review of research has found some evidence for hand massage in the immediate or short-term reduction of agitated behaviour and also the addition of touch to verbal encouragement to eat for the normalization of nutritional intake. However, more research has been recommended to provide definitive evidence about the benefits of massage for

people with dementia (Hansen, Jorgensen & Ortenblad, 2008). Reminiscence Therapy involves the discussion of past activities, events and experiences with another person or group of people, usually with the aid of prompts such as photographs, familiar items from the past, music and sound recordings. A review of research has found evidence for reminiscence therapy, with improvements in cognition, mood and on a measure of general behavioural function. However, some studies were very small, or poorly designed and more high quality research has been recommended (Woods, Spector, Jones, Orrell & Davies, 2009). Physical activity programs are also used for people with dementia. There is some evidence that physical activity delays the onset of dementia in healthy older adults and slows down cognitive decline to prevent the onset of cognitive disability. However, a review of research concluded that there is insufficient evidence to be able to say whether or not physical activity programs are beneficial for people with dementia and further well-designed research is required (Forbes, Forbes, Morgan, Markle-Reid, Wood & Culum, 2008). Snoezelen, multi-sensory stimulation, provides sensory stimuli to stimulate the primary senses of sight, hearing, touch, taste and smell. This is achieved through the use of lighting, tactile surfaces, meditative music and the odor of essential oils. A recent review of research has found no evidence of the efficacy of snoezelen programs for people with dementia and recommends more

sound research to inform and justify the use of snoezelen in dementia care (Chung & Lai, 2009). Music therapy is also used for people with dementia. A review of research has concluded that there is no substantial evidence to support or discourage the use of music therapy in the care of people with dementia. The methodological quality of available research was generally poor and further well-designed research was recommended (Vink, Birks, Bruinsma & Scholten, 2009). While the effects of these various treatment approaches are modest, at best, (Perkins, Bartlett, Travers & Rand, 2008) the benefits of Animal-Assisted Interventions for people with dementia appear to be quite promising. Recent reviews of research in this area have found that Animal-Assisted Interventions have demonstrated some promise in increasing social behaviour and reducing the behavioural and psychological symptoms (BPSD) in people with dementia (Folan & Llewellyn-Jones, 2006; Perkins et al. 2008). This body of research will be reviewed in more detail later. As stated previously, the present study will further investigate this promising area of Animal-Assisted Interventions for people with dementia. Before turning to the research previously conducted in this area, theories about why Animal-Assisted Interventions may be effective for people with dementia will be discussed.

Theories about why Animal-Assisted Interventions may be effective for people with dementia

The mechanisms which operate are unclear but I will outline the major current theories about the effectiveness of Animal-Assisted Interventions for people with dementia. Therapy dogs may produce positive effects with elderly people with dementia through several mechanisms. One is by inducing relaxation. Studies have shown that petting a dog with whom a companion bond has been established has a relaxing effect by decreasing blood pressure in healthy participants, and decreasing blood pressure and increasing peripheral skin temperature in hypertensive patients (see Baun, Oetting & Bergstrom, 1991 for a review). One study assessed the effects of petting a dog with whom a companion bond had been established, compared with petting a non-bonded dog (Baun, Bergstrom, Langston & Thoma, 1984). The study employed a within-subject experimental design where 24 healthy participants read quietly, petted a non-bonded dog, and petted a bonded dog. The order of the treatment conditions was randomly assigned. Blood pressure, heart rate and respiratory rate were recorded at 3-minute intervals for each of the 9-minute treatment sessions. The results indicated that petting a bonded dog significantly decreased the systolic and diastolic blood pressure of participants. A recent study has also shown that both humans and pet dogs respond to quiet interaction with a

lowering of blood pressure and increase in neurochemicals associated with relaxation and bonding (Odendaal & Meintjes, 2003). It has been suggested that this physiological reaction may contribute to effective 'pet therapy' and these effects may also be of benefit in ameliorating behavioural and psychological symptoms of dementia (Filan & Llewellyn-Jones, 2006).

It has also been suggested that distraction is another potential mechanism by which the presence of a therapy dog could benefit people with dementia. A therapy dog may stimulate reminiscence and memories of past pets, thereby distracting the resident from displays of agitation (Churchill et al. 1999).

It has also been suggested that a therapy dog can provide the missed physical contact often experienced by people with dementia (Churchill et al. 1999). As stated previously, people with dementia often need to move into care facilities as the disease progresses and families are no longer able to provide the level of care needed. Families may not be able to visit frequently and staff members are limited in the time they can spend with each individual resident. Churchill et al. (1999) argue that as a result, people with dementia may experience a loss of personalized affection after they move into institutionalized care. They suggest that a therapy dog can provide the missed physical contact by allowing petting,

kissing and hugging. They also touch on the unconditional acceptance a pet can provide:

“The therapy dog can provide missed physical contact to a patient with Alzheimer’s disease – it matters little to the pet if the person’s body has deteriorated or if the stories are repeated over and over”

(Churchill et al. 1999, p. 18)

Churchill et al. (1999) and Batson, McCabe, Baun and Wilson (1998) state that touch may fulfill many functions, such a comfort and contact with reality, and has been suggested as a necessary element of mental and physical health (Weiss, 1979).

A summary of the previous research conducted to date on Animal-Assisted Interventions for people with dementia will be presented below. The specific studies will be reviewed in detail in the introduction of the relevant chapters in the remainder of this thesis.

Summary of previous research on Animal-Assisted Interventions for dementia

At the time of writing, there were 12 published studies investigating Animal-Assisted Interventions for people with dementia. Eight studies were conducted

in the USA, two in Japan, one in the Netherlands and one in Australia (this is reason enough to conduct further research in this emerging field in Australia). The sample sizes were small, varying between four and 28 participants. However, small sample size in this field of research is reflective of the challenging nature of conducting research with people with dementia in busy care facilities. All studies included participants with a diagnosis of dementia or Alzheimer's Disease (AD) as documented in the resident's chart. Dementia severity ranged from mild to severe, although Kongable, Buckwalter and Stolley (1989) and McCabe, Baun, Speich and Agrawal (2002) did not report dementia severity. Motomura, Yagi and Ohyama (2004) independently verified the diagnosis and Richeson (2003) specified a MMSE score of 15 or less in addition to the dementia diagnosis. Several studies also included additional inclusion criteria such as the presence of challenging behaviours during "sundown" and that the resident "liked" animals or had an existing prior positive relationship with animals (Sellers, 2005; Richeson, 2003; Churchill et al. 1999).

While the format of intervention trialed and outcome measures varied considerably across studies, the findings were quite consistent. The studies consistently found that Animal-Assisted Interventions for people with dementia reduced problem behaviours such as agitation and aggression (eg. Walsh,

Mertin, Verlander and Pollard, 1995, Churchill et al. 1999, Kanamori, Suzuki, Yamamoto, Kanda, Matsui, Kojima, Fukawa, Sugita and Oshiro, 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005) and also improved social behaviours such as communication and responsiveness (eg. Kongable et al. 1989, Batson et al. 1998, Churchill et al. 1999, Greer, Pustay, Zaun and Coppens, 2001, Richeson, 2003, Sellers, 2005, Enders-Slegers, Sturop and Thomas, 2005), at least during the intervention while the animals were present. Results regarding the ongoing effects, after the intervention, have been limited. This will be discussed further in the following section. Some studies controlled for the severity of dementia and found that the positive response to the Animal-Assisted Intervention is independent of dementia severity (Churchill et al. 1999, Richeson, 2003, Batson et al. 1998).

A summary of the limitations of the previous research will be presented below. As stated previously, the specific studies and their limitations will be discussed in detail in the introduction of the relevant chapters.

Limitations of previous research

While the studies conducted to date have demonstrated some important findings and been instrumental in forging ahead this new field of scientific enquiry, they

are not without their limitations. Many studies assessed residents' behaviour immediately before and after the Animal-Assisted intervention (eg., Kanamori et al. 2001, Walsh et al. 1995, Motomura et al. 2004) but did not provide assessment *during* the intervention. More research that includes ongoing measures is important to enable us to chart the ongoing effects of Animal-Assisted Interventions. Also, most studies investigated the immediate or short-term effects of Animal-Assisted Interventions (eg., McCabe et al. 2002, Motomura et al. 2004, Kongable et al. 1989, Churchill et al. 1999, Batson et al. 1998) but the *longer term* effects of Animal-Assisted Interventions have been largely neglected by the current research. Only one study included a washout or follow-up phase (Richeson, 2003). More research that includes follow-up data is needed to allow us to examine the longer term effects and observe what happens when the dog is *removed*. Only three studies controlled for *human-interaction* effects (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005). More research that allows us to examine the effects when the volunteer visits without the dog and evaluate the unique contribution of the dog is needed. Only three studies included *physiological* measures as well as behavioural measures (Batson et al. 1998; Walsh et al. 1995; Kanamori et al. 2001). More research that includes physiological and behavioural measures is needed to allow a more comprehensive investigation of the effects of Animal-Assisted Interventions.

There also appears to be a lack of *qualitative* data investigating Animal-Assisted Interventions for people with dementia. None of the studies reviewed included qualitative data about the experience of the Animal-Assisted intervention by residents, staff or family members. Qualitative data is necessary to explore the opinions and perspectives of the people most directly involved with the intervention, namely the residents, staff and family members. However, there has been a small body of qualitative research investigating the benefits of pet ownership (for example: Endenburg, Hart, and Bouw 1994; Turner, 2001; Cohen 2002) and a couple of studies specifically investigating pet ownership in elderly people (Enders-Slegers, 2000; Chur-Hansen, Winefield, Beckwith, 2009). These studies will be reviewed in detail in the following chapter.

The present study

The present program of research aims to address the previous research limitations, described above, in the following ways:

1. *Collecting qualitative data*
2. *Including ongoing outcome measures*
3. *Including physiological measures*

4. *Investigating the longer-term effects of an Animal-Assisted intervention*
5. *Controlling for human-interaction effects*

The present program of research conducted four studies. The first study was a qualitative study that interviewed nursing home residents about their experiences with pet ownership prior to the Animal-Assisted intervention. It is hoped that the residents' comments about the benefits of pet ownership might throw light on some of the mechanisms through which having a pet in the nursing home (even for just a visit) might bring psychological benefits.

The second study was a trial of a visiting dog Animal-Assisted intervention program for people with dementia living in residential care. The study included ongoing outcome measures during the intervention to examine the ongoing effects of the intervention. Physiological as well as behavioural measures were collected to gain a more complete understanding of the effects of Animal-Assisted Interventions. It also included a follow-up period to examine the longer term effects and what happens when the dog is removed.

The third study was a control trial that aimed to control for human-interaction effects by evaluating the effects where the volunteer dog handler visits without the dog to evaluate the unique contribution of the dog.

The fourth study was a qualitative study conducted after the two intervention studies that aimed to explore the opinions and experiences of residents, staff, family members and volunteer dog handlers with regard to the Animal-Assisted intervention.

The aims of the four studies and the outline of the present program of research will be summarised on the following pages.

The aims of the four studies are:

1. To explore the opinions and experiences of nursing home residents with regard to previous pet ownership, leaving their pet behind as a result of moving into the nursing home and current experiences with pets in the nursing home, prior to the introduction of the Animal-Assisted intervention.
2. To investigate both the short and longer-term behavioural and physiological effects of an Animal-Assisted intervention program, using therapy dogs and experienced handlers, for people with dementia living in a residential care facility. To measure the ongoing effects throughout all phases of the study: baseline, intervention and follow-up (after the intervention program is removed).
3. To control for human-interaction effects by conducting a trial where the volunteer visits with out the therapy dog
4. To explore the opinions and experiences of residents, staff, family members and volunteer dog handlers after the intervention.

Outline of the present program of study:

Study 1: An exploratory interview study that aims to investigate the lived experience of elderly people living in residential care, in relation to previous pet ownership and also current experience with animals in the facility.

Study 2: A trial of an Animal-Assisted intervention program for people with dementia living in a residential care facility, that aims to investigate immediate and longer-term changes in behavioural and physiological measures across baseline, intervention and follow-up periods.

Study 3: A trial that aims to control for human-interaction effects by measuring the behavioural and physiological effects on the same group of dementia residents when the volunteer dog handlers visit without the dogs (ie. the Animal-Assisted intervention program without the dogs).

Study 4: A follow-up interview study that aims to investigate the experience of residents, facility staff, residents' family members and the volunteer dog handlers, with regard to the Animal-Assisted intervention.

Chapter Two

≈

“The hardest part was leaving the dog behind...”

Study 1: Interview Study with Nursing Home Residents

*“Animal are such agreeable friends – they ask no questions,
they pass no criticisms.”*

- George Eliot

Introduction

Aim of Study

As stated in chapter one, the aim of this initial exploratory study was to investigate the lived experience of elderly people living in residential care, in relation to previous pet ownership, having to give up their companion animal when they moved into care and also current experiences with visiting and resident animals in the facility.

Previous research and theory

As outlined in the introductory chapter, there is a limited body of qualitative research conducted that investigates elderly people's lived experience in terms of the psychological and physical benefits they derive from companion animals, and there appears to be no previous qualitative research investigating nursing home residents lived experience of having to give up their pet when they moved into care or their current experiences with animals in the facility. The potential negative effects of giving up a pet are outlined by Bustard (1980):

"One of the worst things we can do to old people who are living alone is to remove them to a convalescent nursing or other retirement home, or an apartment where pets are not allowed. They are denied their companion animal, which is about the only thing that gives them unconditional love and affection." (Quoted in Hogarth-Scott, 1982, p. 4)

Qualitative methodology was deemed appropriate because of the exploratory nature of this study, and because there was little previous research or theory to guide the research. Qualitative research using in-depth interviews has the advantage of being open-ended, therefore themes may be identified that have not previously been considered as important, and these may be helpful in

understanding the mechanisms at work in the relationship between pets and health (Chur-Hansen, Winefield & Beckwith, 2009).

The few qualitative studies conducted to date will be described below. Only two studies deal exclusively with people over the age of 65 years (Enders-Slegers, 2000, Chur-Hansen, Winefield & Beckwith, 2009).

Endenburg, Hart, and Bouw (1994) conducted a qualitative study that involved in-depth interviews with 30 companion-animal owners and 10 non-owners in the Netherlands. They followed up their interview study with a large quantitative study based on the initial qualitative study. Of the respondents in the quantitative study, 471 (54%) had companion animals and 400 (46%) had not. Participant ages for either study were not reported. From the in-depth interviews, they analysed the reasons for pet ownership and found that “social reasons” were the most important. They divided social reasons into five categories: companionship (“*We have him because we wanted some company*”), childrearing considerations (“*They will learn responsibility, something that will react to them*”), tactile contact (“*He likes to be touched, and I like to touch him*”), attachment (“*When I come home he is always waiting*”) and care (“*It is nice to take care of somebody. You feel that you are needed*”). Companionship was by far the

most common reason, with 79% of interviewees talking about this. The quantitative study yielded similar results, with 92% of the respondents replying that the most important reason for pet ownership was companionship.

Turner (2001) conducted a small qualitative study that consisted of in-depth interviews with eight women, ranging in age from early 20's to mid 60's, about their previous experiences of euthanizing a companion animal. During the interviews the women frequently described the animals as members of the family, as in the quote below, taken from page six of Turner's paper:

"I know a lot of people get very, very attached to their pets, and I can see that our pets have been like family members... she (the dog) was a member of the family"

Turner (2001) also reported that the attachment was stronger for women who didn't have children living with them, whether that was prior to having children (if at all) or after their children had left home, illustrated by this quote from page six of Turner (2001):

“Well, I don’t have children, and probably won’t. So, they (cats) were a lot like my children. You know, I talk to them, and well – when I was single – they used to eat with me. They’d sit on the table.”

Cohen (2002) conducted a large questionnaire study with 201 pet-owners about the role of a pet in the family and then 16 of these further participated in in-depth interviews. The age of participants in both studies was not reported. In the interview study, when asked to describe the differences between pets and human family some interviewees noted that pets never sent mixed signals nor made the conflicting demands that make human relationships a challenge: *“They never ‘need their space,’”*, *“They never need adventure and security at the same time,”* and *“You can have your privacy, and yet you don’t have to be alone”* (pp. 631, Cohen, 2002). The author also reported that more than one third of people interviewed said their pets were sensitive to human feelings but, unlike people, did not impose their own moods, for example; pets were *“always cheerful, pleasant”* (pp. 631, Cohen, 2002). Several participants also spoke about their pets’ ability to convey love and to make people feel safe. Participants were also asked what they would do in forced-choice situations. One situation was: *“Suppose your doctor told you that living with your pet was causing you a significant health problem. What would you do?”* They were also asked the same question in relation to

“a particular person”. Most people said they would work around it, treat the pet allergy etc. even if it was expensive or unpleasant. Four participants said they would never give up a pet, no matter what health problems resulted. Cohen (2002) reported that the participants expressed less distress about deciding what to do in the situation of the person making them sick. Four people (three currently lived with a partner) said, without hesitation, that either they or the person would have to move out! Participants’ decisions were generally based on how much they liked the other person. The second forced-choice question was concerned with which family member they would rescue first if a boat tipped over. Seven people (including four who lived with a partner or child) chose to rescue their pet first. People explained that they were picking the family member who was the most helpless.

Enders-Slegers (2000) conducted in-depth interviews with 96 elderly people in the Netherland aged between 70 and 81 years. The interviews asked questions about the meanings, interactions and arrangements made for their pet, in case they became ill or died. The interview study was part of a larger longitudinal study that collected qualitative and quantitative data from elderly people aged 70 years and over. Of the 96 people interviewed, 74% were female and 60 people were current pet owners. The sample consisted mostly of people living

independently in the community, however 12 people living in homes for the aged were also interviewed. Three of the twelve people living in nursing homes currently owned a pet. Ender-Slegers (2004) notes that as pet ownership is not permitted in most of the residential home for the elderly (as is also the case here in Australia), a significant relationship between pet ownership and living circumstances was found. The interviews with community dwelling and institutionalised pet owners and non owners were analysed together. The theory of 'social provisions' by Robert Weiss (1974) was used to understand the apparent links between pet ownership and human health. The six social provisions, as they related to the human-pet relationship, were described and examples from the interviews were used: attachment/emotional closeness (*"He is my 'close' companion", "We love him as our child"*), opportunity for nurturance (*"Caring gives me the feeling of being useful", "I feel responsible for his well-being"*), reassurance of worth (*"So distressing when no one needs you; but my dog could not survive without me, he needs me", "It gives me a reason to live for"*), social integration (*"He (the pet) makes me feel part of society", "It made making contact with other people easy; now we do all kinds of things together"*). The social provisions of reliable alliance and guidance were not as clearly supported by the interviews. Attachment or 'emotional closeness' was identified as the most important social provision provided from a relationship with a companion animal. As well as the

social provisions identified, the data relating to issues of loneliness, life satisfaction, plans for the future, finances, safety, social contacts and mobility was also analysed. Enders-Slegers (2000) reports affects on life satisfaction:

“Observing the actions of a cat or dog made participants smile, have fun, gave them stories to tell family and friends, and distracted them from physical as well as psychological distress.” (p. 252)

Of particular interest to the present study was the interview data collected on the arrangements made for their pet, in case they became ill or died, however, unfortunately this data was not reported.

Chur-Hansen, Winefield and Beckwith (2009) conducted in-depth interviews with eleven elderly women, aged from 66 to 90 years, about their experiences with their companion animal(s). Qualitative methods were used to consider themes that emerged from the data. Chur-Hansen et al. (2009) reported that a number of themes emerged from the data and that all of these can be related to the central theme of ‘attachment’. Even though the word ‘attachment’ was not used, participants discussed ‘love’ for their pet, which the authors describe as the ‘lay sense of the word attachment’. For example:

"Their company, their unconditional love, they're just, they're just, they just love you, they just don't worry about anything" (pp. 284)

Of particular interest to the present study, one person interviewed spoke of not wanting to give up her pet should she have to move to alternative accommodation:

"There's a lot of units won't let you have pets. I think it's uh, you know, people have a pet and then they've got to give it up. I don't think I could give it up to go to a unit... unless they, I could take it" (pp. 284)

Other themes identified include: pets as family members (*" I've got children and I adore my children... but these little creatures actually live in my house with me"*), preference of animals over people (*"I would rather an animal than a person, animals don't talk back, they don't argue, they won't hurt you"*) companionship (*"I mean so many people never have any touch in their lives and um, you do get isolated very often if your partner dies or whatever and then, if you've got a companion, it just makes a big difference I think."*) caring (*"It gives you an outlet and you've got someone else to think of but yourself"*) and physical benefits (*"I like to walk and they (dogs) walk with me"*).

The interview participants also discussed plans made for their pets should they be unable to take care of them themselves. All interview participants spoke of the loss of a pet through death, and for some participants it caused significant mourning:

“When the dog died we both grieved for a month. We didn’t eat or sleep properly. I think it was probably more like six months.... I couldn’t have suffered more if a child of mine had died” (pp. 288)

Limitations and gaps in literature

While there is a small body of qualitative research investigating pet ownership, and a couple of studies focusing purely on elderly pet owners, (as discussed above) there doesn’t appear to be any qualitative research with regard to pets in Residential Care Facilities. None of the quantitative studies summarised in chapter one included any formal qualitative data analysis about the experience of Animal-Assisted programs in the facility, by the people most directly involved with it, namely the elderly residents themselves. While a few studies discuss the impact of the loss of a pet through death, my search of the relevant literature has revealed that no qualitative research to date has investigated the lived experience

of elderly people moving into a care facility and losing their pet through having to give it up. It would also be interesting to learn about their subsequent personal experience with Animal-Assisted programs and pets in the facility? Does this help with their loss?

There are obvious concerns with interviewing residents with dementia about issues that require retrieval of past experiences. It is for this reason that we chose to interview only cognitively unimpaired residents. However, without being directly asked, some of the residents interviewed volunteered information about the perceived experience of their co-residents with dementia, in relation to pets in the facility.

Therefore, the aim of this initial exploratory study is to investigate the lived experience of elderly people living in residential care, in relation to previous pet ownership, having to give up their companion animal when they moved into care and also their current experiences with Animal-Assisted programs and animals in the facility.

Method

Participants

Six residents from two South Australian Residential Care Facilities participated in face-to-face interviews with the author as part of a small exploratory study to investigate older people's opinions and experiences regarding pet ownership prior to moving into care, and Animal-Assisted programs whilst living in care. Ethics approval for this study was given by the University of Adelaide Human Research Ethics Committee and the participants gave informed consent to participate. See Appendix A for a copy of participant consent form and project information sheet given to participants. Five females and one male were interviewed. The age range of participants was 79 years to 87 years, with a mean age of 81.2 years. Three participants discussed their dog, two discussed their cat and one participant spoke about their dog and pet fish and birds. The length of pet ownership ranged from 1.5 years to 15 years, with a mean of 7 years. There were no obvious differences in themes according to age, gender, type of pet or length of ownership. Three residents spoke of having to "give up" their pet before moving into the nursing home. These animals now all live with relatives. One of these residents also spoke of being able to bring their pet fish and birds

with them into the nursing home. Two residents spoke of having to have their pet put-down shortly before moving into the nursing home. One resident spoke of their pet running away shortly before moving into the nursing home. Any differences in themes noted will be discussed in the sections to follow.

Measures

All interviewee's were asked the same set of questions. See Appendix B for a copy of the interview questions. The questionnaire was developed for use in this study by the author, in consultation with primary supervisors and Residential Care Facility staff.

Procedure

The interviews were conducted during the day at convenient times in the residents' private rooms at the Residential Care Facilities. The facilities were approached through a personal contact at one of the facilities and the Director of Nursing of both facilities was approached for permission to conduct the research. Residents were recruited with the assistance of facility staff and approached to be part of the study. Each interview lasted approximately 30 – 45 minutes in

duration. The interviews were tape recorded and later transcribed by a professional transcribing service (supported by university funding). The transcriptions were also checked for accuracy by the author.

Design and Analyses

This initial study was an exploratory interview study and the data was analysed using Thematic Analysis (as described in Braun & Clarke, 2006). Braun and Clarke (2006) argue that thematic analysis is widely used in psychology, but there is no clear agreement about what thematic analysis is and how you go about doing it. They define thematic analysis as a “method for identifying, analysing and reporting patterns (themes) within data. It minimally organizes and describes your data set in (rich) detail” (p. 79). They offer a 6-phase guide to performing thematic analysis, which includes: familiarizing yourself with your data; generating initial codes; searching for themes; reviewing themes; defining and naming themes and producing the report. The present interview data was analysed according to their proposed method of thematic analysis as it offers a structured way of performing this type of analysis.

Braun and Clarke (2006) also recommend a number of decisions be made before thematic analysis begins. These include: what counts as a theme, whether a rich description of the data set or detailed account will be used, inductive versus theoretical thematic analysis, semantic or latent themes, and essentialist/realist versus constructivist approach. These decisions will be discussed below.

Firstly, the authors suggest it is important to consider what counts as a theme. According to Braun & Clarke (2006) “a theme captures something important about the data in relation to the research question, and represents some level of *patterned* response or meaning within the data set” (p. 82). They also raise the question of what ‘size’ does a theme need to be for it to be considered a theme? Does it need to be present in 50% of one’s data items, and if it was only present in 47%, then it would not be a theme? They argue that this is not the case and there is no hard-and-fast answer to the question of what proportion of your data set needs to display evidence of a theme for it to be considered a theme. They suggest that researcher judgement is necessary to determine what a theme is. The authors also suggest it is also important to determine whether your analysis will provide a rich description of the whole data set, or a detailed account of one particular aspect. A rich description of your entire data set gives the reader a sense of the predominant or important themes evident in the *whole* data set, and

is particularly useful when investigating an under-researched area. However, sometimes this results in some depth and complexity being lost. The second method, on the other hand, provides a much more detailed account of one particular theme, or group of themes, in the data. As the present study is exploratory in nature and there is little previous research, a rich description of the entire data set will be given.

Braun and Clarke (2006) also suggest that it must be decided whether inductive or theoretical thematic analysis will be used. The authors outline the two primary ways of identifying themes or patterns within data in thematic analysis: in an inductive or 'bottom up' way or in a theoretical or deductive or 'top down' way. In an inductive approach the themes are strongly linked to the data themselves or 'data driven'. In contrast, a theoretical thematic analysis tends to be driven by the researcher's theoretical interest in the area, and more 'analyst-driven'. Given that the present study is an under-researched area, an inductive or 'bottom up' approach will be used.

The authors also argue that another decision exists around the 'level' at which themes are to be identified: at the semantic or explicit level, or at a latent or interpretive level. In the semantic approach, the themes are identified within the

surface meanings of the data, and the researcher is not looking for anything beyond what the participant has said. A latent approach goes beyond this and starts to examine the underlying ideas, assumptions and conceptualizations. The current study will adopt the semantic approach due to the preliminary and exploratory nature of the study. The authors also touch upon whether an essentialist/realist or constructivist approach will be taken. In an essentialist/realist approach the researcher can theorize motivations, experience, and meaning in a straightforward way. However, from a constructivist perspective, meaning and experience are socially produced, rather than inhering within individuals. The present study will adopt a realist approach.

As discussed above, in the present study it was decided to consider meanings across the whole data set, use an inductive thematic analysis approach, use semantic themes, and adopt a realist approach. Now we turn back to the 6-phase thematic analysis, which begins with familiarizing yourself with your data:

1. Familiarizing yourself with your data

This phase involves transcribing the data, reading and re-reading the data and noting down initial themes. As stated, the data was transcribed by a professional transcribing service and then the transcripts were also checked back against the

original audio recordings for 'accuracy', by the author. The data were then read and re-read (this process is called 'immersion') and initial themes were noted. After reading and re-reading the interviews and noting down initial themes, it was apparent that no new themes were emerging from the data. It was decided by the author that the data from the interviews had reached saturation, as no further themes were identified in the data.

2. Generating initial codes

After reading and re-reading the data, initial codes were generated. The data was coded manually by writing notes on the texts, using highlighters, coloured pens and post-it notes to identify segments of data. Initial codes were then identified and matched with the data extracts.

3. Searching for themes

Once all the data was initially coded and collated, then the analysis was re-focused at the broader level of themes, rather than codes, which involved sorting the different codes into potential themes and collating all the relevant coded data extracts within the identified themes. Initial themes were then identified.

4. Reviewing Themes

Data extracts were also cut out and assembled on the floor in order to gain an over-all view of the data and review preliminary themes. As a result of this, overlap was identified and themes were merged.

5. Defining and Naming Themes

A number of themes emerged from the data. The final themes and illustrative quotes from the interviews are provided in the results section below. These themes have been organised under the following three headings: benefits of (previous) pet ownership, losing/giving up pet when moved into nursing home and benefits of visiting/resident animals in the nursing home. Real names have been replaced with Resident 1, 2, 3... etc. to protect the privacy of the residents interviewed.

Results

Benefits of (previous) pet ownership...

Love

A theme that was evident in all of the interviews was the love and affection people had for, and received from, their pets. This could also be described as the 'attachment' people had to their pets. Residents also talked about wanting to be in close proximity to their pet:

"He's just so affectionate and loving" (Resident 1, p. 2)

"I think there's nothing better in your life than a little animal of some description"

(Resident 5, p. 6)

"As soon as I came home from anywhere, she (the cat) was the first thing I'd look for"

(Resident 4, p. 5)

One resident expressed their love for their animal but also made reference to their pet as 'just a' pet:

“And you love them, even though they’re just a cat, you love them” (Resident 2, p.3)

While another resident spoke of the love for their pet in more human terms:

“He was the most wonderful dog you could ever have. That’s what I can tell you about him. He was that human.” (Resident 3, p. 1)

Companionship

A theme which was evident in most of the interviews was that of the companionship pets provide. All participants were living alone in the community prior to moving into the Nursing Home, and spoke of pets helping to ease loneliness and also giving them someone to talk to:

“Well it takes away the loneliness, it’s the companionship” (Resident 4, p.7)

“Well it’s unreal how companionable a cat can be.” (Resident 2, p.2)

“Oh yes, yes, a great deal of companionship, because you talk to them. You know, I’d say to him, Jack, do you want your dinner now, or when do you want it?” (Resident 5, p. 5)

Unconditional love/Preference for animals over people

Another dominant theme that emerged was that of unconditional love and the preference for animals over people. Most residents spoke of their relationship with animals as being more unconditional than their relationships with humans. This underlying theme of unconditional love is closely related to the first theme, yet represents a distinct type of love and affection:

“Oh, it’s just unbelievable, they just bring so much unconditional love, and they just love you, and they give you so much, it’s just so beautiful.” (Resident 1, p. 6)

*“Dogs are more of a friend. Dogs are more forgiving. They don’t let you down.”
(Resident 3, p. 8)*

“You have to watch what you say to people, whereas you don’t have to watch what you say to pets” (Resident 5, p.6)

“With animals, in their eyes, you can’t do anything wrong, but with humans you’ve got to watch your step, it’s a different relationship altogether. Much as you love your pets, you love the humans more, wouldn’t you?” (Resident 2, p. 4)

Two interview participants also mentioned that pets are always there, whereas you have to wait for people to visit:

“Yes, they’re always there and they accept you for what you are, and they just love you. As I said, unconditional love, they’re just so beautiful.” (Resident 1, p. 9)

“Well I think there are different sorts of companionship – you know, the dog’s always just there, whereas you’ve got to wait for the people to come.” (Resident 5, p.6)

Two participants also spoke of their pets providing a replacement for people:

“Q: So, you got Louis (the dog) after your husband passed away, is that right?”

A: Yes, my two daughters insisted that I needed a dog, that I couldn’t possibly live without a dog.” (Resident 1, p. 6)

"It's a hard life for him (the dog) to take up the place of three people (laughs)" (Resident 3, p. 6)

Caring

Two interview participants also talked about their previous pet ownership in terms of giving them someone to care about, making them feel needed and responsible for someone other than themselves:

"They need you, and you need to be – everybody needs to be needed. And I really did miss that. I've always looked after everybody – all my family" (Resident 1, p. 6)

"Well I think, what mainly, is the sense of responsibility that you feel. Whereas, just living on your own, you wouldn't be responsible for anything or anybody." (Resident 2, p.2)

Pleasure/joy

Another theme that was evident was the pleasure or joy pet ownership brought to their lives. Two participants spoke about this:

"It was a joy to have her...she was a real pleasure to own, Polly" (Resident 2, p. 2/3)

"Oh, he's so funny." (Resident 1, p. 3)

Support

One interview participant talked about pets as a source of emotional and psychological support:

"They do know – they know when you're upset, or sad, and when you're happy they get so excited – they know." (Resident 1, p.8)

While, another interview participant talked about pets as a source of support in more of a physical security sense:

"I was never afraid in the house when the dog was with me – that's the biggest benefit of all, because you know, you knew that he would be barking at the door if somebody... (long silence)" (Resident 5, p. 5)

Losing pet/giving up pet when moved into Nursing Home...

As stated above, all participants interviewed spoke of the loss of their pet: either having to 'give up' their pet prior to moving into the nursing home or losing their pet through death/running away shortly before moving into care. Three residents spoke of having to give up their pet before moving into the nursing home. These animals now all live with relatives. One of these residents also spoke of being able to bring their pet fish and birds with them into the nursing home. Two residents spoke of having to have their pet put-down shortly before moving into the nursing home. One resident spoke of their pet running away shortly before moving into the nursing home.

Broke my heart

The dominant theme that emerged was one of being 'heart broken' and missing their pet terribly. This theme was evident in all interviews, regardless of whether participants lost their pet through death or had to give them up when they moved into care. This reaction indicates a very strong attachment to their pet, and can be related to the theme of 'attachment'. The residents who lost their pet through death/running away prior to moving into the nursing home described the experience:

"I missed him like there was no tomorrow." (Resident 5, p. 3)

"Oh I was heart broken..." (Resident 4, p. 10)

"And you love them, even though they're just a cat, you love them, and you feel quite distressed when you finally know that they've got a death threatening health problem"
(Resident 2, p. 3).

One resident who had to have her dog put down shortly before she moved into the Nursing Home recalls:

"He was getting very bad tempered, because he wasn't very well, and the vet said that the best thing to do would be to get him put down – it nearly broke my heart, but there you are." (Resident 5, p. 1)

Two residents recalled how they felt when they had to give up their pet when they had to moved into care:

"It was terrible, it broke my heart. I was very weepy for about a week." (Resident 1, p. 9)

"I wanted to die." (Resident 3, p. 9)

The third resident was able to bring some of his fish and birds into the nursing home with him and states:

"I'm happy with the pets I've got in here, and I know darn well I can't have my dog in here, so these are good substitutes." (Resident 6, p. 11)

One of the residents who had to give her dog up before she moved into the Nursing Home recalls the experience:

"And losing your independence, and also sick, and that felt so wretched anyway, and in a lot of pain and all that sort of thing. So, everything would pile on me sometimes, and when that happened, then I would miss him (the dog) so much more and want to give him a hug, but he wasn't there." (Resident 1, p.10)

Acceptance

This grief and loss described by the residents was followed by acceptance of either having to give up their pet, or accepting the death of their pet as part of life, by most people interviewed:

“But I accepted it – I just had so much to accept. That was just another thing that I had to accept, and that was just a bit harder than most. But I knew he would be so much better with Amanda (daughter), and she loved taking him for walks, and all the things that he loved to do, so yeah.” (Resident 1, p. 9)

“Well I think I’m a bit of a fatalist, because I just fully accepted the fact that she had to be put down, and so, I was upset about losing her, but there was no alternative. I mean, it would have got worse, and then she would have been in pain” (Resident 2, p.4)

“So, that’s life. So, now I’ve got that little dog (Chloe who visits the Nursing Home) to keep me company.” (Resident 5, p. 3)

The residents interviewed seemed to accept that they just couldn’t do what they used to be able to:

“I couldn’t give him what he needed, that was the thing, which was no good for him. And also, I couldn’t have him in here, anyway, but I mean, there was no point, because I couldn’t look after him.” (Resident 1, p.4)

“You just have to realize you can’t do now in life what you used to do, you just can’t.” (Resident 2, p. 8)

However, one resident was still very distressed at being separated from her dog, more than five years ago. This resident spoke of not having any close family members living here – her only son lives in London. Her nephew took the dog when she had to move into care but she said “no one asked me” about this decision.

The other residents who had to give up their pets when they moved into care, said it was a concern for them, what would happen to their animal, but their families stepped in to take care of them. It seems that the presence of close family members might be a mediating factor determining the extent to which grief is experienced and the loss is accepted.

“Oh we talked about it, yes. But Amanda (daughter) said – there was no question about it, as soon as she knew that I was coming in here, she said, I’m having Louis (the dog).”

(Resident 1, p. 12)

“So, that was one of my main concerns when I had to go into hospital, what was going to happen to the birds and the dog, and the fish and so on. But my children have taken care of that most proficiently, and it’s all come and worked out for the best.” (Resident 6, p. 9)

These two residents were able to see their pet on a regular basis and so had maintained some relationship with the animal, whereas the other resident had not, so this could be a mediating factor also.

Benefits of visiting/resident animals in the nursing home...

All interview participants were asked about the benefits of visiting/resident pets in the Nursing Home. One of the Nursing Homes has some visiting dogs which the residents spoke about. The other Nursing Home used to have two resident cats (the Nursing Home got rid of them due to the request of one of the senior staff members who doesn’t like cats). One resident spoke of bringing his fish aquarium and birds with him into the Nursing Home:

"Brought home with me a little bit" (Resident 6, p. 8)

Pleasure/joy

A dominant theme that emerged was the pleasure and joy animals (visiting or resident) provide in the Nursing Home. All residents interviewed spoke of this:

"Oh, I think it gives everybody a lift, because they all love having – when they see a dog they usually ooh and ah about it." (Resident 1, p. 11)

"Quite often when I go down towards the front lounge and the front door, and somebody's coming in with a dog, and as they walk through, always two or three of the residents that are sitting around doing nothing and looking glum – you know, really brighten up, and go over and stroke the dog and talk to ..., and you can see the joy it brings. They're just in another world when they're talking to the dogs." (Resident 2, p. 5)

One resident (Resident 2) talks about another resident (Resident 5):

"Her greatest joy – the greatest joy in the day, one of the visitors comes in with a... little brown dog – and I'd say, ... four or five times a week, and nearly immediately ... down

and gets the dog ..., and walks around and around and around, about six times with her dog, and she just loves doing that. Chloe, the dog's name is ...that is a big pleasure in her day" (Resident 2, p. 5)

Resident 5 also talks of her experience with Chloe (the dog):

"It is the happiest part of the day, other than when my family comes in." (Resident 5, p. 8)

One resident also talks of animals in the nursing home increasing happiness and decreasing stress:

"Well I think they take a lot of stress out of your life. I mean, I think if you woke up and you were having a bad day, I'd feel a lot of happier if you could sort of pet (an animal)..." (Resident 4, p. 13)

One resident also talks of animals in the nursing home decreasing loneliness:

"I think they're probably lonely, don't have a lot of activities or go out much, because I do go out a lot, and I think that just brightens up their day, it's another little thing they can

do that's different, and it's a little warm body they can pat, can't they? And the dog usually responds by busily wagging its tail, you know, and looking gleeful. It's probably thinking, oh not this again." (Resident 2, p.5)

Another resident spoke of animals in the Nursing Home relieving boredom:

"And it stopped me from being totally bored and stir crazy, or whatever you like to call it. And the bird, I go out and see him every day, take him out some tit-bits" (Resident 6, p.8)

Someone to talk to...

Another dominant theme that emerged is animals in the Nursing Home providing 'someone to talk to' as the majority of residents interviewed said it is hard to find other people (without dementia) to talk to in the Nursing Home:

"Oh I'd go mad... If I didn't have something else to distract me, because I mean, I can't say I've – although I've been here six months, I can't say I've made a lot of friends in here, because most of the residents – let's face it – don't have the same interests as me. In fact, I can't find any ... any of them that I can sit down and talk to, like I can to you."
(Resident 6, p. 13)

He goes on to say:

“Very, very few that are articulate enough to have a conversation. And those that would like to talk, you realise after about two or three minutes that they do have some sort of Alzheimer’s, or something, because they say the same silly things over and over and over, and you don’t really – and you know just by looking at them, they don’t take in anything you say, but they just say silly things and not a terribly satisfying conversation. It’s hard to find any that you can carry on a real conversation with, or break the monotony of the day.” (Resident 6, p.14)

Other residents also reported that it is difficult to make friends and find people to talk to in the nursing home:

“The trouble is that so many of them have got dementia that you can’t have a conversation with them, only to say hello, and that’s about as far as you go. And so, you do miss out on a lot of that interaction.” (Resident 4, p. 11)

“It’s just company (the dog). You see, there’s some people here that have lost it completely, and they don’t really know what the worlds about, poor things.” (Resident 5, p. 8)

“I find it very difficult to make friends in here (the Nursing Home)... I enjoy the company of Chloe (the dog), more than anybody else... I do, honestly.” (Resident 5, p. 3)

Resident 5 talks about Chloe visiting the Nursing Home:

“We talk to one another. And there’s a lady in the room where I pass by, and now she asks me to bring the dog in – so, that’s a little break for her... Well they all (other residents) talk to her as I pass them by, so it helps them – you know” (Resident 5, p. 7)

Physical health benefits

Two residents spoke of the physical health effects of pets in the nursing home:

“Yeah, to keep him (the physio) happy, I keep walking. So, I go for a walk down to see my bird, or feed it, or do something with it.” (Resident 6, p.11)

“It does me the world of good. As a matter of fact, I’ve got a crack in my spine, I know that, I had a bad fall a couple of years ago and I cracked my spine, and it’s really broken in a spot, and so, he’s (doctor) been telling me not to do so much walking with Chloe, and I said to him, you’re wasting your time telling me, I said, because I’m going to be walking

Chloe until I can't walk any more. You know, today I walked – twelve times” (Resident 5, p.8)

Love

One resident spoke of how attached she became to the two resident cats the Nursing Home used to have and how sad she was when they were taken away:

“I loved them, absolutely adored them” (Resident 4, p. 3)

“I think I wasn't the only one that was very upset (about the cats being taken away) ... I still do miss him.” (Resident 4, p. 12)

She recalls a story about a stray cat they tried to befriend because they were that 'desperate':

“Did I tell you how desperate we were? We were having lunch outside one day on the lawn, and there was a mangy looking cat that came from the back house – it needed a lot of TLC, you know – anyhow, Resident 3 and I called him over, and I mean, we would have become attached to that... that's how desperate we were” (Resident 4, p. 13)

Another noteworthy theme that emerged from the interviews:

A couple of participants recalled the day they had a stroke down to the exact minute. The detail with which they recall this day signifies its' importance. This was the day their whole life changed – they lost their independence, had to move into a care facility and had to give up their beloved pet:

“The day I had the stroke, which was the sixteenth of April 2002, at quarter past two”

(Resident 3, p. 2)

Discussion

As described in detail above, interview data was collected from six Nursing Home residents about their experiences of previous pet ownership, losing/giving up their animal when they moved into care and also their current experiences of visiting/resident animals in the facility.

Summary of findings

A number of themes emerged from the interview data. The themes were organised and presented under the three headings: benefits of (previous) pet ownership, losing/giving up pet when moved into nursing home and benefits of visiting/resident animals in the nursing home. The benefits of pet ownership, identified in the interview data, included: love/attachment, companionship, unconditional love, caring, pleasure/joy and support. These themes are listed in order of importance identified within the data. Losing/giving up pet when moved into care left most residents 'heart broken', however, this grief was followed by acceptance, in most cases. The benefits of visiting/resident animals in the nursing home included: pleasure/joy, someone to talk to, physical benefits, and love. These themes are also listed in order of importance identified with the interview data.

Similarities/discrepancies to previous research findings

The benefits of (previous) pet ownership identified in the present study were largely consistent with previous research findings.

The theme of the love or 'attachment' people had for their pets emerged as a dominant theme, and was evident in all six of the interviews. This is consistent with the previous findings of Chur-Hansen, Winefield and Beckwith (2009), Enders-Slegers (2000), Turner (2001) and Endenburg, Hart and Bouw (1994) who all identified 'attachment' as an important theme, social provision or reason for pet ownership. Chur-Hansen et al. (2009) reported 'attachment' as the central theme and also argued that all other themes identified can be related to this central theme. Enders-Slegers (2000) found that attachment or 'emotional closeness' was the most important social provision provided from a relationship with a companion animal.

Companionship emerged as the second most dominant theme, and was evident in most of the interviews. This is also consistent with the previous research findings of Endenburg, Hart and Bouw (1994) and Chur-Hansen, Winefield and Beckwith (2009). Endenburg et al. (1994) found that companionship was the most

common “social reason” for pet ownership, while Chur-Hansen et al. (2009) reported it as a secondary theme, related to the central theme of “attachment”.

Another dominant theme that emerged in the interview data was the preference for the company of animal over people. Participants spoke about the unconditional love they receive from animals, that pets are always there and also talked about pets providing a replacement for people. This is consistent with previous research findings of Turner (2001), Cohen (2002) and Chur-Hansen, Winefield and Beckwith (2009). However, participants in the current study did not voice this in as extreme terms as participants in previous studies. For example, some participants in the studies by Cohen (2002) and Chur-Hansen et al. (2009) and said they would save an animal over a human family member in the case of an emergency such as a sinking boat or a fire. The participants in the current study said they preferred the company of animals over people sometimes but still loved their family and friends more.

Another theme that emerged in the interview data was ‘caring’. Participants talked about companion animals giving them someone to care about, making them feel needed and responsible for someone other than themselves. This was something they missed when they moved into care. This is also consistent with

the previous research findings of Chur-Hansen, Winefield and Beckwith (2009), Enders-Slegers (2000) and Endenburg, Hart and Bouw (1994) who all identified 'caring' as an important theme, social provision or reason for pet ownership.

Another theme that emerged in the interview data was pleasure/joy. Participants spoke of the sheer joy and pleasure pets brought to their lives. This theme was not explicitly identified in previous research, however, Enders-Slegers (2000) noted that observing a cat or dog made participants smile, have fun, and also gave them stories to tell family and friends.

One participant in the present study talked about pets as a source of emotional and psychological support. This theme wasn't one explicitly identified by previous research, however, participants in the study by Cohen (2002) said that pets were sensitive to human feelings. Another participant in the present study spoke about pets as a source of physical security and safety. Several participants in the study by Cohen (2002) spoke about their pets' ability to make people feel safe.

The themes identified in the present study surrounding either losing a pet through death prior to moving into the care facility, or having to give up a pet as

a result of moving into care, were partially consistent with previous research findings. This was the first study to date to ask elderly people about their experiences of having to give up their pet when they moved into a care facility, therefore the themes identified here are new. However, previous studies have interviewed people about losing their pet through death (eg., Chur-Hansen et al. 2009, Turner, 2001).

In the present study participants spoke of either losing their pet through death prior to moving into care or having to give up their pet as a result of moving into the care facility. An interesting finding was that participants talked about the experience in the same way, regardless of whether they lost a pet through death or had to give it up. Participants spoke of the experience as “heartbreaking” and missing the pet terribly. This is consistent with previous research findings on losing a pet through death (Chur-Hansen et al. 2009, Turner, 2001). Another interesting finding that emerged from the present study was that regardless of the way they ‘lost’ their pet, most participants described moving towards “acceptance” of their loss. However, one resident was still very distressed when talking about being separated from her dog more than five years ago. This resident spoke of not having any close family members living close by, and not being able to see her pet regularly. Whereas, the other residents spoke of close

family members taking care of their pet for them and also being able to see their pet on a regular basis. It appears that the presence of close family members who are able to take care of the pet, and also being able to visit with the pet regularly, could be mediating factors affecting the severity of grief experienced and subsequent acceptance of the loss.

The present study was the first study to date to ask residents about their current experiences with resident and visiting animals in the nursing home. Therefore, the themes identified are new. However, an interesting finding was that there was considerable overlap with the themes identified in regards to the benefits experienced with previous pet ownership. The order of importance of themes was different however. This appears to be reflective of the nature of the residential care environment in contrast to the home environment.

The dominant theme that emerged from the interviews was the pleasure and joy that animals (visiting or resident) provide in the nursing home environment. All participants spoke of this. In contrast, only two participants mentioned pleasure/joy explicitly when talking about previous pet ownership. However, the love and affection all participants expressed for their animals implied that participants derived a great deal of pleasure from interacting with their animals.

Perhaps the reason this was more explicitly stated with regard to pets in the nursing home is because the joy and pleasure is more pronounced in the sometimes “joy-less” nursing home environment. Residents also spoke of the boredom and monotony they experienced in the nursing home and pets seem to go some way to counter-act this.

Another dominant theme that emerged was animals in the nursing home providing ‘someone to talk to’. This did not emerge as a major theme in regards to previous pet ownership, however it was mentioned by a couple of participants. The majority of participants interviewed said that they found it hard to find other people just to talk to in the nursing home. They mentioned that many residents have dementia and are therefore not able to have a meaningful conversation. It is interesting to note that some participants seem to prefer to talk to an animal that can’t talk back, rather than a person who talks back but doesn’t say anything meaningful. Perhaps it is the sense of just being listened to that they appreciate in the animals. Perhaps, they have been accustomed to being listened to all their working and family lives and now they perceive that no-one really listens to what they have to say.

Two residents spoke of the physical health effects of pets in the nursing home. One resident talked of walking down to feed the birds and the other spoke of walking a visiting dog around the nursing home. While the physical health benefits of pet ownership did not emerge as a theme in the current study, previous research has reported this (eg., Chur-Hansen et. al., 2009).

One resident spoke of the love she felt for two former resident cats and how upset she was when they were taken away by one of the facility staff members. In contrast, this theme of love and attachment was evident in all of the interviews with regard to previous pet ownership. It is not surprising that people reported attachment to their own animals but not animals in the nursing home. Could this have implications for the effectiveness of visiting animals and pet therapy programs if the element of attachment is not there?

Implications of findings

The present study has further contributed to the small body of qualitative research investigating elderly people's lived experience with companion animals. Six elderly nursing home residents were interviewed about their previous experiences with pet ownership, losing their pets through death or having to

give them up as a result of moving into a care facility and their current experience with animals in the facility.

The findings of the present study, in relation to experiences of previous pet ownership, are largely consistent with previous research findings. The benefits of pet ownership that emerged from the interviews included: the love people had for and received from their pets, the companionship pets provided, pets giving elderly people someone to care about and making them feel needed, the joy and pleasure pets provide, and pets as a source of emotional and physical support. Pets seem to offer a great deal of companionship and support, which may be particularly important for the isolated elderly. What then is the effect of having to give up their beloved pet when they have to move into a care facility?

The present study asked interview participants about such experiences and found that the effects are similar to that of losing a pet through death. Participants described the experience as “heart-breaking” and missing their pet terribly. It was another loss they had to face after losing their independence, home, and then their beloved companion animal. Fortunately, most participants described eventually “accepting” that they just can’t do what they used to anymore and that included caring for their pet. The grief seemed to be eased by

knowing that their pet was being well taken care of by family members and being able to visit with their pet regularly. What then is the effect of visiting or resident pets in the facility? Do they go some way to putting back what has been lost?

The present study asked participants about their current experiences with animals in the facility. The benefits of visiting and resident animals included: providing pleasure and joy in the nursing home, giving residents someone to talk to, physical health benefits and providing someone to love. These themes are listed in order of importance identified within the data. It would appear that pets in the facility go some way to putting back what has been lost, but the order of themes mentioned in the interviews differs substantially from those identified with regards to pet ownership. The benefits of pet ownership, identified in the interview data, included: love/attachment, companionship, unconditional love, caring, pleasure/joy and support. These themes are also listed in order of importance identified within the data. These findings suggest that the benefits of pet ownership and pets in the nursing home may differ in some ways but both can provide valuable benefits for elderly people. The second study will implement a visiting animal-assisted program in a residential care facility and evaluate its' effects.

Another potential solution to this problem would be to allow people to bring their pets with them into care facilities. There are obvious practical and policy concerns that would need to be addressed, such as who would be responsible for the care of the pet, what if different pets didn't get along etc. However, there are facilities currently successfully operating under pet-friendly policies. Silverado aged care facility in Anaheim California is one such facility. Silverado allows residents to bring their pets with them, as long as the pet 'integrates' well with other animals in the facility. Facility staff assume primary responsibility for the care of the animals as part of their role. The facility reported that their pet-friendly policy is working very well (personal communication). Future research could investigate these facilities: interviewing staff and residents about their experiences of bringing pets into care, did it help with their transition into care? Quantitative research that compares the physical and psychological health of elderly people who have been allowed to bring their pet with them into care, with those that have not, could also be conducted. If health benefits are shown to be significant then perhaps more facilities would be willing to adopt pet-friendly policies.

Limitations of this research

As is the case with most research, the present study was not without its limitations. The interviews were conducted with residents from two private residential care facilities, with participants being from similar socio-economic and cultural backgrounds. Future research should include participants from public residential care facilities as well, to include a broader sample of participants from different socio-economic and cultural backgrounds.

The present study was also limited to people who had either lost their pet through death before moving into care or had to give up their pet when they moved into a care facility. However, one resident did speak of bringing fish and birds into the nursing home. As mentioned above, this research would be strengthened by including more people who have been able to take their pet into care with them, to compare their experiences also.

It must be noted that this was a small, exploratory study due to the limited available research in this area. Future research studies in this area could now investigate the emerging themes in more depth. It must also be noted that due to the small number of participants in the present study, generalizations are limited and modesty about the outcomes is required.

Directions for future research

As there is currently only a small body of qualitative research in this area, there are many potential areas for future research. The present study has identified some directions for future research. This could include qualitative research conducted with a broader range of participants – including residents from public as well as private care facilities – to encompass different socio-economic and cultural backgrounds.

The present study found that elderly people often prefer the company of animals over people, which is in line with previous research findings. Further investigation of the mechanisms involved in this finding could be undertaken. Perhaps it is the sense of just being listened to that they appreciate in animals. Perhaps, they have been listened to all their working and family lives and now they perceive that no-one really listens to what they have to say. This could be an area for further research.

The present study also identified a number of potential mediating factors that could affect the severity of grief experienced in relation to having to give up a companion animal as a result of moving into a care facility. These could include: the presence of close family members who are able to take care of the pet, and

also being able to visit with the pet regularly. This could be another area for further investigation.

As discussed above another area for future research could be investigating the potential for more people to be able to bring their pets with them into care facilities. Some facilities currently allow people to bring their pets with them. Investigation of these facilities, what works and what doesn't, could also be an area for future research. Further qualitative and quantitative investigation of the effects on residents in these facilities that allow people to bring their pets with them is needed. The results of this research could lead to more facilities adopting pet-friendly policies.

The present study also found that people reported love and attachment to their own pets but not animals in the nursing home. This could be attributed to the fact that a considerable amount of time is spent developing a bond with your own companion animal, whereas animals in the nursing home may visit sporadically and are shared with other residents. There could be possible implications for the effectiveness of visiting animal programs. The next study will evaluate the effectiveness of a visiting animal-assisted program.

Chapter Three

≈

“Putting the ,home“ back into Nursing Home”

Study 2: Animal-Assisted Intervention Trial

“All of the animals except for man know that the principal business of life is to enjoy it.”

- Samuel Butler

Introduction

Aim of Study & Previous Research

The overall aim of this study was to extend previous research on the efficacy of Animal-Assisted Interventions for people diagnosed with dementia. The specific aims will be described later in this section. There has been some very promising research conducted demonstrating the positive benefits of the use of Animal-Assisted Interventions for people diagnosed with dementia, as summarized in chapter one. A detailed review of the previous research will be presented in this chapter.

Previous research investigating Animal-Assisted Interventions for Dementia

PsychInfo, Medline and Sociological Abstracts databases (1960 – 2008) were searched for papers on Animal-Assisted Therapy, or pets, and dementia. A combination of “animal-assisted therapy” or “pets” and “dementia” as key words were used. Articles were also limited to those published in English. Two recent reviews by Filan and Llewellyn-Jones (2006) and Perkins et al. (2008) on the topic were also located. I will provide a brief summary and critique of the major studies to date that have investigated Animal-Assisted Interventions, including Animal-Assisted Therapy (AAT) also referred to as Pet Therapy, for people with dementia. The studies can be divided loosely into three groups: those reporting changes in agitation/aggression, those reporting changes in social behaviour and those reporting changes in agitated and social behaviour.

Studies reporting changes in agitation/aggression

McCabe, Baun, Speich and Agrawal (2002) investigated the effects of introducing a resident dog into an Alzheimer’s Special Care Unit (which is a unit designed to manage the challenging behaviours of individuals with dementia). 22 residents (7 men and 15 women) participated in the study. Disruptive behaviour problems were measured by the Nursing Home Behaviour Problem scale (Ray, Taylor, Lichenstein and Meador, 1992) which was completed by the primary care

nursing staff one week before the dog was introduced and weekly for four weeks after the introduction of the dog. Measures were collected by both day and evening staff. The study found that there was a sustained decrease in disruptive behaviour problems over the four weeks during the day shift as compared to the evening shift. The study was limited by only having a one-week baseline period. A longer baseline period would give a more comprehensive picture of pre-intervention behaviour. The study also did not examine effects after the 4-week period. Therefore we don't know what the longer-term effects of the resident dog were or if the dog was removed at the end of the 4-week study, and what effects this might have had.

A study by Walsh, Mertin, Verlander and Pollard (1995) investigated the effects of a visiting therapy dog on the behaviour of patients in a South Australian psychiatric ward. Seven participants (4 men, 3 women), 6 with dementia and 1 with schizophrenia and seven control participants (matched for sex and diagnosis) took part in the study. The therapy dog visited for 3 hours twice per week during the 12-week study. The Brighton Clinic Adaptive Behaviour Scale (BCABS, Wood & Britton, 1984) which measures daily functioning of people with dementia and includes an aggression subscale and the London Psycho-Geriatric Rating Scale (LPRS, Hersch, Kral & Palmer, 1978) which includes a subscale

measuring socially irritating behaviour, were administered before and after the 12-week period. Blood pressure, heart rate and ward noise level measurements were taken before and after each Pet Therapy session and at the same time of day for controls. The results showed no difference in LPRS or BCABS between the experiment and control groups after the 12-week period. However, heart rate was significantly reduced in the Pets as Therapy group, suggesting a calming effect of the Pet Therapy. There was also a decrease in loud and/or aggressive outbursts and general ward noise level on the experimental ward while the therapy dog visited. Staff and investigators also noted more social interactions among patients and between patients and staff during the dog visits. This study was limited by not assessing the behavioural measures *during* the interaction period (as the physiological measures were). Perhaps subtle changes in behaviour may have been detected during the 12-week period if this was the case.

A study by Kanamori et al. (2001) evaluated the use of Animal-Assisted Therapy during a day care program for the elderly with senile dementia. The AAT group consisted of seven participants and the control group consisted of 20 participants. The AAT group was restricted to people who liked animals as it was deemed AAT could be detrimental to people who didn't like or were fearful

of animals. A total of six AAT sessions were conducted on a fortnightly basis. Problem behaviours related to dementia were assessed by interviews with family members, using a measure called behavioural pathology in Alzheimer's disease (Behave-AD, Reisberg, Borenstein, Salo et al. 1987). Cognitive impairment was also assessed using the Mini Mental State Exam (MMSE). Endocrinological stress was evaluated by using salivary chromogranin A (CgA). Assessments were performed at baseline and after three months (which was one week after the final AAT session). Decreases in the subscales of the Behave-AD for aggressiveness, anxieties and care-giver burden were reported for participants in the AAT group when compared with those in the control group. The mental stress index (CgA) showed a decreasing tendency in the AAT group. This study also could have been strengthened by providing assessments *during* the intervention program, so behaviour change during the intervention period could have been analysed.

A small study by Motomura, Yagi and Ohyama (2004) investigated the effects of Animal-Assisted Therapy on a group of eight residents in a Japanese nursing home. Dog therapy with two dogs from the Japanese Rescue Association took place for one hour over four consecutive days. Participants were assessed before and after the dog therapy activity using a mental status examination which included the apathy scale (Burns, Folstein, Brandt & Folstein, 1990), the

irritability scale (Burns, Folstein, Brandt & Folstein, 1990), geriatric depression scale (GDS) (Yesavage, Brink, Rose et al. 1982), physical self-maintenance scale (PSMS) (Lawton & Brody, 1969) and mini-mental state examination (MMSE) (Folstein, Folstein & McHugh, 1975). The results showed no significant difference in the irritability scale, depression scale, activities of daily living or MMSE. However, all participants showed significant improvement on the apathy scale. The authors also reported that most participants had a good impression of dog therapy and seventy-five percent of the patients reported that it is fun to attend dog therapy and they like dogs very much. Perhaps significant differences were not found in the measures due to the instruments not being able to detect changes over such a short time. The study could be improved by increasing its duration. However, an important aspect to note was that the dogs came from the Japanese Rescue Association. The use of these rescued animals therapeutically could provide a win/win relationship for both the people and animals involved. I will talk more about this in my discussion of future applications.

Studies reporting changes in social behaviour

In one of the earliest studies investigating social behaviour during Pet Therapy, Kongable, Buckwalter and Stolley (1989) documented pro-social behaviour

among residents in Special Care Units of two Veteran's nursing homes. Twelve residents (10 men, 2 women), diagnosed with Alzheimer's disease, participated in the study. An observational checklist was used to record the effects of the dog on eight social behaviours: smiles, laughs, looks, leans, touches, verbalizations, name-calling and others. The observations took place on three separate occasions: during pre-treatment baseline, during weekly visits of the therapy dog and two weeks after the therapy dog became a permanent resident on the unit (in both group and individual sessions). The paper did not specify how long each phase of the study was or when the observations took place. The results showed that the presence of the dog (either visiting or resident) increased the total number of social behaviours of the residents. However, no differences in social behaviour were found between the visiting and resident dog conditions. As noted the study did not specify the duration of each phase of the study or when the observations took place. It would be useful to know this information because we do not know when changes were observed or how long they were maintained for. The study would have also been strengthened by assessing the longer-term effects of the presence of the dog. Did the effects increase beyond two weeks after the dog was placed on the unit? What were the effects after four weeks, six weeks? Was the dog removed after the study, and what effect did this have?

Another study investigating the impact of a visiting dog on social behaviour was that of Batson, McCabe, Baun and Wilson (1998). This study involved 22 residents with severe dementia from a Special Care Unit. Assessment included: the Bourke Dementia Scale (Haycox, 1984) and a measure of social interaction, derived from coding protocols by Daubenmire, White, Heizerling, Ashton, and Searles (1977). Verbalisations, looks, smiles, tactile contact, and leans were coded by frequency and duration. Physiological measures of heart rate, blood pressure and skin temperature were also recorded. The residents participated in 10-minute sessions on two different days: one day with and one day without the dog present. The results found the duration and frequency of social interaction behaviours were significantly higher when the dog was present, but the physiological indicators did not show significant changes. Improvements were unrelated to severity of dementia as measured by the Bourke Dementia Scale. This study controlled for human-interaction effects by using the handler without the dog as control sessions. This was the first of only three studies to have done this to date. This was a very positive inclusion as in other studies we are left to wonder how much effect on residents' behaviour was due to the therapy dog and how much was due to the human volunteer dog-handler. These volunteers tend to be caring in nature (to do this type of work) and the potential for them to

have a positive effect on residents' behaviour should not be overlooked. This study allowed us to see the unique contribution of the therapy dog. This study was also one of the few studies to include physiological measures in addition to behavioural measures which was a very positive inclusion, making a complete picture of effects available. However, this study was limited by the observations only being made on two 10-minute sessions. This study could have been improved by increasing the duration of sessions as one is left to wonder if a ten-minute session is long enough to develop rapport between person and dog, and have a therapeutic effect. It also could have been improved by including more sessions to explore any potential cumulative and longer-term effects of the therapy dog.

A study by Enders-Slegers, Sturop and Thomas (2005) also investigated the effects of visiting dogs on social behaviour. The study involved elderly people in psycho-geriatric day-care facilities in the Netherlands. This study also included control groups where people were visited by a volunteer *without* the dogs present. Thirty one participants from two psycho-geriatric facilities were involved in the study: two experimental groups (both N=8) were visited by visiting dogs and volunteer dog handlers and two matched control groups (N=8, N=7) were visited by volunteers without the dogs. Social behaviour was

measured using an extended version of the Kongable Observation Scale. Depression was also measured, using the Depression List (Diesfeldt, 2004). The study consisted of six visits, conducted weekly, in which social behaviours were observed. The authors report that during visits, social behaviour (such as verbal interactions, positive emotions, initiatives, motor activities) increased significantly within the experimental groups compared with the control groups. However, there were no significant effects on depression scores. The inclusion of a control group where residents were visited by volunteers without the dogs was a very positive inclusion in this study, for the reasons discussed in the previous section. Another positive aspect of this study was the inclusion of six weekly visits to allow for any cumulative and longer term effects to be measured.

A small study by Greer, Pustay, Zaun and Coppens (2001) also investigated social behaviour in elderly women with dementia. It is not an Animal-Assisted Therapy study but I will include it here as it reports effects on social behaviour in the presence of animals. It also suggests the potential for using cats in therapy, which is important to note as most studies use therapy dogs. The study documented the effects of toy *versus* live cats on communication in a small group of elderly women with dementia. Six women living in a nursing home participated in the study. Live cats and toy cats were presented to the women

and the total number of words, meaningful information units and verbal initiations per minute were recorded from video footage. The measurements were recorded in three conditions: without stimuli, in the presence of two toy cats, and in the presence of two live cats. The six residents were randomly assigned into two groups to counterbalance the order of the conditions. The study found that live cats stimulated more communication both when they were present and immediately afterwards and there was an increase in meaningful conversation in the presence of real cats.

Studies reporting changes in agitated and social behaviour

Churchill, Safaoui, McCabe and Baun (1999) introduced pet therapy in three Special Care Units to examine the effects of a therapy dog on agitation and socialization in people with Alzheimer's disease. The study introduced pet therapy during the difficult "sundown" time to examine the effect on residents with a history of agitated "sundowning" behaviour. The participants were 28 residents (7 men, 21 women) with Alzheimer's disease and associated agitated behaviour in the evening. The investigators video-taped two 30 minute sessions for each resident: one with the researcher visiting alone with the resident and the other with researcher visiting with the dog. All sessions were conducted in the common area of the unit. During each session participants were video-taped for

15 seconds every five minutes for a total of 6 observations. Agitated behaviours were measured using the Agitated Behaviours Mapping Instrument (ABMI, Cohen-Mansfield, 1986). Daubenmire's Data Coding Protocol (DDCP, Daubenmire, White, Heizerling, Ashton & Searles, 1977) was used to document socialization behaviours, including: verbalization, looks, smiles, leans, tactile contact. The study found that residents exhibited significantly fewer agitated behaviours when interacting with an investigator and a dog, compared to interacting with the investigator when the dog was not present. The study also reported a significant increase in the frequency and duration of social behaviours in the presence of a visiting therapy dog. This study controlled for the severity of dementia and found that the positive response to AAT was independent of dementia severity. This study also controlled for human-interaction effects by using the handler without the dog as control sessions, which was a very positive inclusion for the reasons discussed earlier. However, this study was limited by the observations only being made on two 30-minute sessions. The study could have been improved by looking at the duration of the calming effect after the dog's departure. It could have been improved by the inclusion of more pet therapy sessions to explore the variability in resident responses over time and the longer-term effects.

A small pilot study by Richeson (2003) investigated Animal-Assisted Therapy (AAT) for nursing home residents with agitated dementia. Fifteen residents with a Mini-Mental State Exam (MMSE) score of less than 15, and a diagnosis of dementia in their medical record, participated in daily AAT sessions with a visiting therapy dog. The AAT sessions were in the format of small group one-hour sessions with a visiting dog daily for three weeks. The measures used included: the Cohen-Mansfield Agitation Inventory (CMAI) and the Animal-Assisted Therapy Flow Sheet (Richeson & McCullough, 2002), which measures social interactions with the therapy dogs and their handlers. CMAI data was collected at baseline, after the 3 weeks of AAT and after a 2-week washout period after the end of the AAT intervention period. The AAT flow chart was completed daily for each resident during the 3-week intervention period. It was reported that significantly more social interaction was observed in the final week of AAT when compared with the first week. The results also showed that agitated behaviours decreased significantly immediately after the AAT intervention, but increased significantly when the sessions were discontinued. It is not clear if this increase was to previous baseline levels. This study also controlled for dementia severity and found that the positive response to AAT was independent of dementia severity. A positive aspect of this study is it included a wash-out phase to explore what the effects were after the dog was

removed. This is the only study to do this to date. However, it could have been further improved by including more frequent measures of agitation during the AAT intervention period to chart the cumulative effects of the intervention. Similarly, it would have been good to have a post-intervention measure of social interaction to explore the longer-term impact on social behaviour after the dog was removed.

A very small study conducted by Sellers (2005) investigated the effect of AAT on both agitated and social behaviour on four residents with moderate to severe dementia. The study consisted of baseline and intervention phases and replication of these phases. Each phase was composed of five days, with a two-day washout period between phases. During the intervention phases, the elderly persons were brought into a treatment room for individualized AAT sessions with the investigator. The AAT sessions were 15 minutes in duration and were videotaped. Residents were assessed using the MMSE, the Agitated Behaviour Mapping Instrument (ABMI) and a Social Behaviour Observation Checklist (SBOC). Results showed that incidences of observed agitated behaviour during AAT were reduced and incidences of observed social behaviour during AAT increased.

Another noteworthy study, while not directly relevant to the present study, investigated Animal-Assisted Therapy and nutrition with individuals with Alzheimer's disease (Edwards & Beck, 2002). Weight loss and poor nutritional intake is associated with Alzheimer's disease. Sixty-two individuals with Alzheimer's disease who lived in three specialized dementia units were studied. Two facilities were assigned to be treatment facilities and one was the control, later crossing over to the treatment condition. The authors installed fish aquariums in the dining room of the treatment facilities and a scenic ocean picture in the control facility. The effects on nutritional intake were measured. Baseline nutritional data were collected, followed by a 2-week treatment period when the aquariums were introduced. Results indicated that nutritional intake increased significantly when the aquariums were introduced and continued to increase during the 6-week follow-up period. When the fish aquariums were present, residents ate more of their meals and gained weight. However, the scenic picture had no effect on food intake or resident weight in the control group. Staff reported that agitated residents were calmer when looking at the aquariums and the authors reported that the fish aquariums were a focal point for social interactions between residents and visitors.

Summary of the Previous Research

As discussed previously, while the format of the Animal-Assisted intervention trialed and outcome measures varied considerably across studies, the findings were quite consistent. The studies consistently found that the Animal-Assisted Interventions for people with dementia reduced problem behaviours such as agitation and aggression (eg. Walsh et al. 1995, Churchill et al. 1999, Kanamori et al. 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005) and also improved social behaviours such as communication and responsiveness (eg. Kongable et al. 1989, Batson et al. 1998, Churchill et al. 1999, Greer et al. 2001, Richeson, 2003, Sellers, 2005, Enders-Slegers et al. 2005), at least during the intervention. This not only improves the quality of life for people with dementia but also assists facilities in caring for residents.

Limitations of Previous Research

The limitations of the above studies were discussed in chapter one and will be summarized again here. While the above body of research has made an important contribution to the field, more research is needed to address the limitations of the current research. Many studies assessed residents' behaviour

before and after the Animal-Assisted intervention (eg., Kanamori et al. 2001, Walsh et al. 1995, Motomura et al. 2004) but did not provide assessment *during* the intervention. More research that includes ongoing measurement is important to chart subtle changes in behaviour during the intervention. Also, most studies investigated the immediate or short-term effects of the Animal-Assisted intervention (eg., McCabe et al. 2002, Motomura et al. 2004, Kongable et al. 1989, Churchill et al. 1999, Batson et al. 1998) but the *longer term* effects have been largely neglected by the current research. It is important to investigate the longer-term effects as well as the immediate and short-term effects of Animal-Assisted interventions. Only one study included a washout or follow-up phase (Richeson, 2003). More research that includes follow-up data is needed to allow us to examine the longer term effects and observe what happens when the dog is *removed*. There is also limited research that includes physiological as well as behavioural effects of Animal-Assisted interventions. Only three studies included *physiological* measures as well as behavioural measures (Batson et al. 1998; Walsh et al. 1995; Kanamori et al. 2001). More research that includes physiological and behavioural measures is needed to gain a more complete understanding of the effects of Animal-Assisted interventions.

The present study addresses the previous research limitations by including ongoing behavioural and physiological measures during the Animal-Assisted intervention period. Data will also be collected during a baseline period to assess pre-intervention functioning. Data will also be collected during a follow up period to examine the effects when the dog is removed.

The aims of the present study are:

1. To investigate both the behavioural and physiological effects of a visiting therapy dog Animal-Assisted intervention program for people with dementia living in a residential care facility
2. To measure baseline functioning prior to the Animal-Assisted intervention
3. To measure the immediate effects after each intervention session
4. To measure ongoing effects weekly throughout all phases of the study: baseline, intervention, follow-up
5. To measure the effects after the Animal-Assisted intervention program is removed

Predictions based on previous research and theory

The following predictions, based on previous research and theory, are made.

Disruptive behaviour

It is predicted that the disruptive behaviour of participants will be lower on days when the Animal-Assisted intervention is conducted than on days when the intervention is not conducted. It is also predicted that the effects of the intervention will result in a decrease in the disruptive behaviour of the participants from baseline to intervention. It is also predicted that the disruptive behaviour of the participants will increase from intervention to follow-up. In other words, the disruptive behaviour of participants will decrease during the intervention phase and then increase during the follow-up phase when the intervention is removed. The rationale based on previous research and theory will be provided below. As discussed in chapter one, it has been suggested that distraction is a potential mechanism by which Animal-Assisted Interventions may benefit people with dementia. It is proposed that a therapy dog may distract a resident from displays of agitation/disruption (Churchill et al. 1999). It has also been suggested that the physiological reaction (a lowering of blood pressure that often accompanies interaction with dogs) may also be of benefit in reducing the behavioural symptoms of dementia (such as agitation/disruption) (Filan & Llewellyn-Jones, 2006). Previous research has also found that Animal-Assisted Interventions reduced agitated behaviour (eg. Walsh et al. 1995,

Churchill et al. 1999, Kanamori et al. 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005) in people with dementia. Only one study examined the effects the effects after the dog was removed and found that the agitated behaviours that decreased immediately following the intervention phase, increased during the follow-up phase (when the dog was removed)(Richeson, 2003). A statement of hypotheses will be included at the end of this section.

Pro-social behaviour

It is predicted that the pro-social behaviour of participants will be higher on days when the Animal-Assisted intervention is conducted than on days when the intervention is not conducted. It is also predicted that the effects of the intervention will result in an increase in the pro-social behaviour of the participants from baseline to intervention. It is also predicted that the pro-social behaviour of the participants will decrease from intervention to follow-up. In other words, the pro-social behaviour of participants will increase during the intervention phase and then decrease during the follow-up phase when the intervention is removed. The rationale based on previous research and theory will be provided below. As discussed in chapter one, it has been suggested that people with dementia may experience a loss of personalized affection after they

move into a care facility, and that a therapy dog could provide the missed physical contact by allowing petting, kissing and hugging (Churchill et al. 1999). I propose that this theory be extended to include missed social contact also and that a therapy dog can provide missed social contact by allowing social behaviours such as talking (to the therapy dog, the volunteer handler and other residents) and nonverbal behaviours also. It also provides an immediate shared experience to discuss. Previous research has also found that Animal-Assisted Interventions improved social behaviours such as communication and responsiveness (eg. Kongable et al. 1989, Batson et al. 1998, Churchill et al. 1999, Greer et al. 2001, Richeson, 2003, Sellers, 2005) in people with dementia. The study by Richeson (2003) did not assess the effects on social behaviours during the follow-up phase (when the dog was removed) but found that agitated behaviours increased during the follow-up phase. It will be predicted that pro-social behaviour will follow a similar pattern to agitated/disruptive behaviour, in that pro-social behaviours will decrease during the follow-up phase when the dog is removed.

Physiological measures

It is predicted that the effects of the Animal-Assisted intervention will result in a decrease in the physiological measures of heart rate and blood pressure of the

participants from baseline to intervention. It is also predicted that the physiological measures of heart rate and blood pressure of the participants will increase from intervention to follow-up. In other words, the physiological measures of heart rate and blood pressure of participants will decrease during the intervention phase and then increase during the follow-up phase when the intervention is removed. The rationale based on previous research and theory will be provided below. As discussed in chapter one, previous research has found that interacting with a dog has a relaxing effect by decreasing blood pressure (Baun, Oetting & Bergstrom, 1991; Odendaal & Meintjes, 2003). It has been suggested that this physiological reaction may contribute to effective pet therapy (Filan & Llewellyn-Jones, 2006). The study by Walsh et al. (1995) measured blood pressure and heart rate and found that heart rate was significantly reduced in the Pet Therapy group, after the 12-week intervention, suggesting a calming effect of the Pet Therapy. Kanamori et al. (2001) measured salivary CgA as a mental stress index and found a decreasing tendency in the AAT group, after the three-month intervention. The study by Batson et al. (1998) included physiological measures in their study assessing the affects of an AAT intervention but the physiological indicators did not show significant changes after the AAT intervention. Even though the previous research has yielded

contradictory findings, the present study will predict that the physiological measures will decrease as a result of the Animal-Assisted intervention.

Depression & Memory Problems

The main interest of the present study is on the effects of the Animal-Assisted intervention on the participants' disruptive behaviour, pro-social behaviour, heart rate and blood pressure, as guided by the previous research. The Revised Memory & Behaviour Problems Checklist (RMBPC) used in the present study also provides sub-scales for depression and memory-related problems, and therefore we had the opportunity to investigate the effects of the Animal-Assisted intervention on these two measures also. There has been limited research investigating the effects of Animal-Assisted Interventions on depression or memory problems. The studies conducted to date have found no significant differences in either measure after the implementation of the Animal-Assisted intervention. Only two studies published to date assessed the effect of AAT on depressive symptoms (Motomura et al. 2004, Enders-Slegers et al. 2005). Motomura et al. (2004) included a geriatric depression scale (GDS) in their study of the effect of AAT on dementia residents in a Japanese nursing home. They found no significant difference in the depression scale after the four-day AAT intervention. Enders-Slegers et al. (2005) included an assessment of emotional

functioning (Depression List, Diesfeldt, 2004) in their study of the effects of visiting dogs in psycho-geriatric day care facilities in The Netherlands. They found no significant effects on depression scores after their six-week program. The study by Motomura et al. (2004) and the study by Kanamori et al. (2001) were the only published studies to date to assess the effect of AAT on cognitive functioning, including memory problems. Both studies used the mini-mental state examination (MMSE) which measures cognitive functioning, including memory. Motomura et al. (2004) and Kanamori et al. (2001) found no significant difference in the MMSE after the AAT intervention. Given the limited previous research, the present study will not predict any specific hypotheses in relation to depression or memory-related problems, but the effects (if any) of the Animal-Assisted intervention on depression and memory-related problems of the participants will be explored. A statement of hypotheses for the current study is presented in the next section.

Statement of Hypotheses

Disruptive behaviour

- 1.1 Disruptive behaviour will be significantly lower on Animal-Assisted intervention days than non-intervention days.
- 1.2 Disruptive behaviour will be significantly lower during the Animal-Assisted intervention than the baseline period.
- 1.3 Disruptive behaviour will be significantly lower during the Animal-Assisted intervention period than the follow-up period.

Pro-social Behaviour

- 2.1 Pro-social behaviour will be significantly higher on Animal-Assisted intervention days than non-intervention days.
- 2.2 Pro-social behaviour will be significantly higher during the Animal-Assisted intervention than the baseline period.
- 2.3 Pro-social behaviour will be significantly higher during the Animal-Assisted intervention period than the follow-up period.

Physiological measures

3.1 Heart rate and blood pressure (systolic and diastolic) will be significantly lower during the Animal-Assisted intervention than the baseline period.

3.2 Heart rate and blood pressure (systolic and diastolic) will be significantly lower during the Animal-Assisted intervention period than the follow-up period.

Depression & Memory problems

As discussed above, the present study will not predict any specific hypotheses in relation to depression or memory-related problems, but the effects (if any) of the Animal-Assisted intervention on depression and memory-related problems of the participants will be explored.

The hypotheses will be tested and reported in the results section to follow. It must be noted that the hypotheses will be tested slightly out of numerical order for ease of reporting of results.

Method

Participants

Thirty residents with a diagnosis of dementia, living in a South Australian Residential Care Facility, participated in a trial of an Animal-Assisted intervention program. A diagnosis of dementia was confirmed through consultation with nursing home staff. Residents with various levels of dementia severity (mild, moderate and severe) were included in the study. Resident's performance on the Mini Mental State Exam was also assessed prior to participating in the trial. Residents with pet allergies, fear of dogs, or aggression when in the presence of dogs were excluded from the study. Information about demographics (age, gender) was collected. The gender of participating residents was recorded. Their age in years at last birthday was also recorded. It must also be noted that the Residential Care Facility is a private care facility, and most residents are from higher socio-economic backgrounds. All residents who participated in this study were of Caucasian background.

Of the total sample of 30, 23 (76.7%) were female and 7 (23.3%) were male. The mean age was 81.40 years (min=31, max=90). The majority of participants (96.7%)

were elderly, aged 73 years or older. One resident was aged 31 years. He has dementia as a result of a car accident and lives in the Residential Care Facility. He very much wanted to be a part of the study. It was decided to include him in the study.

The results of the MMSE revealed that four residents (13.3%) were in the normal cognitive range (scored 24-30), seven residents (23.3%) were in the mild cognitive impairment range (scored 20-23), ten residents (33.3%) were in the moderate cognitive impairment range (scored 10-19) and nine residents (30%) were in the severe cognitive impairment range (scored 0-9). All residents were included in the study. The results of this test were used only as a guide of dementia severity.

The residents were divided into two groups for participating in the Animal-Assisted intervention sessions for behaviour management and staff-availability reasons. Twenty three residents (76.7%) were in the “Day Room Group” and 7 residents (23.3%) were in the “Sundowners Group”. The residents in the Sundowners group were selected by the nursing home as they displayed more severe behaviour problems, associated with their dementia, during “sundown”. However, the residents in the day room group also displayed behaviour problems associated with their dementia, during sundown. As discussed in

chapter one, sundown is the time of day notorious for increased restlessness and behaviour problems in dementia patients.

The residents in the Day Room group (n=23) had a mean age of 83.83 years (min=73, max=90). There were 17 (73.9%) females and 6 (26.1%) males in the day room group. Four residents (17.4%) were in the normal cognitive range, six residents (26.1%) were in the mild cognitive impairment range, nine residents (39.1%) were in the moderate cognitive impairment range and four residents (17.4%) were in the severe cognitive impairment range.

The residents in the Sundowner's group (n=7) had a mean age of 73.43 years (min=31, max=85). There were 6 (85.7%) females and 1 (14.3%) male in the sundowner's group. Five out of the seven residents in the sundowner's group were in the severe cognitive impairment range (71.4%). One resident (14.3%) was in the mild cognitive impairment range and one resident was in the moderate cognitive impairment range.

Measures

Basic mental functioning was assessed using the Mini Mental State Exam (MMSE) (Molloy, Alemayehu & Roberts, 1991). **Behaviour problems** were assessed using a modified version of The Revised Memory and Behaviour Problems Checklist (RMBPC) (Teri, Truax, Logsdon, Uomoto, Zarit & Vitaliano, 1992). **Pro-social Behaviour** was measured by adding an additional subscale to the RMBPC. See Appendix C and D for a copy of the measures. **Physiological measures** of heart rate and blood pressure were measured using an OMRON Automatic Blood Pressure Monitor with Arm Cuff (Model IA2).

The Mini Mental State Exam (MMSE)

The MMSE is a 5-10 minute screening test that is designed to evaluate basic mental functioning in a number of different areas. Some of the areas tested involve an individual's ability to recall facts, to write and to calculate numbers. A score of 0-9 indicates Severe Dementia, a score of 10-19 indicates Moderate Dementia and a score of 20-23 indicates Mild Dementia (Molloy, Alemayehu & Roberts, 1991). The MMSE was administered by the author after appropriate training from a clinical psychologist.

The Revised Memory and Behaviour Problems Checklist (RMBPC)

The RMBPC is a 24-item caregiver-report measure of observable behavioural problems in dementia patients, providing one total score and three subscale scores for patient problems: *Memory-related problems*, *Depression* and *Disruptive Behaviours*. The RMBPC also provides parallel scores for caregiver reaction which asks the caregiver to rate how much the patients behaviour has bothered or upset them. The current study only asked the caregivers to report on the observable patient behaviour problems and did not assess the caregiver reaction. Overall scale reliability is good, with an alpha of .84 for patient behaviour and subscale alphas ranged from .67 to .89. Validity has been confirmed through comparison of RMBPC scores with well-established indices of depression, cognitive impairment, and caregiver burden (Teri, Truax, Logsdon, Uomoto, Zarit & Vitaliano, 1992). A recent Australian study assessing the effects of visiting pets in nursing homes, in conjunction with reminiscence therapy, modified the RMBPC checklist to include positive social behaviours as well as problem behaviours (Marston & Bennett, personal communication). Marston and Bennett added seven positive social (pro-social) behaviour items and an additional four negative behaviour items after consultation with nursing home staff. This modified version of the RMBPC was used (with permission of the above authors) in the present study to record the frequency of social and anti-

social (or problem) behaviours that residents with dementia often display. An additional 3 positive social (pro-social) items were also added after consultation with local nursing home staff. These included: “smiled”, “laughed” and “Displayed positive nonverbal responses (eg. looks, nods)”. The feedback from nursing home staff was that the behaviour checklist did not contain any positive “nonverbal” items, and nonverbal indicators such as smiling, laughing, looks and nods were very important to include, especially to record the behavioural response of dementia residents who are unable to talk, or talk very little. The checklist did, however, contain negative nonverbal items such as: “Appearing sad or depressed”, “Appearing anxious or worried” and “Destroying property”.

The checklists were completed by four Activities Therapists, employed at the care facility, for each individual resident at the end of each week of the study and also after each Animal-Assisted program session. Activities Therapists were chosen to complete the checklists because it was deemed that knowledge of the residents and the ability to observe subtle changes in behaviour was more important than the potential risks of inflated results that might arise from staff wanting the intervention to be successful.

In the present study the Behaviour Checklist was preceded by the statement: “The following is a list of social and anti-social behaviours that residents with dementia often display. Please could you tick the box that indicates best how often these behaviours have occurred over the past week/session. If you’re not sure please tick ‘don’t know’ or write NA if not relevant”. Activities staff were asked to respond on a 5-point likert scale ranging from: 0 = not at all, 1 = infrequently/sometimes, 2 = once or twice per day, 3 = often, 4 = very frequently, 9 = don’t know or NA. The associated numbers did not appear on the checklist, these were assigned later during data entry. The behaviour checklists provided data for the three subscales of the RMBPC (disruptive behaviour, memory-related problems and depression) as well as the additional subscale “pro-social behaviour”.

Disruptive Behaviour Subscale

There were eight items in the Disruptive Behaviour scale, including: “Destroying property”, “Doing embarrassing things (eg., taking clothes off inappropriately)”, “Waking up in the night”, “Engaging in behaviour that is potentially dangerous to self or others”, “Threatening to hurt oneself”, “Verbally aggressive to others (eg. residents or staff)”, “Arguing, irritability and/or complaining” and “Talking loudly and rapidly or demanding attention”. In the present study, a score for

Disruptive Behaviour was obtained by calculating the mean of the eight individual item scores in the disruptive behaviour scale for those participants who had data available for at least six items and then multiplying this by eight. This procedure was employed so that some degree of missing data could be tolerated. Possible scores for Disruptive Behaviour ranged from 0-32, with higher scores, indicating higher frequency of Disruptive Behaviours.

Memory-related Problems Subscale

There were seven items in the Memory-related Problems scale, including: "Trouble remembering recent events (eg. what they had for lunch)", "Trouble remembering significant past events", "Losing or misplacing things", "Forgetting what day it is", "Starting, but not finishing, things", "Difficulty concentrating on a task" and "Asking the same question over and over". In the present study, a score for Memory-related Problems was obtained by calculating the mean of the seven individual item scores in the Memory-related Problems scale for those participants who had data available for at least five items and then multiplying this by seven. Possible scores for Memory-related Problems ranged from 0-28, with higher scores, indicating higher frequency of Memory-related Problem behaviours.

Depression Subscale

There were nine items in the Depression scale, including: "Appearing anxious or worried", "Appearing sad or depressed", "Expressed feelings of hopelessness or sadness about the future", "Crying and tearfulness", "Commenting about death (eg., 'I'd be better off dead')", "Talking about feeling lonely", "Comments about feeling worthless or being a burden to others" and "Comments about feeling like a failure or about not having worthwhile accomplishments in life". In the present study, a score for Depression was obtained by calculating the mean of the nine individual item scores in the Depression scale for those participants who had data available for at least seven items and then multiplying this by nine. Possible scores for Depression ranged from 0-36, with higher scores, indicating higher frequency of Depressive behaviours.

Prosocial Behaviour Subscale

There were ten items in the Prosocial Behaviour scale, including: "Smiled", "Expressed positive feelings appropriately", "Laughed", "Having appropriate verbal communication with staff and/or other residents", "Displayed positive nonverbal responses (eg. Looks, nods)", "Shows appropriate awareness of time passing", "Able to concentrate on a task for 5-10 minutes", "Sleeping well" and "Participated in some exercise". In the present study, a score for Prosocial

Behaviour was obtained by calculating the mean of the ten individual item scores in the ProSocial Behaviour scale for those participants who had data available for at least eight items and then multiplying this by ten. Possible scores for Prosocial Behaviour ranged from 0-40, with higher scores, indicating higher frequency of Prosocial Behaviours.

Physiological measures

Systolic blood pressure, diastolic blood pressure and pulse were measured at the end of each week during the baseline and follow-up phases, and after the last Animal-Assisted program session during the intervention phase. Nursing staff were unable to collect these measures due to time constraints but training and supervision was provided for the author. These measures were collected using the Omron Electronic Blood Pressure monitor, as stated above.

Procedure

Participants were recruited from a suburban Residential Care Facility. The Director of Nursing gave permission for the study to be conducted and it was also approved by the Human Research Ethics Committee of the University of Adelaide. The Activity Programs Co-ordinator assisted with recruitment of

participants and implementation of the study. Participants were selected and approached with the assistance of the co-ordinator and the director of nursing who suggested the residents they thought would like to participate in an Animal-Assisted program. Thirty-two residents were approached to participate in the study and two residents declined. One resident was afraid of dogs and the other thought dogs should not be allowed inside. Consultation with Nursing Home staff and the resident's legal guardian were undertaken for people with severe dementia and therefore unable to provide this information accurately.

Ethical Considerations: Ethics approval for this study was given by the University of Adelaide Human Research Ethics Committee. While it was not anticipated that there would be any risks of pain, anxiety or discomfort associated with participation in the study and every effort was made to ensure the safety of all participants involved, association with all animals is accompanied by risk. Each participant, or guardian, was given an information sheet and consent form prior to the study and given time to decide if they would like to participate in the study and also time to discuss it with other people if they wanted to. See Appendix E for a copy of information sheet and consent forms. The Director of Nursing advised on which residents would be unable to provide informed consent and consent was obtained from their family/legal

guardian. Written consent from each resident/legal guardian was obtained prior to the commencement of the study. If a legal guardian was unavailable to sign the consent form, or signed it but the resident did not want to participate, the resident was excluded from the study. Residents who chose not to participate in the study were still able to participate in the Animal-Assisted program if they wanted to, however no measures were recorded. It was also explained to participants that they were free to withdraw from the study at any point. No resident withdrew from the study. Prior to the commencement of the study the procedure for dealing with any problems that arose during the study was discussed with the Director of Nursing. The Director of Nursing requested that any distress or injury that arose during the study be reported immediately to Nursing Home Staff, and any incidences would be handled according to the standard procedures for medical and emotional care currently employed at the Residential Care Facility. The Director of Nursing also stated that any distress or injury incurred by a resident or volunteer during the study would be covered under the Residential Care Facility's public liability insurance. Fortunately no incidences arose during the study. All research data was stored in accordance with regulatory guidelines, to ensure that the privacy and confidentiality of participants was protected.

Design

The study employed a within subjects repeated measures design. It compared pre-, post- and treatment effects on behaviour, heart rate and blood pressure (longer-term effects of the Animal-Assisted intervention), as well as comparing Animal-Assisted session days and non-Animal-Assisted session days effects on behaviour (short-term effects of the Animal-Assisted intervention). The intervention trial commenced on the 19th October 2007 and was run for 16 consecutive weeks, finishing on the 8th February 2008. It consisted of a 4-week baseline period, 6-week intervention period and 6-week follow-up period.

Program format: A One hour Animal-Assisted Activities (AAA) session was implemented twice a week for 6 weeks for each group. The AAA sessions involved an Activities Therapist plus visiting dogs and volunteer handler². An existing Nursing Home volunteer and her 8 year-old golden retriever participated in the study, as well as another volunteer and her two border collies. They are all members of the Caring Canine Companions Community Visitors Scheme, which is administered by the Golden Retriever Club of South Australia. All visiting dogs were previously assessed for temperament and suitability to the Nursing Home environment. The dogs visited the Day Room Group on Mon &

² The format of the sessions is inline with the definition of Animal-Assisted Activities (AAA), rather than Animal-Assisted Therapy (AAT) which requires the administration by a professional rather than a volunteer. See chapter one for definitions of both terms.

Wed from 3.30-4.30pm and the Sundowners Group on Tues & Thurs from 3.30-4.30pm. This time-slot was chosen in consultation with Nursing Home staff as late-afternoon “sundown” time is associated with increased problem behaviours for dementia patients, as discussed previously. The golden retriever “Jazz” visited on Monday and Tuesday and the two border collies “Dayna” and “Ella” visited on Wednesday and Thursday. Therefore both groups received the same exposure to all dogs. Post-intervention measures were taken from 4.30-5.00pm. Weekly measures were taken at the end of each week on Friday afternoons (ie. a Non-AAA intervention day). During the AAA sessions, the dog(s) were introduced to the residents by the activities therapist and the handler, and then the dogs were walked around to each resident and they were allowed to pat and interact with the dog, one at a time.

As stated above, the Animal-Assisted intervention was conducted with the two groups separately for behaviour-management and staff availability reasons, however the two groups received exactly the same exposure to the intervention. Therefore, it was decided that the data from the two groups would be analysed together for the main analyses in order to maximize the sample size and statistical power. This will be discussed further in the results section.

Results

The results section will be divided into three subsections: preliminary analyses, hypothesis testing and a summary of the major findings.

Preliminary Analyses

Data Screening

All data was entered and analysed using the SPSS for Windows, version 15.0, statistics package (SPSS Inc., 2006). Means, standard deviations, minimum and maximum values were inspected for accuracy of data entered. Most values were within the expected range. There was a very small amount of error in the data set. Incorrectly entered data was found and replaced with the correct data.

Missing data

When doing research, particularly with human beings, it is very rare to obtain complete data for every case (Pallant, 2007). It is important to decide how best to deal with this missing data. The current data file was inspected for missing data and it was found that there was a small amount of missing data. There was a very small amount of isolated pieces of missing data and there were also blocks

of data missing where participants did not attend the Animal-Assisted program for that session.

To minimize the effects of isolated pieces of missing data, it was decided to employ a procedure for calculating subscale scores that tolerates a small amount of missing data. This was described in the method section. This procedure provides a subscale score that is a good estimate of the true subscale score if there is not too much missing data. It was used instead of inserting the mean for missing data (mean imputation) as this can severely distort results of analyses (Pallant, 2007).

For statistical analyses, the weekly subscale scores were collapsed into Baseline (weeks 1-4), Intervention (weeks 5-10) and Follow-up (weeks 11-16) scores, to make the 16 weeks of data easier to analyse. These were also calculated in the manner used for calculating the subscale scores above. A score for each intervention period (baseline, intervention and follow-up) for each of the dependent variables (pro-social behaviour, disruptive behaviour, memory-problems, depression, pulse, systolic and diastolic blood pressure) was obtained by calculating the mean of the individual weeks for that period, for those residents with data available for at least half of the weeks in that period. This

allowed for a mean score to be created even if the resident had missed a couple of weeks, but not too many weeks. This gave a baseline score for prosocial behaviour, an intervention score for pro-social behaviour and a follow-up score for pro-social behaviour and so on. As the intervention phase included scores for both intervention days and non intervention days, only intervention day scores (when the therapy dogs actually visited) were used to calculate the intervention phase score.

It was also decided that for statistical analyses, the exclude cases pairwise option, rather than the listwise option, would be used. The listwise option can severely (and unnecessarily) limit sample size (Pallant, 2007), whereas the pairwise option excludes the case (person) only if they are missing the data required for the specific analyses. They will still be included in any of the analyses for which they have the necessary information. This will therefore exclude cases that are missing some of the data required for that analysis (eg. participants who did not attend many intervention sessions). This will result in slight variation in N for different analyses. The procedures used for dealing with missing data should have minimal effects on analyses.

Normality

ANOVA analyses have the assumption that their variables are normally distributed (Tabachnick & Fidell, 2001). Normality has two statistical components: skewness and kurtosis. Skewness refers to the symmetry of the distribution of the scores, whereas kurtosis refers to the peakedness of the distribution of the scores. Normality testing was conducted for all variables for each trial phase in which participants' behaviour observations were recorded. In accordance with Tabachnick & Fidell's (2001) recommendations for assessing normality, the shapes of the distributions were inspected and skewness and kurtosis values were calculated. Any skewness or kurtosis value greater than 1.96 or less than -1.96 is significantly different from zero ($p=.05$). Observation of frequency histograms with superimposed normal distributions and tests of skewness and kurtosis revealed no significant departures from normality for Baseline, Intervention and Follow-up scores for Prosocial Behaviour, Memory Problems, Systolic blood pressure, Diastolic blood pressure and pulse. Normality data for Disruptive behaviour and Depression showed no significant departures from normality for Baseline and Follow-up, but the Intervention distributions were all positively skewed and quite peaked (ie., most scores were clustering around the lower end of the distribution). Therefore, interpretation of results involving these distributions will need to proceed with caution and non-

parametric test alternatives will be conducted also. Any normality data required for other analyses will be discussed later in the section for those analyses.

Outliers

Outliers are cases with extreme values on a given variable. Analysis of Variance (ANOVA), which is to be used in the present study, is particularly sensitive to outliers. It is not clear how outliers affect the results of these analyses (Cohen & Cohen, 1983; Tabachnick & Fidell, 2001), therefore it is important to reduce the influence of outliers. In the present study, extreme values were identified among the dependent variables using the EXPLORE command of the SPSS statistics package. Histograms were examined for potential outliers. Box-plots were also examined. SPSS identifies points as outliers if they extend more than 1.5 box-lengths from the edge of the box and extreme points are those that extend more than three box-lengths from the edge of the box. There were a few outliers and extreme points on the box-plots. The 5% Trimmed Mean was also inspected as it is an indication of how much of a problem these outlying cases are likely to be. To calculate the 5% trimmed mean, SPSS removes the top and bottom 5% of cases and recalculates a new mean value. By comparing the original mean and the new trimmed mean, you can see whether extreme scores are having a strong influence on the mean. If the two mean values are very similar, then the extreme

scores are not having a strong influence on the mean and can be retained in the data file (Pallant, 2007). All means and trimmed means for Prosocial behaviour, Memory Problems, Disruptive behavior, Depression, Negative behaviour, Systolic blood pressure, Diastolic blood pressure and pulse (for baseline, intervention and follow-up periods) were inspected. All means and trimmed means were found to be very similar and therefore any extreme scores were deemed not to be having a strong influence on the mean and were retained in the data file. Any outlier data required for other analyses will be discussed later in the section for those analyses.

Hypothesis Testing

Specific hypotheses were made *a priori*, drawing from theory and past research (see Statement of Hypotheses). These can be tested using planned comparisons, however, planned comparisons do not control for the increased risks of Type 1 errors. A Type 1 error means rejecting the null hypothesis (or saying there are no differences among the groups) when it is actually true. In other words, there is an increased risk of claiming a significant result when it could have occurred by chance (Pallant, 2007). Pallant (2007) advises that it might be safer to use post-hoc comparisons (which are designed to protect against Type 1 errors) if there are a large number of differences to explore. As some of my hypotheses involve

comparing differences between each of the conditions (baseline vs. intervention, intervention vs. follow-up, baseline vs. follow-up) it was decided to adopt the more cautious approach and use post-hoc tests for these analyses. For other analyses, comparing only two conditions or time points (eg., intervention vs. non-dog control) planned comparisons will be used.

Changes in behaviour across the different intervention periods

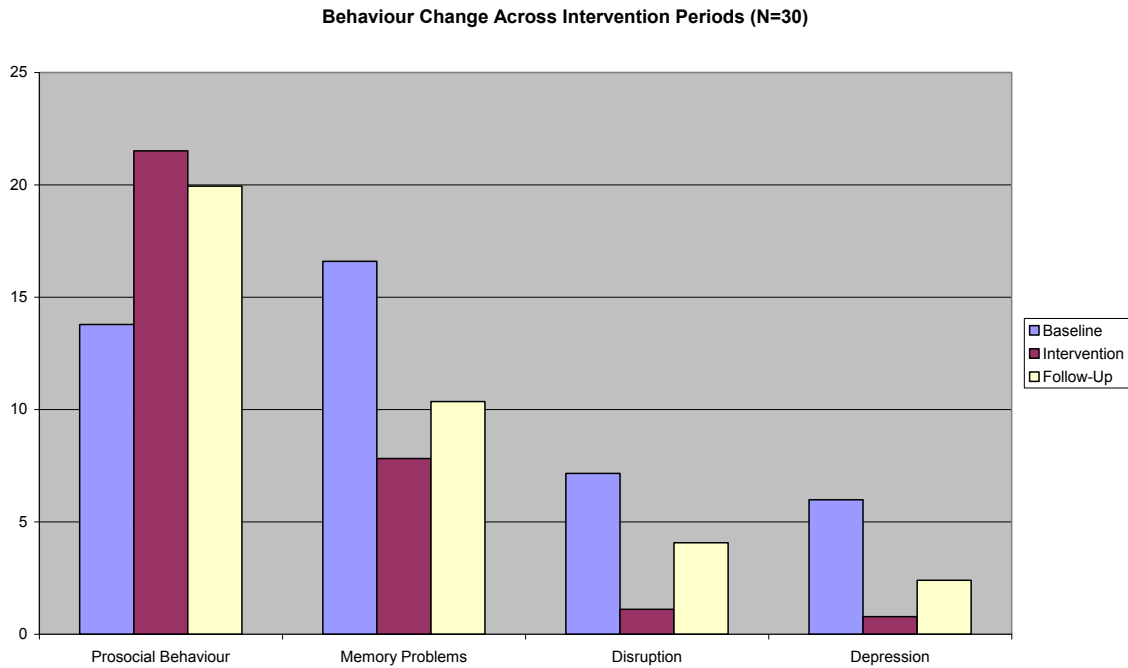
As described previously, a score for each intervention period (baseline, intervention and follow-up) for each of the dependent variables (pro-social behaviour, disruptive behaviour, memory-problems, depression, pulse, systolic and diastolic blood pressure) was obtained by calculating the mean of the individual weeks for that period, for those residents with data available for at least half of the weeks in that period. This gave a baseline score for prosocial behaviour, an intervention score for pro-social behaviour and a follow-up score for pro-social behaviour and so on. Please refer to Table 1 for means and standard deviations for pro-social behaviour, disruptive behaviour, memory-related problems, depression, pulse, systolic and diastolic blood pressure for all intervention periods. The data is also presented graphically in figure 1 (behaviour change across intervention periods) and figure 2 (physiological change across intervention periods).

Table 1:

Means (and Standard Deviations) for dependent variables by intervention period

Dependent Variable	Intervention Period		
	Baseline	Intervention	Follow-up
	(n=30)	(n=30)	(n=30)
	Mean (SD)	Mean (SD)	Mean (SD)
Pro-social Behaviour	13.78 (6.17)	21.51 (7.09)	19.94 (7.05)
Disruptive Behaviour	7.16 (6.42)	1.11 (1.71)	4.07 (3.95)
Memory Problems	16.59 (6.42)	7.82 (5.24)	10.35 (6.89)
Depression	5.98 (2.55)	.78 (.93)	2.40 (1.82)
Sys. Blood Pressure	141.46 (21.82)	150.00 (23.78)	137.76 (24.57)
Dia. Blood Pressure	77.36 (12.82)	79.63 (13.26)	77.37 (13.20)
Pulse	74.58 (9.78)	75.73 (11.15)	77.39 (10.63)

Figure 1:



Prosocial Behaviour

To test the hypotheses that Prosocial behaviours will be higher during the Animal-Assisted intervention than the baseline period (Hypothesis 2.2) and higher during the intervention period than the follow-up period (Hypothesis 2.3), a one-way repeated measures ANOVA was conducted to compare scores on Prosocial behaviour at: Time 1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .25, $F(2, 21) = 31.76$, $p < .0005$, multivariate partial eta squared =

.75. Using the commonly used guidelines proposed by Cohen (1988, pp. 284-7) (.01=small, .06=moderate, .14=large effect), this result suggests a very large effect size. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni adjustment for multiple comparisons, indicated that the mean score for Time 1 ($M=13.78$, $SD=6.17$) was significantly different from Time 2 ($M=21.51$, $SD=7.09$) and Time 3 ($M=19.94$, $SD=7.05$). Time 2 did not significantly differ from Time 3. All mean differences were significant at the .05 level (this includes the Bonferroni adjustment). These results support both the proposed hypotheses.

Disruptive Behaviour

To test the hypotheses that Disruptive behaviour will be lower during the Animal-Assisted intervention than the baseline period (Hypothesis 1.2) and lower during the intervention period than the follow-up period (Hypothesis 1.3), a one-way repeated measures ANOVA was conducted to compare scores on Disruptive behaviour at: Time 1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .48, $F(2,22) = 12.17$, $p < .0005$, multivariate partial eta squared = .53. Using Cohen's (1988) guidelines, this result suggests a very large effect size. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni

adjustment for multiple comparisons, indicated that the mean score for Time 1 ($M=7.16$, $SD=6.42$) was significantly different from Time 2 ($M=1.11$, $SD=1.71$) and Time 3 ($M=4.07$, $SD=3.95$). Time 2 also significantly differed from Time 3. All mean differences were significant at the .05 level. These results support both the hypotheses proposed.

As the assumption of normality was not met for this dependent variable the non-parametric alternative, the Friedman Test, was also conducted. The results of the Friedman Test indicated that there was a statistically significant difference in Disruptive Behaviour scores across the three time points (pre-intervention baseline, intervention, post-intervention follow up), $\chi^2(2, n=24) = 30.92$, $p < .0005$. Inspection of the median values showed a decrease in disruptive behaviour from pre-intervention baseline ($Md = 5.14$) to intervention ($Md = .41$) and a slight increase at post-intervention follow-up ($Md = 2.29$). Post-hoc tests were conducted using the Wilcoxon Signed Rank Tests (using a Bonferonni adjusted alpha value) to control for Type 1 error. I will compare Time 1 (baseline) with Time 2 (intervention) scores, and then compare Time 2 (intervention) with Time 3 (follow-up), and then compare Time 1 (baseline) with Time 3 (follow-up). This involves three tests; therefore, the revised alpha level for determining statistical significance would be $.05/3 = .016$. A Wilcoxon Signed Rank Test revealed a

statistically significant reduction in disruptive behaviour from baseline to intervention, $z = -4.26$, $p < .0005$, the median score on disruptive behaviour decreased from baseline ($Md = 4.86$) to intervention ($Md = .34$). There was a large effect size ($r = .57$), according to Cohen's (1988) criteria of .1 = small effect, .3 = medium effect, .5 = large effect. A second Wilcoxon Signed Rank Test revealed a statistically significant increase in disruptive behaviour from intervention to follow-up, $z = -3.65$, $p < .0005$, the median score on disruptive behaviour increased from intervention ($Md = .34$) to follow-up ($Md = 2.19$). There was also a large effect size ($r = .50$). A final Wilcoxon Signed Rank Test revealed a statistically significant decrease from baseline to follow-up, $z = -3.78$, $p < .0005$, the median score on disruptive behaviour decreased from baseline ($Md = 4.86$) to follow-up ($Md = 2.19$). There was also a large effect size ($r = .50$).

Memory Problems

There were no specific hypotheses predicted for Memory Problems. A one-way repeated measures ANOVA was conducted to compare scores on Memory problems at: Time 1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .10, $F(2, 21) = 91.76$, $p < .0005$, multivariate partial eta squared =

.90. Using Cohen's (1988) guidelines, as outlined above, this result suggests a very large effect size. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni adjustment for multiple comparisons, indicated that the mean score for Time 1 ($M=16.59$, $SD=6.42$) was significantly different from Time 2 ($M=7.82$, $SD=5.24$) and Time 3 ($M=10.35$, $SD=6.89$). Time 2 also significantly differed from Time 3. All mean differences were significant at the .05 level.

Depression

There were no specific hypotheses predicted for Depression. A one-way repeated measures ANOVA was conducted to compare scores on Depression at: Time 1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .14, $F(2, 22) = 67.90$, $p < .0005$, multivariate partial eta squared = .86. Using Cohen's (1988) guidelines, this result suggests a very large effect size. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni adjustment for multiple comparisons, indicated that the mean score for time Time 1 ($M=5.98$, $SD=2.55$) was significantly different from Time 2 ($M=.78$, $SD=.93$) and Time 3 ($M=2.40$, $SD=1.82$). Time 2 also significantly differed from Time 3. All mean differences were significant at the .05 level.

As the assumption of normality was not met for this dependent variable the non-parametric alternative, the Friedman Test, was also conducted. The results of the Friedman Test indicated that there was a statistically significant difference in depression scores across the three time points (pre-intervention baseline, intervention, post-intervention follow up), $\chi^2 (2, n=24) = 42.75, p < .0005$. Inspection of the median values showed a decrease in depression from pre-intervention baseline ($Md = 5.63$) to intervention ($Md = .50$) and a slight increase at post-intervention follow-up ($Md = 1.91$). Post-hoc tests were conducted using the Wilcoxon Signed Rank Tests (using a Bonferonni adjusted alpha value) to control for Type 1 error. I will compare Time 1 (baseline) with Time 2 (intervention) scores, and then compare Time 2 (intervention) with Time 3 (follow-up), and then compare Time 1 (baseline) with Time 3 (follow-up). This involves three tests; therefore, my revised alpha level for determining statistical significance would be $.05/3 = .016$. A Wilcoxon Signed Rank Test revealed a statistically significant reduction in depression from baseline to intervention, $z = -4.29, p < .0005$, the median score on depression decreased from baseline ($Md = 5.75$) to intervention ($Md = .50$). There was a large effect size ($r = .58$), according to Cohen's (1988) criteria of $.1 =$ small effect, $.3 =$ medium effect, $.5 =$ large effect. A second Wilcoxon Signed Rank Test revealed a statistically significant increase

in depression from intervention to follow-up, $z = -3.63$, $p < .0005$, the median score on depression increased from intervention ($Md = .50$) to follow-up ($Md = 1.62$). There was also a large effect size ($r = .50$). A final Wilcoxon Signed Rank Test revealed a statistically significant decrease from baseline to follow-up, $z = -4.62$, $p < .0005$, the median score on depression decreased from baseline ($Md = 5.75$) to follow-up ($Md = 1.62$). There was also a large effect size ($r = .61$).

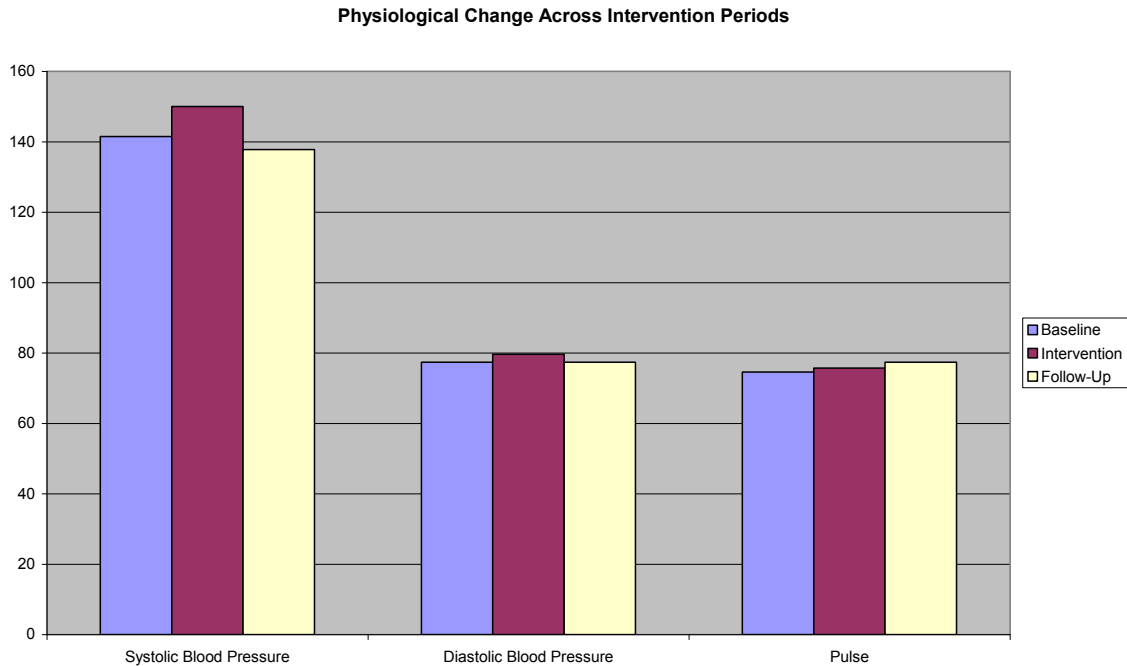
Changes in Physiological Measures across the intervention periods

Please refer to Table 1 for means and standard deviations for Systolic Blood Pressure, Diastolic Blood Pressure and Pulse, for all intervention periods. This data is also presented graphically in Figure 2.

Systolic Blood Pressure

To test the hypotheses that systolic blood pressure will be lower during the Animal-Assisted intervention than the baseline period (Hypothesis 3.1) and lower during the intervention period than the follow-up period (Hypothesis 3.2), a one-way repeated measures ANOVA was conducted to compare scores on systolic blood pressure at: Time 1 (baseline period prior to the intervention),

Figure 2:



Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .48, $F(2, 15) = 8.27$, $p < .01$, multivariate partial eta squared = .52. Using Cohen's (1988) guidelines, this result suggests a very large effect size. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni adjustment for multiple comparisons, indicated that the mean score for Time 2 ($M=150.00$, $SD=23.78$) was significantly higher than at Time 3 ($M=137.76$, $SD=24.57$). The mean difference was significant at the .05 level. Time

1 ($M=141.46$, $SD=21.82$) did not significantly differ from Time 2 or Time 3. These results did not support the hypotheses.

Diastolic Blood Pressure

To test the hypotheses that diastolic blood pressure will be lower during the Animal-Assisted intervention than the baseline period (Hypothesis 3.1) and lower during the intervention period than the follow-up period (Hypothesis 3.2), a one-way repeated measures ANOVA was conducted to compare scores on diastolic blood pressure at: Time 1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. The hypotheses were not supported by the results of the ANOVA, Wilks' Lambda = .95, $F(2, 15) = .39$, $p > .05$, multivariate partial eta squared = .05. As there was no significant difference for time, there was no need to conduct further post-hoc analyses.

Pulse

To test the hypotheses that pulse will be lower during the Animal-Assisted intervention than the baseline period (Hypothesis 3.1) and lower during the intervention period than the follow-up period (Hypothesis 3.2), a one-way repeated measures ANOVA was conducted to compare scores on pulse at: Time

1 (baseline period prior to the intervention), Time 2 (intervention period) and Time 3 (follow-up period). The means and standard deviations are presented in Table 1. There was a significant effect for time, Wilks' Lambda = .62, $F(2, 15) = 4.68$, $p < .05$, multivariate partial eta squared = .38. Post-hoc tests conducted using Pairwise Comparisons, using the Bonferroni adjustment for multiple comparisons, indicated that the mean difference for Time 1 and 3 were approaching significance ($p = .06$) but there were no significant differences for Time 1, Time 2 or Time 3. The results did not support the hypotheses.

Intervention days vs. Non-intervention Days

As outlined above, the behaviour observation checklists were completed at the end of each week of the study and also after each Animal-Assisted intervention session. As the AAA sessions were run Monday-Thursday, the weekly checklists were completed on Fridays. As Friday was a non-intervention day, this enabled us to calculate a non-intervention day score. A non-intervention day score for each dependent variable was obtained by calculating the mean of the individual weeks (non-intervention days only) for the intervention period, for those residents with data available for at least half of the weeks. This gave us a non-intervention day score for prosocial behaviour, disruptive behaviour, depression

and memory-related problems. The intervention score (for each dependent variable) as calculated previously, were also used in these analyses.

The normality data for dependent variables to be used in these analyses was inspected. All means and trimmed means were found to be very similar and therefore any extreme scores were deemed not to be having a strong influence on the mean and were retained in the data file. Skewness and kurtosis values were within the normal range for all non-intervention day data, but there was some skewness and kurtosis evident in the intervention data for Disruptive behaviour and Depression as was reported in the previous discussion of normality. Therefore, the results of analyses will be interpreted with caution and the non-parametric test alternative will be conducted.

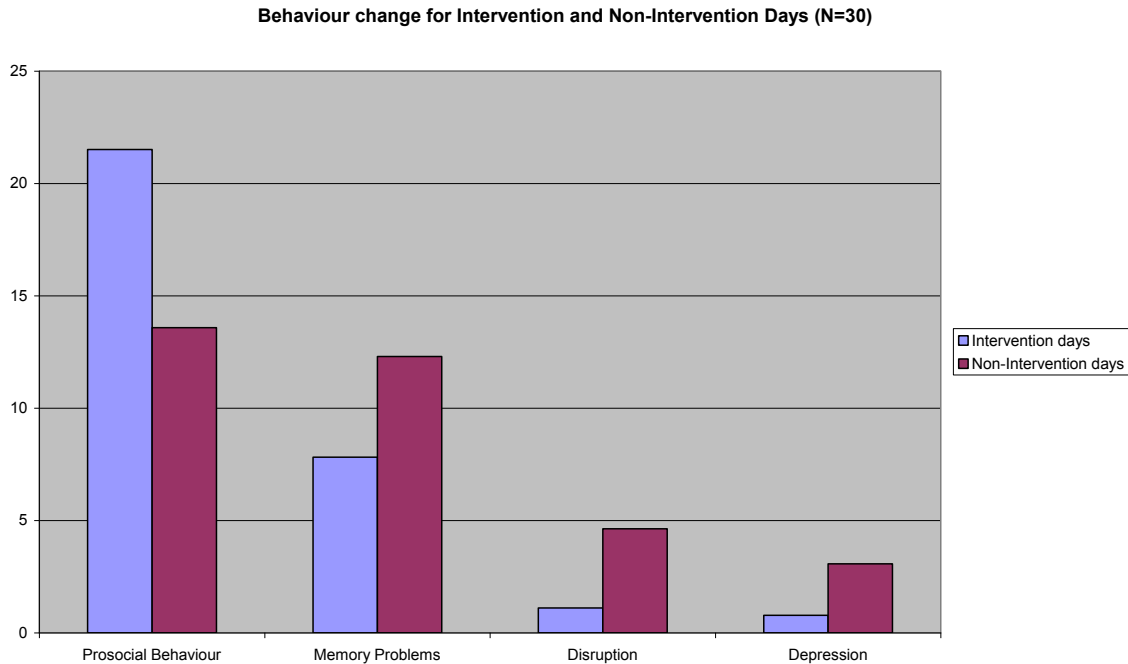
Please refer to Table 2 for means and standard deviations for Prosocial Behaviour, Disruptive Behaviour, Memory Problems and Depression for both intervention and non-intervention days. The means are also presented graphically in Figure 3.

Table 2

Means (and Standard Deviations) for dependent variables for intervention/non-intervention days

Dependent Variable	Intervention/Non-Intervention days	
	Intervention days (n=30)	Non-Intervention days (n=30)
	Mean (SD)	Mean (SD)
Pro-social Behaviour	21.51 (7.09)	13.58 (6.03)
Disruptive Behaviour	1.11 (1.71)	4.63 (4.43)
Memory Problems	7.82 (5.24)	12.30 (6.27)
Depression	.78 (.93)	3.07 (1.53)

Figure 3:



Pro-social Behaviour

To test the hypothesis that Prosocial behaviour will be higher on Animal-Assisted intervention days than non-intervention days (Hypothesis 2.1), a paired-samples t-test (two-tailed) was conducted to evaluate the impact of the intervention on residents' scores on Prosocial Behaviour. There was a statistically significant difference between intervention ($M= 21.51, SD=7.09$) and non-intervention days ($M=13.58, SD=6.03$), $t(22)=6.62, p<.0005$. The mean difference in pro-social scores was 7.93 with a 95% confidence interval ranging from 5.45 to 10.42. The eta squared statistic (.67) indicated a large effect size. The

results support the hypothesis that pro-social behaviour will be higher on Animal-Assisted intervention days than non-intervention days.

Disruptive Behaviour

To test the hypothesis that Disruptive behaviours will be lower on Animal-Assisted intervention days than non-intervention days (Hypothesis 1.1), a paired-samples t-test (two-tailed) was conducted to evaluate the impact of the intervention on residents' scores on Disruptive Behaviour. There was a statistically significant difference between intervention ($M=1.11$, $SD=1.71$) and non-intervention days ($M=4.63$, $SD=4.43$), $t(23) = -4.62$, $p < .0005$. The mean difference in pro-social scores was -3.52 with a 95% confidence interval ranging from -5.09 to -1.94 . The eta squared statistic (.50) indicated a large effect size. The results support the hypothesis that disruptive behaviour will be lower on Animal-Assisted intervention days than non-intervention days.

As the assumption of normality was not met for this dependent variable the non-parametric alternative, the Wilcoxon Signed Rank Test, was also conducted. The results of the Wilcoxon Signed Ranked Test revealed a statistically significant difference in disruptive behaviour on intervention days when compared with non-intervention days, $z = -3.74$, $p < .0005$, with a large effect size ($r = .51$). The

median score on disruptive behaviour was lower on intervention days ($Md = .34$) than on non-intervention days ($Md = 3.14$).

Memory Problems

There were no specific hypotheses predicted for Memory Problems. A paired-samples t-test (two-tailed) was conducted to evaluate the impact of the Animal-Assisted intervention on residents' scores on Memory Problems. There was a statistically significant difference between intervention ($M=7.82$, $SD=5.24$) and non-intervention days ($M=12.30$, $SD=6.27$), $t(22) = -6.03$, $p < .0005$. The mean difference in pro-social scores was -4.47 with a 95% confidence interval ranging from -6.00 to -2.93 . The eta squared statistic (.62) indicated a large effect size.

Depression

There were no specific hypotheses predicted for Depression. A paired-samples t-test (two-tailed) was conducted to evaluate the impact of the Animal-Assisted intervention on residents' scores on Depression. There was a statistically significant difference between intervention ($M=.78$, $SD=.93$) and non-intervention days ($M=3.07$, $SD=1.53$), $t(23) = -7.82$, $p < .0005$. The mean difference in pro-social scores was -2.30 with a 95% confidence interval ranging from -2.90 to -1.69 . The eta squared statistic (.74) indicated a large effect size.

As the assumption of normality was not met for this dependent variable the non-parametric alternative, the Wilcoxon Signed Rank Test, was also conducted. The results of the Wilcoxon Signed Ranked Test revealed a statistically significant difference in depression on intervention days when compared with non-intervention days, $z = -4.29$, $p < .0005$, with a large effect size ($r = .59$). The median score on depression was lower on intervention days ($Md = .50$) than on non-intervention days ($Md = 2.67$).

Discussion

As discussed in detail in this chapter, behavioural and physiological data were collected from 30 Nursing Home residents during a trial of an Animal-Assisted intervention. The study consisted of a four-week baseline phase, six-week intervention phase and six-week follow-up phase.

Summary of findings

Residents' social behaviour (prosocial behaviour) was found to significantly increase during the Animal-Assisted intervention. Residents' disruptive behaviour was found to significantly decrease during the intervention. Residents' memory problems and depressive behaviour were also found to significantly decrease during the intervention. However, physiological measures of heart rate and diastolic blood pressure were not found to significantly differ across the baseline, intervention and follow-up phases. Systolic blood pressure was found to be significantly higher for the intervention phase than the follow-up phase, which was the opposite of what was predicted. These findings will be discussed below.

Pro-social Behaviour

The hypotheses related to increases in pro-social behaviour during the Animal-Assisted intervention were supported by the research findings. Pro-social behaviour was found to be significantly higher on days the intervention was conducted compared with the days the intervention was not conducted. Pro-social behaviour also significantly increased from the baseline observational phase in which no dogs were present compared to the intervention phase in which the dogs visited twice weekly. Pro-social behaviour decreased after the dogs were removed during the follow-up phase, however this decrease was not significant. Pro-social behaviour did not significantly differ for the intervention and follow-up phases. However, pro-social behaviour was significantly higher for the follow-up phase compared to the baseline phase, indicating that the positive effects were maintained during the 6-week follow-up phase where the dogs were not present.

The findings that pro-social behaviour was significantly higher on intervention days compared with the non intervention days and that pro-social behaviour significantly increased from the baseline phase to the intervention phase were consistent with previous research that found that Animal-Assisted Interventions improved social behaviour in dementia patients (Kongable et al. 1989, Batson et

al. 1998, Churchill et al. 1999, Greer et al. 2001, Richeson, 2003, Sellers, 2005). However, none of these studies assessed the effects after the completion of the Animal-Assisted intervention or when the dogs were removed. In the present study it was found that pro-social behaviour decreased during the follow-up phase after the completion of the six-week intervention, however this reduction was not significant nor were previous baseline levels returned to. These new findings indicate that the positive effects of the intervention on pro-social behaviour were maintained during the six-week follow-up phase when the visiting therapy dogs were no longer present. These new results offer some answers to the “important question of whether these short-term effects can be maintained for periods of time” (Sellers, 2005, p. 74). The results of the present study suggest that the effects on pro-social behaviour can be maintained after the completion of the Animal-Assisted intervention. Further studies are needed to support this new finding.

Disruptive Behaviour

The hypotheses related to decreases in disruptive behaviour during the Animal-Assisted intervention were supported by the research findings. Disruptive behaviour was found to be significantly lower on intervention days than non-intervention days. Disruptive behaviour also significantly decreased from the

baseline phase to the intervention phase, and significantly increased from the intervention phase to the follow-up phase. However, disruptive behaviour was significantly higher for the baseline phase compared with the follow-up phase. Therefore, even though disruptive behaviours increased during the follow-up phase, after the dogs were removed, they did not return to pre-intervention baseline levels.

The findings that disruptive behaviour decreased on intervention days and during the intervention phase are consistent with previous research that found Animal-Assisted Interventions reduced agitated behaviour in dementia patients (Walsh et al. 1995, Churchill et al. 1999, Kanamori et al. 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005). The study by Richeson (2003) was the only study to assess the effects after the dog was removed and found that the agitated behaviour significantly increased during a follow-up phase. In the present study disruptive behaviour significantly increased during the follow-up phase, which is in line with the findings of Richeson (2003). The current study also found that disruptive behaviour was significantly higher during the baseline phase compared with the follow-up phase. The Richeson (2003) study did not compare baseline and follow-up scores. In the present study, even though disruptive behaviour significantly increased during the

follow-up phase, it did not return to pre-intervention baseline levels. This suggests some maintenance of the effects on disruptive behaviour after the intervention. Perhaps a longer intervention period or more frequent visits (eg. daily visits) might result in effects being further maintained. This is an area for further research.

Memory Problems

There were no specific hypotheses proposed related to memory problems. Exploration of the data revealed that memory problems were significantly lower on intervention days than non-intervention days. Memory problems also significantly decreased from the baseline phase to the intervention phase, and significantly increased from the intervention phase to the follow-up phase. However, memory problems were also significantly higher for the baseline phase compared with the follow-up phase. Therefore, even though memory problems increased during the follow-up phase, after the dogs were removed, they did not return to pre-intervention baseline levels.

The findings that memory problems decreased on the intervention days and during the intervention are contradictory to previous research findings. The only two published studies that assessed the effect of an Animal-Assisted intervention

on cognitive functioning, including memory problems, did not find any significant differences after the intervention (Motomura et al. 2004, Kanamori et al. 2001). The contradictory findings could be due to the methodological differences between the previous studies and the current study. Both previous studies used the Mini Mental State Exam administered before and after the intervention, whereas the current study used an observational behavioural checklist of memory problems administered regularly throughout the study. Perhaps the present study was able to detect subtle observable changes in memory problems that simple before-and-after tests can not. The Motomura et al. (2004) study implemented a four-day AAT intervention and the Kanamori et al. (2001) study implemented six AAT sessions conducted fortnightly over a three month period. The present study implemented AAA sessions twice weekly for a six-week period. Perhaps the observed effects in memory could be attributed to the more frequent delivery of program sessions. Perhaps the four-day program was not enough to evoke benefits. And similarly, perhaps fortnightly sessions are not enough. More research is needed to determine the optimum frequency and duration needed for an Animal-Assisted programs to be effective.

Observations during the AAA sessions were that residents seemed to reminisce about past pets and life before the nursing home quite a lot. The animals seemed to provide a stimulus for memory of past events, which seemed to show up in the memory scale.

Depressive Behaviour

There were no specific hypotheses proposed related to depressive behaviour. Exploration of the data revealed that depressive behaviour was significantly lower on intervention days than non-intervention days. Depressive behaviour also significantly decreased from the baseline phase to the intervention phase, and significantly increased from the intervention phase to the follow-up phase. However, depressive behaviour was significantly higher for the baseline phase compared with the follow-up phase. Therefore, even though depressive behaviours increased during the follow-up phase, after the dogs were removed, they did not return to pre-intervention baseline levels.

The findings that depressive behaviour decreased on intervention days and during the intervention are contradictory to previous research findings. The only two published studies that have assessed the effect of Animal-Assisted interventions on depression did not find any significant differences in depressive

symptoms after the intervention (Motomura et al. 2004, Enders-Slegers et al. 2005). The contradictory findings could be due to the methodological differences between the previous studies and the current study. As stated above, the study by Motomura et al. (2004) only involved a four-day intervention, where as the present study implemented a six-week intervention with twice weekly sessions. Perhaps four days was not long enough to have an effect on depressive symptoms. However, the study by Enders-Slegers et al. (2005) also conducted a six-week program but it is unclear how frequent the sessions were over the six weeks. Both previous studies included measures of depression measured *only* before and after the intervention, where as the current study include an observational checklist of depressive behaviours completed regularly *during* the study. Perhaps the observational measure was able to detect more subtle changes in depressive behaviour. More research is needed to further investigate the effects of Animal-Assisted programs on depressive symptoms and also memory problems to shed light on these contradictory findings.

An interesting point to note in the present study is that pro-social behaviour and memory problems were generally higher scoring constructs than disruptive behaviour and depression. In the present study residents were rated higher on pro-social behaviour and memory problems than disruptive behaviour or

depression. Perhaps this is reflective of nursing home staff (who completed the observational checklists) wanting to rate the dementia residents in more of a positive light.

A potential limitation of the current research must be noted here. The presence of the investigator during all AAA sessions and staff members recording participants' behaviours could have had an impact on the results. Data obtained via observations are vulnerable to distortions and experimental bias, and the quality of information is threatened by the risk of human perceptual error (Kongable et al. 1989). There is also the potential for staff members' involvement with the study (and wanting the intervention to work) to interfere with observer objectivity. However, the development of a structured observational checklist and use of multiple raters should address some of these issues. Kongable et al. (1989) suggest that video recordings of the resident-pet interactions could be used as a cross-check with the data observations. Video tapes were also used to record the AAA sessions in the present study. However, the video recordings were a last-minute addition to the study and were not intended to be used for this purpose. The recordings were conducted by the author (who is untrained in the use of media equipment). The quality of the video taping and also difficulties with recording large groups meant they were deemed not

appropriate to be used for systematic scientific analysis. This is a limitation of the current research and future research would be enhanced by systematic video recording of intervention sessions to cross-check with on site observational data.

Physiological Measures

The hypotheses related to physiological measures of heart rate and blood pressure were not supported by the research findings. There were no significant differences found for heart rate or diastolic blood pressure across the baseline, intervention and follow-up phases. Systolic blood pressure was found to be significantly higher for the intervention phase than the follow-up phase, which was the opposite of what was predicted.

The finding that heart rate and diastolic blood pressure did not differ across baseline, intervention and follow-up phases is partly congruent with previous research. Previous studies investigating physiological indicators had yielded mixed results. As discussed in the introduction chapter, it has been suggested that one of the mechanisms by which therapy dogs may produce positive effects in humans, is by inducing relaxation. Studies have shown that petting a dog with whom a companion bond has been established has a relaxing effect by decreasing blood pressure in healthy participants, and decreasing blood pressure

and increasing peripheral skin temperature in hypertensive patients (See Baun, Oetting & Bergstrom, 1991 for a review). One study assessed the effects of petting a dog with whom a companion bond had been established, compared with petting a non-bonded dog (Baun, Bergstrom, Langston & Thoma, 1984). The study employed a within-subject experimental design where 24 healthy participants read quietly, petted a non-bonded dog, and petted a bonded dog. The order of the treatment conditions was randomly assigned. Blood pressure, heart rate and respiratory rate were recorded at 3-minute intervals for each of the 9-minute treatment sessions. The results indicated that petting a bonded dog significantly decreased the systolic and diastolic blood pressure of healthy participants. However, the research evidence for dementia patients has been mixed. The study by Walsh et al. (1995) found that heart rate was significantly reduced in the pet therapy group after a 12-week intervention but found no significant differences in blood pressure. The study by Kanamori et al. (2001) measured another physiological indicator, salivary chromogranin A (CgA) as a mental stress index, and found a decreasing tendency in the AAT group after a three-month intervention, but no significant difference. The study by Batson et al. (1998) found no significant differences in blood pressure, heart rate or skin temperature when the therapy dog was present. Participants participated in 10-minute sessions on 2 different days: 1 day with and 1 day without the dog

present. Batson et al. (1998) suggest that participants' greater alertness (evidenced by a higher occurrence of looks) and possibly increased activity associated with petting the dog may have offset a relaxation response. Walsh et al. (1995) and Batson et al. (1998) both suggest that the various medications that the majority of participants were taking may also have had an effect on the physiological measures. Batson et al. (1998) also suggested that the majority of participants also had other various medical conditions with the potential to affect circulatory responses.

For the current study, data about other medical conditions or medications participants were currently taking were not collected. This is a limitation of the present research. As medication use and a variety of medical conditions are common in dementia patients in residential care, it is reasonable to suspect that medication may have impacted on physiological data collected in this study. Future research investigating Animal-Assisted interventions should take into account, and attempt to control for the effects of other medical conditions and medications being taken. It would be good to examine the effects on a group of medication-free participants (but this may be hard to find with this elderly population). Future research could also investigate whether the need for

medication usage may be decreased as a result of the Animal-Assisted intervention.

The results of the current study could also reflect a genuine finding – perhaps Animal-Assisted interventions have little effect on blood pressure and heart rate of dementia patients. Or perhaps we have not been able to detect effects in complex real-world research settings? The study by Baun, Bergstrom, Langston & Thoma (1984) discussed above is illustrative of a very controlled experimental design where measures of blood pressure were systematically recorded at 3-minute intervals for each of the 9-minute treatment sessions. The present study, conducted in a real-world setting (a busy nursing home environment) with limited resources, was not able to be conducted in such a controlled manner. The author recorded all participants' heart rate and blood pressure directly after the AAA sessions. However, given the large group of participants, and the difficulty of taking these measures with participants who are often physically restricted in wheelchairs, meant that there was often a considerable delay between the end of the AAA session and the recording of heart rate and blood pressure measures. After such a time delay any effects may have dissipated. Perhaps, in a more controlled setting where residents' heart rate and blood pressure could be

monitored at regular intervals during the AAA session, effects on heart rate and blood pressure may be observed. Future research could explore this.

I would like to digress to discuss one relevant experience I had during the current research project. One particular resident was noted by staff to always have very high blood pressure. I was measuring her blood pressure one day just after she had had a massage, and her blood pressure was the lowest I'd ever seen it. I showed it to the clinical nurse who couldn't believe it either. We took another reading just to make sure and the low reading was confirmed. This told me two things: one that it could have been because I took the reading straight after the massage (where as with the AAA sessions with the large numbers of residents and only one of me I often took their BP up to half an hour after the session had finished). The other was that massage, unlike AAA in group settings, does not have the potential to get the residents excited, active... as the pet therapy does, therefore off-setting any relaxation effect. We may find different results for individual Animal-Assisted interventions where a resident just 'quietly' strokes a dog rather than a busy group setting where the dog is walking around and everyone is competing for the dog's attention. Further research could explore this.

Implications of findings

An important consideration when discussing the implications of these research findings is the question of 'clinical significance'. Debra Sellers provides a good discussion of this in her 2005 study of Animal-Assisted Therapy for dementia:

"The question, when interpreting these results in terms of actual practice, is whether the statistical findings translate into a clinically meaningful difference in quality of life for each of the elders" (p. 72)

Did the Animal-Assisted intervention conducted in the current study increase the quality of life for the residents involved? Quality of life is a concept that is often referred to (particularly in aged care settings) but there is currently no standard definition. However, it is often discussed through the concept of a sense of satisfaction with life in terms of physical comfort, emotional wellbeing and interpersonal connections (Sellers, 2005; Kuhn, Ortigara & Kasayka, 2000). When discussed in these terms, the results of the present study suggest a positive effect on these areas. An increase in social behaviours found in the present study may indicate an increase in emotional wellbeing and interpersonal connections, and thus improvement in quality of life.

The results of the present study further support existing research that suggests that AAT is a viable intervention to decrease agitated behaviours and increase social behaviours for elderly people with dementia living in long-term care and that it may be effective in improving their quality of life. Batson et al. (1998) suggest that pet therapy appears to be an appropriate stimulus that matches the level of cognitive impairment for people with dementia, and is an easily implemented intervention, fulfilling a basic need for communication as well as for physical contact. Authors have also noted that AAT is by no means a stand-alone therapy (Churchill et al. 1999; McCabe et al. 2002). A therapy dog can be used as an adjunct to traditional therapies to decrease agitation, increase socialization and improve quality of life for elderly people with dementia.

Limitations of this research

As with any piece of research, the present study is not without its limitations. As previously discussed non-blinded observational data is vulnerable to distortions and experimental bias, and the quality of information is threatened by human perceptual error (Kongable et al. 1989). The present study used a structured observational checklist and also used multiple raters in order to address some of these problems, but could have been strengthened by the use of systematic video

recordings of the resident-pet interactions during the intervention sessions to use as a cross-check with the data observations.

Another limitation already discussed, is that the present study did not record other medical conditions or medications participants were currently taking. Previous research has suggested that medication usage (Walsh et al. 1995; Batson et al. 1998) and other medical conditions (Batson et al. 1998) may have an effect on the physiological measures of heart rate and blood pressure of participant. Therefore, the present study could have been strengthened by the inclusion of data about other medical conditions and current medication usage of the participants.

The present study may be criticised for its small sample size of 30 participants. However, as noted in the introduction chapter, small sample sizes are typical for this type of research and in fact a sample of 30 is actually on the larger end of the scale. Of the 12 published studies investigating Animal-Assisted Interventions for people with dementia (available at the time of writing), the sample sizes were varied between four and 28 participants. Having now completed this study, small sample size in this field of research is reflective of the challenging nature of

conducting intervention research with groups of dementia residents in already busy residential care facilities. This is no easy task!

The present Animal-Assisted intervention was limited only to dogs and not other animals. Dogs were chosen in this research project as volunteers were readily available with trained and accredited therapy dogs. I considered using a Burmese cat who has a sociable and relaxed nature and would suit the nursing home environment but the accreditation process was lengthy. Dogs are the most commonly researched therapy animal in residential care settings, due to their practical and manageable nature. Other animals such as cats are not socialized on leads and not as easily walked around or are as readily transportable in a motor vehicle. However, we should look to broaden the focus and include other animals in future research. The State Hospital in Scotland, discussed in the introduction chapter, has all manner of animals used therapeutically in its innovative garden centre. Perhaps cats and other animals would be more suited to living in the residential care facility. Future research should look to explore the viability and effectiveness of other animals as well as dogs.

The present study included participants that were selected with the assistance of nursing home staff who suggested the residents they thought would like to

participate in an Animal-Assisted program, based on their previous history or expressed interest in animals. Residents with pet allergies, fear of dogs, or aggression when in the presence of dogs were also excluded from the study. Therefore, participants were generally limited to those who liked or were interested in animals. Would Animal-Assisted programs be as effective with people who have no interest in animals or no history of pet ownership, or do these programs only work with pet lovers? Random assignment of people to animal and non-animal conditions would be useful for teasing out these sorts of questions. However, this sort of research becomes hard to do ethically as there are obvious problems with randomly assigning people to an Animal-Assisted program if they do not like or are afraid of animals. Perhaps the inclusion of participants who are “animal neutral” might be useful. “Animal neutral” participants might include people who do not love animals or have a prior history of pet ownership, but are not scared of/allergic to animals either. Another alternative would be to recruit people who are all in principle willing to participate and then randomly allocate some to receive the treatment at once and some to a waiting list (as is done for therapy evaluations).

Another limitation of the present study is that the results are limited in generalisability to Caucasian persons. Cross-cultural research in this area would

be useful as certain cultures may have different views about animals which may impact on the effectiveness of these sorts of programs. One gentleman at the Nursing Home grew up in the country and commented: “Animals should be kept outside!” He did not wish to be part of the project.

Another limitation of this study is that the Animal-Assisted intervention “package” included both dog and handler, and we don’t really know which element – or their combination – was the active ingredient. The next study will include a control condition where the volunteer dog handler visits without the therapy dog.

These limitations aside, the present research has still made a useful contribution to our knowledge and understanding about Animal-Assisted intervention programs for dementia residents in residential care facilities.

Directions for future research

While the present study has made a unique contribution to the existing body of research, further research is need in this relatively new field of scientific enquiry. More research is needed to support the new findings of the current study and

add to our growing knowledge in this area. Some possible directions for further research have been noted above and will be discussed further in this section.

As reported previously, the results of the present study suggest that the positive effects of the Animal-Assisted intervention program on social behaviour of dementia residents can be maintained after the completion of the program, when the visiting therapy dogs were no longer present. This was a new finding as previous research has not assessed the effects on social behaviour after the completion of an Animal-Assisted program. This new finding has important implications for practice as it tells us that the therapy dogs do not need to be present for the effects to be maintained, for at least six weeks, which could impact on program format and delivery. However, further studies are needed to support this new research finding.

As previously reported, the results of the present study suggest some maintenance of the effects on disruptive behaviour after the Animal-Assisted intervention. Further research could investigate whether a longer intervention period or more frequent visits (eg. daily visits) might result in effects being further maintained. Future research should further investigate the optimal length of programs/frequency of visits (daily/weekly). We should seek to

understand what is needed to maintain behavioural change, investigating the longer-term effects, rather than just the short-term effects as the previous research has tended to focus on.

Future research could also further investigate the effects of Animal-Assisted intervention programs on memory problems and depressive symptoms. These two measures have received little research attention and the present study had the opportunity to assess the effects of the intervention program on them. As discussed previously, the findings of the present study for memory problems and depression were contradictory to the limited previous research findings and more research could explore the effects of Animal-Assisted programs on these relatively under-researched constructs.

More systematically controlled research investigating the effects of Animal-Assisted interventions on dementia residents' heart rate and blood pressure could also be conducted to shed light on contradictory research findings. The effects of individual programs where one resident 'quietly' strokes a dog could also be compared with a busy group programs where the dog is walking around and residents are all competing for the dog's attention.

As discussed above, future research would be strengthened by the use of systematic video recordings of resident-pet interactions during program sessions to cross-check with observational data and reduce any potential experimental bias. Future research investigating Animal-Assisted interventions should also take into account, and attempt to control for, the effects (if any) of other medical conditions and medications currently being taken by participants. Further research could also compare the effects of Animal-Assisted interventions with other therapies for people with dementia, such as massage and aromatherapy, as discussed in the introduction chapter.

Future research would also be strengthened by inclusion of participants from various socio-economic and cultural backgrounds. The current study was conducted with Caucasian people in one private nursing home. Further research should be conducted in both private and public nursing homes, with people from a variety of different cultural backgrounds, to examine any differences on the effectiveness of Animal-Assisted programs.

As suggested above, further research would be strengthened by randomly assigning participants to animal and non-animal conditions, and including people who do not have a previous history with animals. Obvious ethical

problems with this have been discussed, but future research should attempt to randomly assign participants where possible to increase the scientific rigor of observed outcomes. Further research should look to include other animals as well as therapy dogs and investigate their potential effects.

Finally, and importantly, further research should focus on current practice and implementation. Research could investigate issues such as barriers to implementation of Animal-Assisted programs, practical issues and concerns of nursing homes, and availability of volunteers/staff and trained animals to conduct these programs. This could include using rescued animals in programs. With many abandoned animals euthanized every year, this could provide mutual benefit for the animals themselves and the people who could benefit from their company. The outcomes of this research should lead to a better understanding of the current picture of Animal-Assisted programs for dementia in Australia, and work towards better implementation practices in the future.

Chapter Four

≈

“Animal-Assisted Intervention without the animals!”

Study 3: Non-Dog Control Trial

"I think I could turn and live with animals, they are so placid and self-contained, I stand and look at them long and long."

- Walt Whitman

Introduction

Aim of Study

As stated in chapter one, this study aims to control for human-interaction effects by measuring the behavioural and physiological effects on dementia residents when the volunteer dog handlers visit without the dogs (ie. the Animal-Assisted intervention without the dogs).

Previous research and theory

The study by Batson et al. (1998) reviewed in detail in chapter three, investigated the impact of a visiting dog on social behaviour of residents with severe dementia. Physiological indicators of heart rate, blood pressure and skin temperature were also recorded. The residents participated in sessions on two different days: one day with and one day without the dog present. The results found the duration and frequency of social interaction behaviours were significantly higher when the dog was present, but the physiological indicators did not show significant differences.

The study by Churchill et al. (1999), also reviewed in chapter three, examined the effects of pet therapy on agitated and social behaviour of residents with Alzheimer's disease. They included sessions with the researcher visiting with the therapy dog and also sessions with the researcher visiting without the therapy dog. They found that agitated behaviour was significantly less and social behaviour was significantly increased when interacting with the researcher and the therapy dog, compared to interacting with the researcher when the dog was not present.

The study by Enders-Slegers et al. (2005) also reviewed in chapter three, investigated the effects of visiting dogs on social behaviour. The study involved elderly people in psycho-geriatric day-care facilities in the Netherlands and included experimental and control groups where people were visited by a volunteer with or without the dogs present weekly for six weeks. Social behaviour and depression were measured. The authors found that during visits social behaviour increased significantly more within the experimental groups (dog present), than in the control groups (volunteer dog handler only). However, no long term effects on social behaviour were found. The study also found no significant effects on depression scores, between or within the groups.

Limitations and gaps in literature

The three studies described above (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005) are the only studies conducted in this area to date, that have controlled for human-interaction effects by using the volunteer dog handler without the dog as control sessions. This is a very important inclusion in the research design as with the other studies conducted in this area (reviewed previously) we are left to wonder how much of the positive effect on residents' behaviour was due to the therapy dog and how much was due to the volunteer

dog handler. Due to the very nature of volunteering with dementia residents, these people tend to be very caring in disposition and the potential positive effects of these volunteers should not be overlooked. Therefore more research that assesses the unique contribution of the therapy dog, using a control condition where the volunteer dog handler visits without the dog, is needed. In addition, only one of the three studies discussed above included a measure of agitated behaviour as well as social behaviour (Churchill et al. 1999) and only one study included physiological measures as well as behavioural measures (Batson et al. 1998).

The present study involved a control intervention where the volunteer dog handlers visited without the therapy dogs. It also included measures of agitated and social behaviour as well as physiological measures.

The aims of the present study were:

1. To investigate both the behavioural and physiological effects of volunteer dog handlers visiting dementia residents (without therapy dogs) twice a week for a six-week program

2. To compare the effects observed with those observed in the previous Animal-Assisted intervention trial, where the volunteer dog handlers visited the same dementia residents (with therapy dogs) twice a week for a six-week program

Predictions based on previous research and theory

The following predictions, based on previous research and theory, are made.

Disruptive behaviour

As discussed in chapters one and three, it has been suggested that distraction is a potential mechanism by which pet therapy could benefit people with dementia, and it has been proposed that a therapy dog may distract a resident from displays of agitation (Churchill et al. 1999). It has also been suggested that the physiological reaction (a lowering of blood pressure that often accompanies interaction with dogs) may also be of benefit in reducing the behavioural symptoms of dementia (such as agitation) (Filan & Llewellyn-Jones, 2006). Previous research by Churchill et al, (1999) also found that agitated behaviour was significantly less when interacting with a person and a therapy dog, compared to interacting with a person when the dog was not present. Therefore, the present study will predict that disruptive behaviour will be lower in the

Animal-Assisted intervention condition, where the volunteers visit with the therapy dogs, than in the non-dog control condition where the volunteers visit without the dogs.

Prosocial behaviour

As also discussed in chapters one and three, it has been suggested that people with dementia may experience a loss of personalized affection after they move into a Residential Care Facility, and that the therapy dog could provide the missed physical contact by allowing petting, kissing, hugging (Churchill et al. 1999). Previous research has also found that social interaction behaviours were significantly higher when a therapy dog was present, than when a volunteer visited alone without a therapy dog (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005). Therefore, the present study will predict that prosocial behaviours will be higher in the Animal-Assisted intervention condition, than in the non-dog control condition where the volunteers visit without the therapy dogs.

Depression & Memory-related problems

As discussed in chapter three, the main interest of the present study was on the effects of the Animal-Assisted intervention on the participants' disruptive

behaviour, pro-social behaviour, heart rate and blood pressure, as guided by the previous research. The Revised Memory & Behaviour Problems Checklist (RMBPC) used in the present study also provides sub-scales for depression and memory-related problems, and therefore we had the opportunity to investigate the effects of the Animal-Assisted intervention on these two measures also. There has been limited research investigating the effects of Animal-Assisted interventions on depression or memory problems. The studies conducted to date have found no significant differences in either measure after the implementation of the Animal-Assisted intervention. Only two studies published to date assessed the effect of AAT on depressive symptoms (Motomura et al. 2004, Enders-Slegers et al. 2005). The study by Motomura et al. (2004), reviewed in chapter three, included a geriatric depression scale (GDS) in their study of the effect of AAT on dementia residents in a Japanese nursing home. They found no significant difference in the depression scale after the four-day AAT intervention. Their study did not include a non-dog control condition. The study by Enders-Slegers et al. (2005), discussed above, included a non-dog control condition where the volunteers visited without the therapy dogs. They did not find any significant differences in depression scores between the experimental condition (with visiting dogs) and the non-dog control condition, after the six-week study.

The study by Motomura et al. (2004) and the study by Kanamori et al. (2001), also reviewed in chapter three, were the only published studies to date to assess the effect of AAT on cognitive functioning, including memory problems. Both studies used the mini-mental state examination (MMSE) which measures cognitive functioning, including memory. Motomura et al. (2004) found no significant difference in the MMSE after the four-day AAT intervention. Kanamori et al. (2001) also found no significant difference in the MMSE after six AAT sessions conducted fortnightly over a three month period. None of the studies that included a non-dog control condition (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005), discussed above, assessed effects on memory.

As there is limited previous research in relation to depression and memory-related problems, the present study will not predict any specific hypotheses in relation to these measures. However, the effects (if any) of the Animal-Assisted intervention or control intervention on these measures will be explored.

Physiological measures

As discussed in chapters one and three, previous research has found that interacting with a dog has a relaxing effect by decreasing blood pressure (Baun, Oetting & Bergstrom, 1991; Odendaal & Meintjes, 2003), and it has been

suggested that this physiological reaction may contribute to effective pet therapy (Filan & Llewellyn-Jones, 2006). The study by Walsh et al. (1995), reviewed in chapter three, found that heart rate was significantly reduced in the Pet Therapy group after their 12-week intervention. The only study to include a non-dog control condition and measure physiological effects was the study by Batson et al. (1998), discussed above. Physiological indicators of heart rate, blood pressure and skin temperature were recorded on two different days: one day with and one day without the dog present. The physiological indicators did not show significant changes. However, the present study will record measures over a longer period than the Batson et al. (1998) study which may detect changes in physiological measures. Therefore, given the theoretical rationale and previous research findings, for the present study it is predicted that heart rate and blood pressure will be lower in the Animal-Assisted intervention condition, where the volunteers visit with the therapy dogs, than in the non-dog control condition where the volunteers visit without the dogs. A formal statement of hypotheses will be presented in the next section.

Statement of Hypotheses

Disruptive behaviour

2.1 Disruptive behaviour will be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition.

Pro-social behaviour

2.2 Pro-social behaviour will be significantly higher for the Animal-Assisted intervention condition than the non-dog control condition.

Physiological Measures

2.3 Systolic blood pressure will be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition.

2.4 Diastolic blood pressure will be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition.

2.5 Heart rate will be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition.

Depression & Memory-related problems

As discussed above, the present study will not predict any specific hypotheses in relation to depression or memory-related problems, but the effects (if any) of the Animal-Assisted intervention or control intervention on depression and memory-related problems of the participants will be explored.

Method

Participants

Seven participants from the Animal-Assisted intervention study participated in the non-dog control study. As outlined in chapter three, the residents were recruited from a South Australian Residential Care Facility. The residents who participated in the control study were part of the Sundowner's group. It would have been preferable to run this non-dog control study with all participants from the Animal-Assisted intervention trial, however logistical and staffing constraints at the Nursing Home meant that the control study was only able to be run with the participants from the smaller Sundowner's group. Due to the severity of their dementia (and associated effects on short-term memory) and a significant gap in between the two studies (there was a 12 week gap from the cessation of Animal-Assisted intervention and the commencement of the non-dog control trial), it was deemed that there would be little chance that the results would be affected by carry-on effects from the Animal-Assisted intervention run with the same residents. The time-line for the two studies was as follows: The Animal-Assisted intervention trial commenced on the 19th October 2007 and was run for 16 consecutive weeks, finishing on the 8th February 2008. It consisted of a 4-week baseline period, 6-week intervention period and 6-week follow-up

period. There was then a wash-out period of 6-weeks where no data was collected. The 6-week non-dog control trial commenced on the 27th of March 2008 and ended on the 13th May 2008.

Demographic information including age, gender and dementia severity was collected. As reported in the previous chapter, the residents in the Sundowner's group (n=7) had a mean age of 73.43 years (min=31, max=85). There were 6 (85.7%) females and 1 (14.3%) male in the sundowner's group. Five out of the seven residents in the sundowner's group were in the severe cognitive impairment range (71.4%) as measured by the MMSE. One resident (14.3%) was in the mild cognitive impairment range and one resident was in the moderate cognitive impairment range.

The control study replicated the previous larger study in terms of all procedures and measures used. The same volunteers visited the same residents on the same days of the week at the same time and the same measures were recorded by the same Nursing Home staff and researcher. Nursing Home staff confirmed that there had been no substantive changes in the health status or cognitive function of the participating residents during the interval between the Animal-Assisted intervention and this non-dog control intervention. The two studies were

conducted in an identical manner, except for the absence of the therapy dogs in the control study. Therefore, the Animal-Assisted intervention and non-dog control studies may be considered comparable, and any differences found in outcomes may be attributed to the presence of the therapy dogs.

Measures

As assessed in the previous study, behaviour problems (disruptive behaviour, depressive behaviour, memory problems) were assessed using a modified version of The Revised Memory and Behaviour Problems Checklist (RMBPC) (Teri, Truax, Logsdon, Uomoto, Zarit & Vitaliano, 1992). Pro-social Behaviour was measured by adding an additional subscale to the RMBPC, as piloted by Marston & Bennett (personal communication). Physiological measures of heart rate and blood pressure were measured using the OMRON blood pressure monitor. See chapter three for a full description of these measures.

Procedure

The six-week non-dog control study was conducted in an identical manner to the six-week intervention period in the previous study, except the therapy dogs were not present and only the smaller Sundowner's group participated. One hour group sessions were conducted twice a week for six weeks. The sessions

involved an Activities Therapist and a visiting dog handler (without the dogs). The sessions were held during the difficult “sundown” time of the day when residents often display particularly agitated behaviours. The sessions were held on Tuesday and Thursday from 3.30-4.30, with the volunteers visiting on the same day as they visited during the last study: Jan (without Jazz) on Tuesdays and Nan (without Dayna and Ella) on Thursdays. During the sessions, the volunteer was introduced to the residents by the activities therapist and then the volunteer walked around to each resident and interacted with them one at a time, and also as a group. Therefore, the residents received the same treatment during both studies, except for exposure to the therapy dogs. Behaviour observations were recorded during the sessions by the activities staff member on duty that day and physiological measures were recorded by the author directly after the last session for the week. It must be noted that verbal interactions were more difficult to sustain without the presence of the dogs to provide a stimulus for conversation. Standardisation of the manner in which the volunteers interacted with residents whether the dogs were present or not would be advisable in future studies. This will be discussed further in the discussion section. As reported in the previous study, ethics approval was given by the University of Adelaide Human Research Ethics Committee and informed consent from the participants (or guardian) was obtained prior to the

commencement of research. See Appendix E for a copy of the consent form and information sheet given to participants. A summary sheet listing key findings, in plain English, was made available to interested participants at the conclusion of the study.

Statistical Analyses

Data were analysed using the SPSS for Windows, version 15.0, statistics package (SPSS Inc., 2006).

Results

Normality

Normality data was inspected for each behavioural dependent variable (prosocial behaviour, disruptive behaviour, depression, memory-related problems) for the intervention period and the non-dog control for the Sundowner's group (N=7). All means and trimmed means were found to be very similar and therefore any extreme scores were deemed not to be having a strong influence on the mean and were retained in the data file. The skewness and kurtosis values and frequency histograms were also inspected. The skewness and kurtosis values for pro-social behaviour were within the normal range for the intervention but the non-dog control data revealed positive kurtosis (ie. the data was too peaked). The distribution for disruptive behaviour intervention data were also too peaked and the non-dog control distribution was positively skewed also (ie. most scores clustering around the low end of the distribution). The intervention data for depression showed negative kurtosis. The non-dog control data showed negative skewness and positive kurtosis. Given that most of the dependent variables showed some violations of the assumption of normality, and also the small sample size (n=7), it was decided to use the non-

parametric alternative to the Paired-Samples T-Test, the Wilcoxon Signed Rank Test, to test these hypotheses.

Normality data were inspected for each physiological dependent variable (Systolic Blood Pressure, Diastolic Blood Pressure and Heart Rate) for the intervention period and the non-dog control for the Sundowners group (N=7). All means and trimmed means were found to be very similar and therefore any extreme scores were deemed not to be having a strong influence on the mean and were retained in the data file. The skewness and kurtosis values and frequency histograms were also inspected. The skewness and kurtosis values for systolic and diastolic blood pressure were within the normal range for the intervention and the non-dog control data. The data for heart rate for the intervention and non-dog control revealed a mild negative kurtosis. Given that the physiological data largely conformed with the assumption of normality, it was decided to use the Paired-Samples T-Test to test these hypotheses. However, given the small sample size, these results will be interpreted with caution.

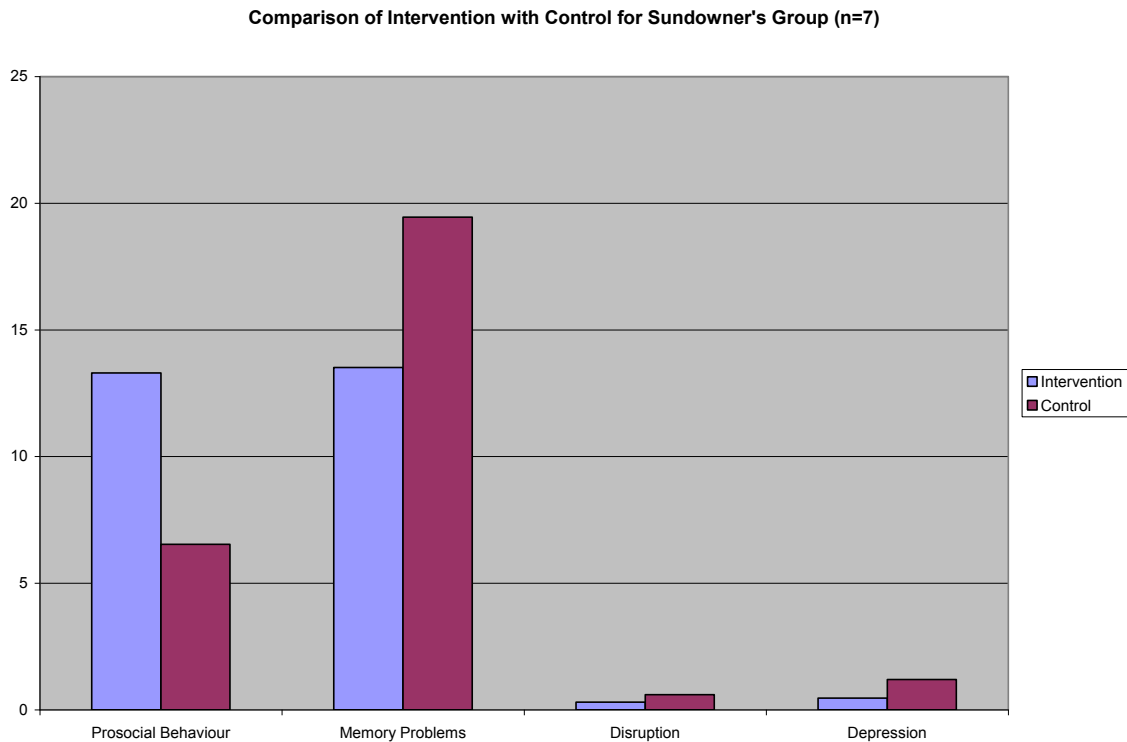
Please refer to table 3 for the median, mean (and standard deviation) for the dependent variables for the intervention and control conditions. The means are also presented graphically in figures 4 and 5.

Table 3:

Median, Mean (and Standard Deviation) for dependent variables for Intervention and Control for the Sundowner's Group

Dep Variable	Intervention/Control			
	Intervention (n=7)		Control (n=7)	
	Median	Mean (SD)	Median	Mean (SD)
Pro-social	12.36	13.30 (5.95)	4.61	6.53 (5.36)
Disruption	.29	.30 (.31)	.00	.60 (1.03)
Memory problems	13.50	13.51 (2.72)	20.32	19.45 (1.87)
Depression	.50	.46 (.39)	1.33	1.20 (.69)
Systolic BP	148.80	152.87 (26.32)	143.17	142.91 (26.32)
Diastolic BP	81.33	81.83 (12.74)	72.17	78.44 (15.30)
Heart rate	80.33	72.81 (10.63)	76.67	71.34 (10.64)

Figure 4:



Prosocial Behaviour

To test the hypothesis that Prosocial behaviour would be significantly higher for the Animal-Assisted intervention condition than the non-dog control condition (Hypothesis 2.2), a Wilcoxon Signed Ranked Test was conducted to evaluate the impact of the intervention on residents' scores on pro-social behaviour. The test revealed a statistically significant difference in pro-social behaviour between the intervention and non-dog control, $z = -2.37$, $p < .05$, with a large effect size ($r = .63$). The median score on Prosocial Behaviour was significantly higher for the

intervention ($Md = 12.36$) than the non-dog control ($Md = 4.61$). Therefore the results supported the hypothesis that pro-social behaviour would be significantly higher for the Animal-Assisted intervention than the non-dog control.

Disruptive Behaviour

To test the hypothesis that Disruptive behaviour would be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition (Hypothesis 2.1), a Wilcoxon Signed Ranked Test was conducted to evaluate the impact of the intervention on residents' scores on disruptive behaviour. Results of the test did not support this hypothesis, $z = -1.22$, $p > .05$, as there was not a significant difference between the conditions on this measure.

Memory-Related Problems

There were no specific hypotheses predicted for memory-related problems. A Wilcoxon Signed Ranked Test was conducted to evaluate the impact of the Animal-Assisted intervention on residents' scores on memory-related problems. A Wilcoxon Signed Rank Test revealed a statistically significant difference in memory problems between the intervention and non-dog control, $z = -2.37$, $p < .05$, with a large effect size ($r = .63$). The median score on memory problems was

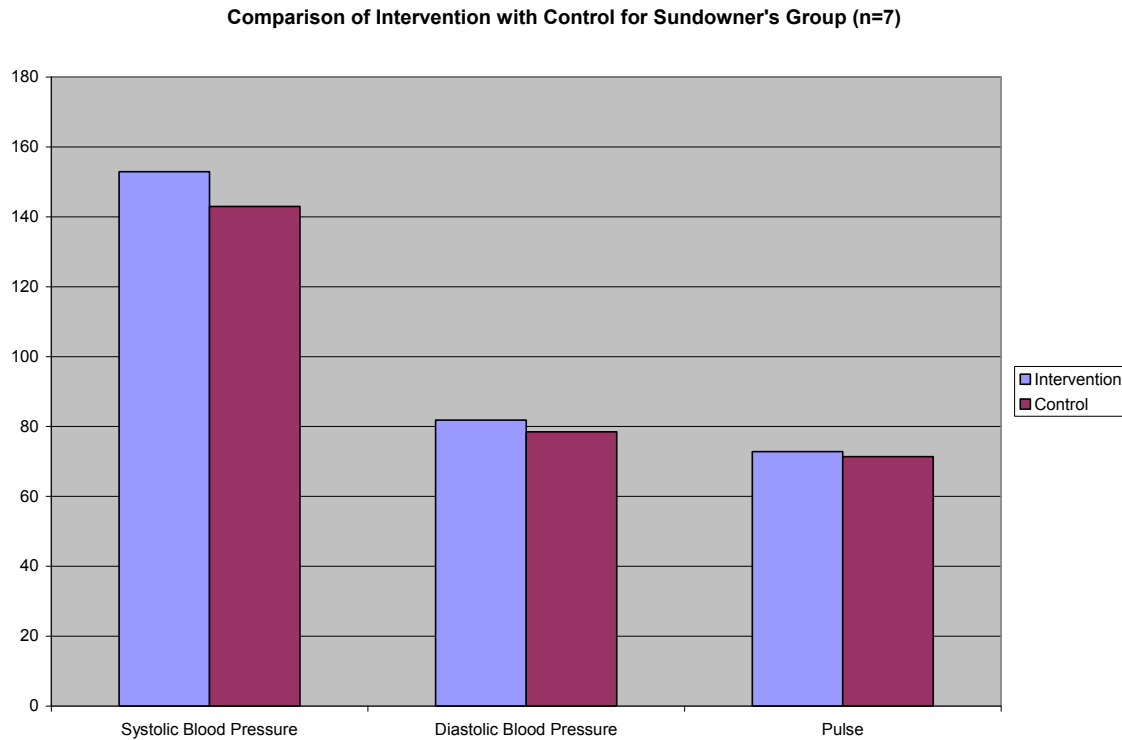
significantly lower for the intervention ($Md = 13.50$) than the non-dog control ($Md = 20.32$).

Depression

There were no specific hypotheses predicted for depression. A Wilcoxon Signed Rank Test was conducted to evaluate the impact of the Animal-Assisted intervention on residents' scores on depression. A Wilcoxon Signed Rank Test revealed a statistically significant difference in depression between the intervention and non-dog control, $z = -2.37$, $p < .05$, with a large effect size ($r = .63$). The median score on depression was significantly lower for the intervention ($Md = .50$) than the non-dog control ($Md = 1.33$).

It must be noted that I am aware that the results of the analyses for depression, memory-related problems and pro-social behaviour have resulted in identical z scores. Please be assured that the analyses have been double checked for accuracy. Please refer to figure 5 for the comparison of means for physiological measures for the intervention and control groups.

Figure 5:



Systolic blood pressure

To test the hypothesis that systolic blood pressure would be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition (Hypothesis 2.3), a paired-samples t-test (two-tailed) was conducted to evaluate the impact of the intervention on residents' systolic blood pressure.

There was a statistically significant difference between intervention ($M= 152.87$,

$SD=26.32$) and non-dog control ($M=142.91$, $SD=26.70$), $t(4)=5.71$, $p<.05$. The mean difference in systolic blood pressure was 9.96 with a 95% confidence interval ranging from 5.11 to 14.80. The eta squared statistic (.89) indicated a large effect size. The results did not support the hypothesis that systolic blood pressure will be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition; in fact it was significantly higher.

Diastolic blood pressure

To test the hypothesis that diastolic blood pressure would be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition (Hypothesis 2.4), a paired-samples t-test (two-tailed) was conducted to evaluate the impact of the intervention on residents' diastolic blood pressure. Results of a paired-samples t-test did not support this hypothesis, $t(4)=1.17$, $p > .05$, as no significant difference between groups was found.

Heart rate

To test the hypothesis that heart rate would be significantly lower for the Animal-Assisted intervention condition than the non-dog control condition

(Hypothesis 2.5), a paired-samples t-test (two-tailed) was conducted to evaluate the impact of the intervention on residents' heart rate. Results of a paired-samples t-test did not support this hypothesis, $t(4)=1.95$, $p > .05$, with no significant difference found between intervention and control conditions.

Discussion

As discussed in detail in this chapter, behavioural and physiological data was collected from seven Nursing Home residents during a non-dog control trial, where volunteer dog handlers visited without the dogs, to control for potential human-interaction effects that may have confounded results from the Animal-Assisted intervention trial. The study consisted of a six-week phase, where the volunteers visited twice per week without the therapy dogs (ie. the Animal-Assisted intervention without the dogs). The results of the study will be discussed below.

Summary of findings

Residents' social behaviour (pro-social behaviour) was found to be significantly higher for the Animal-Assisted intervention than the non-dog control condition. Residents' memory-related problems were found to be significantly lower for the Animal-Assisted intervention than the non-dog control condition. Residents' depression scores were found to be significantly lower for the Animal-Assisted intervention than the non-dog control condition. Residents' disruptive behaviour was not found to significantly differ for the Animal-Assisted intervention and the non-dog control condition. The results for heart rate and

diastolic blood pressure also did not significantly differ for the two conditions. Systolic blood pressure was found to be significantly higher for the Animal-Assisted intervention condition when compared with the non-dog control condition, which was the opposite of what was predicted. These findings will be discussed in detail below.

Pro-social Behaviour

The hypothesis related to pro-social behaviour was supported by the research findings. Pro-social behaviour was found to be significantly higher for the Animal-Assisted intervention condition than the non-dog control condition, where the volunteer dog handlers visited without the therapy dogs. This finding is consistent with previous research that found that social interaction behaviours were significantly higher when a therapy dog was present, than when a volunteer visited alone without a therapy dog (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005). The present study finding and previous findings suggest that the therapy dogs made a unique contribution. Together these findings lend support for the notion that it is the therapy dogs that are having the positive effect on the social behaviour of dementia patients, rather than the human volunteers.

Disruptive Behaviour

The hypothesis related to disruptive behaviour was not supported by the research findings. Disruptive behaviour was not found to significantly differ for the Animal-Assisted intervention condition and the non-dog control condition. This finding fails to replicate that by Churchill et al. (1999) that agitated behaviour was significantly less when interacting with a person and a therapy dog, compared to interacting with a person when the therapy dog was not present. As the Churchill et al. (1999) study was the only previous study that included a non-dog control condition and measured the effects on agitated behaviour, more research is needed to shed light on these contradictory findings.

As discussed in the previous study, it must also be noted here that scores for disruptive behaviour in this study were very low. Residents' behaviour was not rated as being very disruptive in either condition. Unfortunately, as no additional baseline measures were collected for the non-dog control condition, it was not possible to determine how different, if at all, residents' behaviour was in the control condition, relative to a baseline without the handler present.

Memory Problems

There were no specific hypotheses proposed that related to memory problems. Exploration of the data revealed that memory problems were significantly lower for the Animal-Assisted intervention than the non-dog control condition. This finding was a new finding as no other previous study (to date) has included a non-dog control condition and measured memory problems. Therefore, more research is needed to support this new finding.

Depression

There were no specific hypotheses proposed that related to depression. Exploration of the data revealed that depression was significantly lower for the Animal-Assisted intervention than the non-dog control condition. This finding is contradictory to the study by Enders-Slegers et al. (2005) that did not find any significant differences in depression scores between the experimental condition (with visiting dogs) and the non-dog control condition, after their six-week study. More research is needed to investigate these contradictory findings.

Physiological Measures

The hypotheses related to physiological measures of heart rate and blood pressure were not supported by the research findings. It was hypothesized that

systolic blood pressure would be significantly lower for the Animal-Assisted intervention condition than the non-dog control. The results revealed that systolic blood pressure was in fact significantly higher for the intervention condition than the non-dog control condition. This finding was the opposite of what was predicted and was contradictory to previous research. The study by Batson et al. (1998) was the only previous study to date to include a control condition without the dog and record physiological measures of heart rate and blood pressure. Batson et al. (1998) found no significant changes in heart rate or blood pressure for the AAT condition compare with the non-dog condition. The Batson et al. (1998) study only recorded measures on two different days: one day with and one day without the dog present. The present study recorded measures over a longer period of time: 6-week intervention period and 6-week non-dog control period. The longer duration of time may explain the difference in findings between the two studies. Perhaps the longer period of time enabled changes in physiological measures to be detected by the current study. The finding that systolic blood pressure was higher for the intervention condition than the non-dog control condition could possibly be due to the relaxation response being off-set by increased activity associated with petting the dog in a busy group setting, as discussed in the previous chapter. Batson et al. (1998) also discussed this possibility. Further research is needed to expand our

understanding of the effects of Animal-Assisted interventions and non-dog conditions on physiological indicators of dementia patients.

The hypotheses related to the physiological measures of diastolic blood pressure and heart rate were not supported by the research findings. There were no significant differences found for diastolic blood pressure and heart rate for the Animal-Assisted intervention condition and the non-dog control condition. These findings are in line with the findings of Batson et al. (1998) who also did not find any significant changes in heart rate and blood pressure for the AAT condition and the non-dog condition. As discussed in the previous chapter, perhaps these results reflect a genuine finding – perhaps Animal-Assisted interventions have little effect on blood pressure and heart rate of dementia patients. Or perhaps the research conducted to date has not been able to detect effects in complex real-world settings. As there have only been a handful of studies investigating Animal-Assisted Interventions for dementia patients, that have included a non-dog control condition and only one previous study has investigated physiological measures, more research is needed to increase our understanding of potential effects and mechanisms at work.

Implications of findings

The main reason the current study included a non-dog control condition (where the volunteers visited without the therapy dogs) was to investigate whether the therapy dogs have a unique effect on the dementia residents or if a volunteer who visited alone (without the therapy dog) could have the same effect. If it was found that the volunteer alone is as effective as the volunteer plus therapy dog, then this has implications for practice and implementation of Animal-Assisted programs. It is far simpler to recruit nursing home volunteers than volunteers with accredited therapy dogs.

The current study found that dementia residents' social behaviour was significantly higher for the Animal-Assisted intervention condition than the non-dog control condition, where the volunteers visited without the therapy dogs. It was also found that dementia residents' memory problems and depressive behaviour were significantly lower for the Animal-Assisted intervention condition than the non-dog control condition. These findings suggest that the therapy dogs did have a unique positive effect on residents' social behaviour, memory problems and depressive behaviour, and this was over and above any effects the volunteers alone had. These findings have important implications for practice as they tell us that a visiting volunteer plus therapy dog is more effective

than a volunteer who visits the nursing home alone. This is valuable information for the implementation of Animal-Assisted programs.

The present study also found that residents' disruptive behaviour did not significantly differ for the Animal-Assisted intervention condition and the non-dog control condition. However, as discussed previously, disruptive behaviour was a very low scoring construct in this study and therefore a floor effect may have been encountered, where positive reductions in disruptive behaviour for one condition relative to the other, could not be effectively captured using this measure.

The present study also found that residents' diastolic blood pressure and heart rate did not significantly differ for the Animal-Assisted intervention condition and the non-dog control condition. The potential implication for these findings is that Animal-Assisted interventions do not have an impact on dementia residents' diastolic blood pressure or heart rate. However, given the very limited research in this area, more research is needed to reach firm conclusions.

Limitations of this research

As discussed in the previous chapter, observational data can be vulnerable to experimental bias and distortions, and the quality of information may be threatened by human error (Kongable et al. 1989). The present study used multiple raters and a structured observational checklist to address some of these concerns, but could have been strengthened by the use of systematic video recordings of the intervention sessions to cross-check with the observational data. It is noteworthy though, that capture of high quality video recordings of the behaviour of multiple participants in a single group session is challenging in its own right, as natural lighting can be difficult to manage and verbal interactions especially can be difficult to differentiate when multiple interlocutors are speaking at the same time.

Another limitation also discussed in the previous chapter, is that the present study did not record other medical conditions or medications the participants were currently taking. Previous researchers have noted that medication usage (Walsh et al. 1995; Batson et al. 1998) and other medical conditions (Batson et al. 1998) may have an effect on the physiological measures of heart rate and blood pressure of participants. Inclusion of other medical conditions and medication usage would have strengthened the present study.

The present study may be criticised for its small sample size of seven participants. As discussed in the method section, it would have been preferable to run this non-dog control study with all 30 participants from the Animal-Assisted intervention trial, however, logistical and staffing constraints at the nursing home meant the control study was only able to be run with the participants from the smaller Sundowners group. The reality of conducting research in real-world setting such as care facilities is that research must be flexible to incorporate the needs of the care facility. As noted in the introduction chapter, research in this field typically has small sample sizes and a sample of seven participants is comparable to or larger than sample sizes of other published studies in this field. Small sample sizes in this area of research are reflective of the difficulty in conducting this type of intervention research in busy aged care facilities where nursing staff are already limited with their time.

This study may also be criticised for potentially having carry-on effects from the Animal-Assisted intervention run with the same group of residents. The non-dog control trial was conducted 12 weeks after the Animal-Assisted intervention trial. Given the severity of the residents' dementia (and associated effects on short term memory) and the significant gap between the two studies, it was

deemed that there would be little carry-on effects from the intervention. However, the possibility of carry-on effects can not be ruled out. In future it would be preferable to randomly allocate treatment condition order.

As also discussed in the previous chapter, the present study included participants that were selected with the assistance of nursing home staff who suggested the residents they thought would like to participate in an Animal-Assisted program. Residents with pet allergies, fear of dogs, or aggression when in the presence of dogs were excluded from studies. Therefore, participants were generally limited to those who liked or were interested in animals. The inclusion of participants who are 'animal-neutral' would be useful in further studies. Random assignment of people to animal and non-animal conditions would also be preferable in the future. The present study was also limited to Caucasian persons. Cross-cultural research would be useful in the future to gain other cultural perspectives.

Directions for future research

As discussed in the introductory chapter, the field of Animal-Assisted Interventions is a new and growing area. There have only been 12 published studies world-wide to date, investigating Animal-Assisted Interventions for

people diagnosed with dementia. Of these 12 studies, only three studies have controlled for human-interaction effects by using the volunteer dog handler without the dog as a control condition. With the other nine studies we are left to wonder how much of the positive effect on dementia residents' behaviour was due to the therapy dog and how much was due to the volunteer dog handler. Any future study of Animal-Assisted Interventions should include a non-dog control condition to tease out these effects.

In addition, it would be very important in future studies to standardise the manner in which volunteer dog handlers interacted with residents whether the dog was present or not. In the present study, it is possible that the dog handlers felt uncomfortable and awkward without the dogs compared with showing more engagement and confidence in interacting with the residents when the dogs were present. Another suggestion for future research would be to include a toy dog (that residents were allowed to handle) in the control condition, to test whether it's the responsiveness of a real animal that makes the difference. Random allocation of participants to treatment and control conditions is recommended where possible.

As already discussed, future research should endeavour to include systematic video recordings of the intervention sessions to cross-check with observational data. Future studies should also work to include a broader range of participants from different cultures and also include people without a prior history of interest in/ownership of animals.

The present study attempted to control for human-interaction effects by including a control condition where the volunteers visited without their dogs. It was only the second study to date to include a non-dog control condition and investigate disruptive behaviour, depression, heart rate and blood pressure, and the first study to investigate memory related-problems in people with dementia. Therefore, further research is needed to support the current research findings and add to our growing knowledge in this area.

Chapter Five

≈

“We have dogs for the blind, the deaf... why not dogs for people with dementia?”

Study 4: Follow up Interview Study

“I think dogs are the most amazing creatures; they give unconditional love. For me they are the role model for being alive.”

- Gilda Radner

Introduction

Aim of Study

As stated in chapter one, this follow-up interview study aims to investigate the experience of residents, facility staff members, residents' family members and the volunteer dog handlers, with regard to the Animal-Assisted intervention.

Previous research and theory

As also discussed in the introductory chapter, there appears to be a lack of qualitative research investigating Animal-Assisted Interventions for people with dementia. None of the studies reviewed previously in chapter three included any formal qualitative analysis about the experience of the Animal-Assisted intervention program by residents, staff, family members or the volunteer dog handlers. Qualitative data is necessary to explore the opinions and perspectives of the people most directly involved with the Animal-Assisted program, namely the residents, staff, family members and volunteer dog handlers. Some previous studies have collected some qualitative data, but have not conducted any rigorous formal analysis with this data.

Walsh et al. (1995) who investigated the effects of a visiting therapy dog on people with dementia (reviewed in chapter three) reported in their discussion that:

“...the nursing staff observed that there was a general increase in pro-social interactions between patients and between patients and staff. In fact, the nursing staff found that the

general increase in pro-social interaction generated by the presence of the therapy dog was the most satisfying aspect of the study.” (p. 164)

This quote suggests that the nursing staff were interviewed (at least informally) about their perceptions with regard to the program. However, this qualitative data was not reported further. The study by Richeson (2003), also reviewed in chapter three, reported nursing staff and family member reactions to the intervention in their discussion section:

“During the intervention phase, the nursing staff and family members commented on how alert and responsive some of the participants were, often taking endlessly about “the dogs”... The intervention seemed to create an atmosphere of excitement and camaraderie for everyone involved.” (p. 357)

Similarly, this qualitative data was not analysed further. The study by Motomura et al. (2004) that investigated AAT for people with dementia (reviewed in chapter three) reported that:

“...most patients had a good impression of the dog therapy. Seventy-five percent of the patients quoted that it is fun to attend dog therapy and they like dogs very much. Sixty-

three percent of the patients mentioned that they liked dogs better after attending this activity and they would like to attend this activity again.” (p. 41)

The authors did not mention what questions the participants were asked, but the above quote suggests that they participated in some kind of informal interview after the dog therapy. The above quote contains all the information that was reported regarding this qualitative data and no further qualitative analysis was reported. The study by Batson et al. (1998), reviewed in chapter three, reported statements made by residents during the program in their discussion section. Statements included:

“You understand, don’t you?” and “That’s a nice dog, you’re a good dog, yes you are.”
(p. 212)

A similar study by Churchill et al. (1999) also reviewed in chapter three reported statements made by residents during the therapy dog visits:

“Subjects were observed to initiate conversation with the dog as well as with the researcher-handler regarding the dog. Examples of statements include, “Where have you been all my life?” “I love you” “I missed you” “You’re a good doggie.” (p. 20)

Both Batson et al. (1998) and Churchill et al. (1999) propose that such statements are consistent with Netting, Wilson and New's (1987) presumption that pets may allow elderly people opportunities for other roles, such as caregiver, confidant or companion. However, the qualitative data were not reported fully or analysed further. The study by Kanamori et al. (2001), also reviewed in chapter three, provided two case studies and reported statements made by one of the patients during the Animal-Assisted Therapy:

"They are very warm," "They are very cute," and "The softness of their fur is comfortable." (p. 237)

However, this qualitative data were not reported for any of the other participants and were not analysed further.

Limitations and gaps in literature

There is limited qualitative research investigating Animal Assisted Interventions for people with dementia, as demonstrated above. A small number of studies, described above, have collected some qualitative data from staff, family members and residents but this data has not been fully reported or rigorously analysed. It

is important to include qualitative research, in addition to quantitative investigations of Animal-Assisted interventions for people with dementia. Rigorous qualitative analysis allows the richness of the experience of the people most closely involved with the Animal-Assisted programs, namely the residents, staff, family members and volunteers, to be explored more fully. Therefore, the present study aims to investigate the experience of residents, facility staff, residents' family members and the volunteer dog handlers, with regard to the Animal-Assisted intervention.

Method

Participants

Eleven people were interviewed about their observations, opinions and experience with the Animal-Assisted intervention. The participants interviewed included: six resident family members, three nursing home staff members and the two volunteer dog handlers. The participants were chosen and approached by the author because they had been present at the program sessions. The participants were approached and asked if they would like to participate in an interview. All participants approached agreed to participate in the interviews. Ethics approval was obtained from the University of Adelaide Human Research Ethics Committee prior to the commencement of the study and informed consent was obtained from each participant. Please see Appendix F for a copy of the consent form and information sheet given to participants. The themes identified did not significantly vary across participant groups so all data was analysed collectively and is presented together. Some of the residents were also asked about their impressions directly following the intervention sessions. It was decided that the residents would not participate in the formal follow-up interviews because of the cognitive and memory deficits associated with dementia. Additionally, some residents can become quite agitated when asked

questions they don't know the answer to. Therefore, it was decided that an informal 'chat' with willing residents directly after the sessions would be most appropriate.

Measures

All participants were interviewed by the author and asked the same set of questions. The interview questions were developed for use in this study by the author, in consultation with primary supervisors. See below for the interview questions. Appendix G also contains a copy of the interview questions.

Interview questions:

- 1. Please explain your involvement with the pet therapy sessions ie. Volunteer dog handler/activities staff/resident family member/other?*
- 2. Briefly explain your previous experience with pet therapy.*
- 3. Approximately how many pet therapy sessions did you observe?*
- 4. Tell me about your observations at the pet therapy sessions. What did you observe?*
- 5. How do you think the dogs affected the residents' behaviour/mood?*
- 6. Tell me about the positive effects on residents' behaviour/mood?*
- 7. Why do you think pet therapy seems to have a positive effect.*
- 8. Tell me about any negative effects on residents' behaviour/mood?*

9. *Was the therapy more effective with some residents over others? Please explain.*

10. *What would you like to see happen with this type of therapy in the future?*

11. *Can you see any negative aspects/limitations with this type of therapy?*

12. *Is there anything else you would like to tell me?*

Procedure

The interviews were conducted by the author in a private room at the Residential Care Facility. The interviews were conducted during the month after the completion of the non-dog control study. All interviews were recorded using a digital voice recorder and later transcribed by a professional transcribing service (supported by university funding). The transcriptions were also checked for accuracy by the author. Interview duration was approximately 30-45 minutes per interview. Participants interviewed attended at least three intervention sessions and some attended most of the sessions. One of the residents' family members interviewed spoke a lot about his experience and observations when he brings his own dog into the facility to visit, as well as observations of the intervention sessions. The themes that emerged did not significantly differ from those that emerged when he spoke of the intervention program so his complete data was included in the analysis with all the data.

Design and Analyses

This study was an exploratory interview study and the data was analysed using Thematic Analysis (Braun & Clarke, 2006), the same method used to analyse the interview data in chapter two.

Results

Analyses

As stated above, Thematic Analysis (Braun & Clarke, 2006) was used to analyse the present data. As discussed in detail in chapter two, Braun and Clarke (2006) define Thematic Analysis as a method for identifying, analysing and reporting patterns, or themes, within data. They argue that it minimally organizes and describes your data set in rich detail. The six phase method described by Braun and Clarke (2006) was used to perform the current thematic analysis. As also discussed in chapter two, this involves: familiarization with data; generating initial codes; searching for themes; reviewing themes; defining and naming themes and producing the report. Please refer to the method section of chapter two for a description of each of the phases.

Defining and Naming Themes

A number of themes emerged from the data. These themes have been organised under the following four headings:

- 1. Observations of the effects of the Animal-Assisted Intervention program on residents*

2. Reasons why Animal-Assisted Intervention programs are effective

3. Limitations of Animal-Assisted Intervention programs

4. Future directions for Animal-Assisted Intervention programs

1. Observations of the effects of the Animal-Assisted Intervention program on residents

All interview participants were asked about their observations at the intervention sessions and any positive/negative effects they observed, regarding residents' behaviour and mood. There were several major themes identified that were evident in all or most of the interviews (eg., increased joy/pleasure, effects on memory and increased relaxation). There were also smaller themes identified that were mentioned in some of the interviews (eg., improved focus, reduced agitation and wandering behaviour).

Joy/pleasure

A major theme that was evident in all of the interviews was the joy/pleasure that the visiting dogs brought to the nursing home residents. Many people described this joy/pleasure by saying "their faces just light up":

“It was just lovely to see the dogs come in, their faces light up, their interest” (Family Member 1, p. 4)

“I mean, his face just lit up with this smile – and they do, the whole face just lights up – lifts.” (Volunteer Dog Handler 1, p. 7)

“I think a lot of the residents here like a pet coming in, certain people like to come over and pet the dog they seem to enjoy doing that... A few of the residents’ here yeah you can judge that they like it by their eyes light up and they think that’s lovely, most of them know her by name now. Yeah it’s quite good” (Family Member 2, p. 1,5)

“Well I thought to start with it was excellent, the reaction was great, I know by my husband when he first saw those two... Border Collies yes, he was overjoyed when one jumped up on him and he loved it. His eyes nearly fell out... I think it really uplifted them (the residents) and they really looked forward to it, soon as it was mentioned that the dogs were coming, they thought that was fantastic. You could see, oh that’s something that I like” (Family Member 3, p.2/3).

“The joy that Jazz (the dog) has brought to many of the residents is just unbelievable... they just love him and there is particular animal lovers that just wait and ask me when Jazz is coming and some of the people who are bed ridden really look forward to the visit from Jazz” (Staff Member 1, p. 1)

“Well what I did notice was that everybody was very thrilled with the dogs when they came around and it was pleasurable for them to touch” (Family Member 4, p. 2)

“Most of them I thought the people enjoyed them (the dogs)” (Family Member 5, p. 2).

“I noticed that the residents would be watching the dog a lot and they’d often smile and reach to pat the dog; they seemed to be in positive moods when the dog or dogs were around... they really lightened up” (Staff Member 2, p. 3/6)

“I think initially it was uplifting as I said towards the people that were receptive to animals” (Staff Member 3, p. 2)

“Well they’re obviously, always glad to see the dogs, so it made them happy, I suppose. It also gave them something to think about for a little while, while the dog was with them” (Volunteer Dog Handler 2, p. 4)

Memory

Another major theme that featured in seven out of the eleven interviews was the positive effect on memory that the visiting dogs seemed to have on residents. Some people interviewed talked about the dogs seeming to trigger memories of childhood and previously-owned pets:

*“stories that develop from their childhood or their own circumstances of having a pet”
(Family Member 1, p.4)*

*“and it comes back to when they were young and of how much they loved their own pet
and so they’re reliving their past... For example, (Resident 3) talked about her animal all
the time you know how she used to have a dog and how lovely it was so it brought back
good times for so many of them” (Staff Member 1, p. 4, 7).*

*“I think they, brings back a lot of memories I think, the residents, they’ve had pets and
now they’ve got this little thing to come along, and they at least tell me what their dog
was doing, what the name was and all of that” (Family Member 2, p. 3)*

*“Grandma had a dog at home before she came into the facility and it brought up a lot of
memories of her dog in a positive way and almost brought her back to that home
environment.” (Family Member 6, p. 2)*

“that stirs up memories in your body doesn’t it?” (Family Member 4, p. 2)

Some people interviewed mentioned that the effects seemed to linger after the
dogs have left also:

*“And a lot of them, as I say, bring back memories of their dog... I’ll often find that after a
few weeks’ visit, the name of the dog will emerge, that somewhere or other they’ve been*

able to delve into the past and recall the dog's name. Obviously, they have been thinking about it between my visits, for it to actually surface. So, the visit, obviously is longer than the few minutes or half hour, or whatever it is that I've spent with them." (Volunteer Dog Handler 1, p. 10, 19)

"even afterwards you could sort of, if you saw somebody in the passage or something you'd say "remember the dogs" and they would remember for several hours afterwards they'd remember, they could relate back, whereas normally you'd ask them something five minutes later they'd forget, the animals tended to stay in their mind longer" (Family Member 1, p. 5).

A couple of people interviewed also talked about the possible effects on short term memory which is particularly troublesome for people with dementia:

"she (grandma) suffers from short term memory loss and the dogs distracted her from that and gave her some stimulation" (Family Member 6, p. 2)

"some people that live in nursing homes only remember certain things, and their long term memory seems to work better than their short term memory, so of course, they remember their dog. I mean, there are those that think that my dog's their dog, and they always refer to him as our dog, which is quite interesting. There's one particular lady who wasn't on the study, but she's been here the whole time we've been coming, and she thinks he's her dog" (Volunteer Dog Handler 2, p. 7)

Calming/relaxing

Another major theme, evident in six of the interviews, was the calming and relaxing effect that the dogs seemed to have on often-agitated dementia residents:

“At the end of the session they were much – the residents were much more rested than they were when they came in... Well it definitely calmed them down – they definitely do”
(Volunteer Dog Handler 1, p. 9/10)

“I was very thrilled to see that and the mood of the place was more balanced and relaxed” (Staff Member 1, p. 4)

“the residents that can sometimes be aggressive, I felt they were a lot more calm and relaxed, their body language softened” (Family Member 6, p. 3)

“I think it relaxed them; they seemed more relaxed when the dogs were with them... It’s a calming effect, it’s slow, it’s happy” (Family Member 3, p. 2, 4)

“It calms them down” (Family Member 1, p. 5)

“I think it seemed to relax a lot of them, just having him there. Although, he’s a pretty relaxed dog, you don’t get any more laid back than our Jazz” (Volunteer Dog Handler 2, p.4)

Increased focus

As well as appearing to relax the residents, the visiting therapy dogs seemed to improve their ability to focus, which is another challenge for dementia patients.

This theme was evident in six interviews:

“they just focused on the animals” (Family Member 1, p. 5).

“Just giving them a focus” (Family Member 6, p. 2)

“she (one of the residents) would be focusing on the dog, looking at the dog, and then make attempts to pat the dog” (Staff Member 2, p.4, 6).

“they could maybe concentrate on that one task for maybe a bit longer than normal” (Staff Member 3, p. 3)

“they had something to focus on and talk about was their animals...we’ve got another lady (Resident 21) who doesn’t really communicate with anyone and doesn’t sit for very long, very challenging to get her focused on anything, well she actually sat particularly

with the two dogs and so we're not quite sure if that's the breed or what that is but she seemed to be more focused on the Collies" (Staff Member 1, p. 3, 4)

"they will sit and watch the dogs and not take their eyes off the dogs" (Volunteer Dog Handler 1, p. 13)

Conversation stimulus

Five out of the eleven people interviewed also talked about the dogs being a catalyst for social communication:

"Yes saying what dog they had when they were at home and what tricks their dog used to get up to which is good really because if the dog wasn't there most probably I wouldn't talk to half the people, people wouldn't talk to me" (Family Member 2, p. 5)

"they (the dogs) became a focus point for conversation" (Family Member 6, p. 2)

"They seemed to... initiate conversations with the dog handlers and talk to the dogs and that sort of thing." (Staff Member 2, p. 3)

"I was very thrilled to see that... they had something to focus on and talk about was their animals" (Staff Member 1, p. 4)

“if you can say the dogs sit and chat with someone, that’s really what they did”
(Volunteer Dog Handler 1, p. 2)

Decreased wandering

Five people interviewed also observed that wandering behaviour decreased when the dogs were present:

“I think we tended to have a few that roam around whereas (during the pet therapy) they sit and observe what is going on whether they’re not directly patting at their particular time” (Family Member 1, p. 5)

“a lot of attention on the dogs which distracted them from their normal behaviour of wandering or disorientation... the wanderers stayed in the room and as I keep mentioning were more focused and have their attention on the dogs” (Family Member 6, p. 2, 3)

“residents who do wander seemed to focus more on the dog and not wander as much at times and they would, I’ve got one resident who wanders and makes a lot of noise and she would often reach out to pat the dog” (Staff Member 2, p. 4).

“we were really thrilled with her response, she sat and she doesn’t normally sit, she reached her hand out to pat the animals, very positive with (Resident 21) in fact we told her daughter who came and observed and thought it was terrific” (Staff Member 1, p. 3)

“I’ve noticed in the group that we’ve been working with for those few weeks that they will stay in the room, and from what I’m told that is quite unusual, to have someone like (Resident 2) stay in the room the whole time.” (Volunteer Dog Handler 1, p. 13)

Reduced Agitation

Four interview participants also observed that agitated behaviours were reduced in the presence of the visiting dogs:

“the concentration is on the animals so they’re not thinking of their itches or anything else that’s making them agitated any other time” (Family Member 1, p.5)

“Well I’d have to say, agitation was a lot less, if you take (Residents 19, 20 & 21) their agitation was less... For example, (Resident 19) who usually just sits there and doesn’t have much communication with anyone, was patting the dog and sitting there quietly because quite often she becomes agitated, so that was extremely positive” (Staff Member 1, p. 3, 5)

“People who call out don’t necessarily call out as much” (Family Member 6, p. 6)

“People don’t seem to be as restless... (Resident 2) may come in cross, but he never usually left cross with the dogs being in the room with him.” (Volunteer Dog Handler 1, p. 12, 14)

Increased social behaviours

Three people interviewed also observed an increase in social behaviours when the dogs were present. It is interesting to note that they were the three activities staff members interviewed:

“They seemed to smile more and laugh more and talk more, just be less withdrawn” (Staff Member 2, p. 3).

“Maybe in the fact that they were able to outwardly show emotion... and it gave them something to smile about and I guess to feel that emotion that maybe they don’t get from day to day a lot of the time” (Staff Member 3, p. 3).

“we saw a lot more smiles, we saw animation in their faces which has to be a huge plus because if you see a blank face it’s very sad and you saw them delighted and that’s what we’re looking for is that feeling of feeling happy even if it’s for a short time, it’s lovely to see” (Staff Member 1, p. 5).

The staff member recalls a particularly memorable incident:

“the response with (Resident 22) was just unbelievable, his wife was just quite amazed... the smile that came to his face was just worth a million dollars really... somebody who very rarely smiled or have any acknowledgement of anything so that was really positive”
(Staff Member 1, p. 4)

Increased physical activity/mobility

Three interview participants also observed positive effects on physical activity and the often limited mobility of the residents:

“we had others that were wheelchair bound or in water chairs and you’d see their hands going over the sides to try and reach out and pat them (Family Member 1, p. 5)

“One lady used to take her (the dog) for a walk around the square everyday, she used to do ten, twelve times around there, unfortunately she can’t do that anymore” (Family Member 2, p. 2).

“Definitely the physical contact as well, the fact that they can pat the dogs, they can have them near them, they’re just not sitting and looking at an object and the dogs respond to them as well, whether that be that they come up more regularly for a pat to that one particular person or so perhaps they’re using muscles that they haven’t used for a while because it’s in a natural environment, it’s not like we’re getting them to do exercises or anything like that, they’re using their arms to pat the dog or hold the dog” (Family Member 6, p. 4).

Negative effects?

When asked if they observed any possible negative effects of the visiting dogs, the majority of people interviewed said “No”. However, one residents’ family member encountered some negativity from a staff member:

“Not with residents no... Staff, oh one yes, she doesn’t like dogs and she told me that and I just said “bad luck for you” (Family Member 2, p. 6).

Two activities staff interviewed also reported that some of the night staff observed some negative effects on behaviour, but caution that this information is only second-hand information:

“ I did hear also that at night times it also had an adverse effect on their moods afterwards but that’s only second-hand information I didn’t notice that because I’m not here but it did sort of upset the apple cart a little bit at night time” (Staff Member 3, p. 3).

“ Yeah they (other staff) would observe that some residents would be more aggressive towards others, like they would be brilliant while the dogs were there, but this was just after the dogs had gone” (Staff Member 2, p. 5).

The staff member suggested why this might be the case:

“so I was wondering if that’s kind of like a grieving thing, that they enjoyed having the dogs there so much and having them go again, have a negative impact on them. That’s just a view” (Staff Member 2, p. 5)

One of the volunteer dog handlers said she hadn’t observed any negative effects in this study but recalled a previous experience at another nursing home she visited:

“Not the group we had in the study, no. For the record, I’ve only met about two people on all the visits I’ve done that actually don’t like the dog, or was scared of him... And that’s not bad over eight years... We had one lady that thought he shouldn’t be inside, and she used to shout at both of us. Although, the staff reckoned it was the only time she ever spoke, to tell me to get the dog out, so that was an interesting reaction” (Volunteer Dog Handler 2, p. 5)

It must be noted here that the selection of participants may have resulted in possible biases towards the perceived success of the Animal-Assisted intervention program. As stated previously, the interview participants were chosen and interviewed by the author, as they were present at the program sessions. Interview participants included: resident family members, facility staff members and the volunteer dog handlers. It could be argued that the interview participants wanted the intervention to be successful and therefore their positive

reflections on the program reflected this. This potential bias can not be overlooked when interpreting the results of this study. Further, an independent interviewer would be preferable in future studies. These issues will be discussed further in the discussion section.

The sessions without the dogs...

A couple of people who got to observe both the sessions with the dogs and the control sessions without the dogs described their observations about the stark differences between the sessions:

“I just think compared with not having pets there, it’s terrible, terrible, people were roaming and just weren’t focused at all and losing interest whereas when there were animals there, they just relived their past and it’s just lovely” (Family Member 1, p. 9)

“Roaming, losing interest, getting up, moving, just weren’t concentrating on anything and weren’t interested in anything you were talking about whereas when the dogs were there and they could relive stories plus if you said something, they’d join in or listen and sort of give an occasional answer so you knew that they were listening however when there were no pets, they really didn’t focus on any conversation or anything” (Family Member 1, p. 10).

“Well the ones with the dogs seemed to very popular with the residents that took part. They wanted the dog to keep coming back particularly, to them, which was great - it meant they were really interested. And I think we could have easily stayed in the room ... twice as long as what we did... I think the non one – dog ones – were nowhere near as successful. I think really, the first one we might have all found something to talk about – after that it was really hard work trying to fill in the time” (Volunteer Dog Handler 2, p. 3/4)

More effective with some residents?

All interview participants were asked if they observed that the intervention was more effective for some residents over others. All interviewees said that they observed that program was more effective for the pet lovers and residents who had previously owned pets:

“Yes I think they are, especially as I said before with the residents that have had pets at home, they’re more inclined to want to talk to the dog” (Family Member 2, p. 7)

“Most of them talking to them have had some sort of pet so that sort of held their interest as well... Not even necessarily a dog, just a fish, a bird whatever as far as a pet, they’re used to looking after something so they took notice” (Family Member 1, p. 6)

“I saw positive behaviour from everyone however you could see that perhaps when the residents were in their home environment, who may have had pets who were pet lovers, they responded a bit more eagerly than others” (Family Member 6, p. 3).

“Well some people were overjoyed and very animated about them but others enjoyed them but they didn’t have that great animation that the others had... I think it’s probably the different home style, life or whether they had pets of their own” (Family Member 3, p. 4).

“Undoubtedly. My example is I was never brought up with animals see” (Family Member 4, p. 3).

“Yes I do. I think some people in life have had more to do with animals... I think the people who really have had dogs and cats and animals in their time responded more than some of the others.” (Family Member 5, p. 3/4)

“I noticed that the people who have had pets previously in their life responded really well to having them there, that sort of brought them back memories of their own dogs or other animals that they might have had but also did notice that people that weren’t really animal people or weren’t particularly dog people, were just a bit more reserved about it” (Staff Member 3, p. 1).

“It’s really hard to know. I think that the real dog lovers get more out of it” (Volunteer Dog Handler 2, p. 6

“if you’re an animal lover you would have to love it” (Staff Member 1, p. 6)

“Sometimes dog people will respond better, but cat people too, will respond, because it brings back memories of their own animals” (Volunteer Dog Handler 1, p. 15)

2. Reasons why Animal-Assisted Intervention programs are effective

When asked what it is about the intervention that makes it so effective, the interview participants gave varied responses.

Diversion/distraction

Some suggested that the dogs provide a form of diversion or distraction for the residents and thereby produces positive effects:

“the concentration is on the animals so they’re not thinking of their itches or anything else that’s making them agitated any other time, they just focused on the animals” (Family Member 1, p. 5).

It must be noted that the above extract has been reported previously, however, was used again in this section to illustrate this point also.

“well on behalf of my Grandma I noticed that that focus distracted her from aches and pains that she normally complains about” (Family Member 6, p. 2)

“I thought they were very good because even if some people weren’t totally interested, it was taking their minds off their worries and giving them all something to think about” (Family Member 5, p. 1).

“Yeah it’s a diversion, that’s exactly what I do in activities, you divert one person from their pains and their sadness so if someone for example in the morning is feeling very melancholy and in a lot of pain... but then they say “look the dog’s coming in this morning”, they’ve got something to look forward to” (Staff Member 1, p. 9)

Touch

Other people suggested the positive effects might have something to do with the physical touch of the animals:

“it was pleasurable for them to touch” (Family Member 4, p. 2)

“I think they get something out of actually touching them too, if they like – there’s some sort of connection that they can feel how soft their fur is, and shake hands with them, in the case of Jazz” (Volunteer Dog Handler 2, p. 10).

“they’re usually soft and these animals, and that’s another thing, I think you need to choose your animals, the fur on these animals was just so soft” (Staff Member 1, p. 7)

Novel/different

Another explanation that was offered was that pets provide a novel stimulus in an often boring environment:

“I think it’s just reliving times when they weren’t residents and also the movement of the dogs, it’s something different, it’s something human” (Family Member 1, p. 6)

“Well the fact that they do something different by a person like yourself coming in definitely because life becomes a routine” (Family Member 4, p. 4)

“Probably just an outside influence, something that’s not here everyday, something they don’t get used to everyday and it was just like when children come in, it’s a real novelty it’s something they don’t get to see everyday, they miss it, they don’t get to see their grandkids probably as much as they would like to and it’s the same thing, they don’t have pets in here so to have an animal come in is probably a really welcome change and a change from routine” (Staff Member 3, p. 5).

“I think it was something different and something they could relate to whereas a lot of other things they can’t relate to. But animals are very very soothing... When I mean that, there is they have the television on, they can see something’s happening but I think a lot

of it goes too quick for their mind to understand, you know things like that” (Family Member 3, p.3).

The home environment

Some people felt that pets simply put the ‘home’ back into the nursing home.

“I think maybe the link between what they had at home to in the facility, bringing something live almost as an activity” (Family Member 6, p, 4).

“I think it was more of a homeliness thing, you know that’s something they miss” (Family Member 3, p. 5).

“I mean, we were told when we started doing this that the main reason was to compensate in some way to people who had had pets and couldn’t bring them with them” (Volunteer Dog Handler 2, p. 7).

“they just make it more like a home where the dog would just sit at home and make the surroundings more home-like than institution like” (Volunteer Dog Handler 1, p. 2)

“The dogs change it from a nursing environment to a home environment, and ... I had a visit once when a group of school children came in – they were ten, eleven year olds – came in and were absolutely amazed to see the dogs in the room that we were in, what you call the day room... And I said, well this is these peoples’ homes that they live here,

they go to bed at night, and they watch TV, and they get up in the morning and they have breakfast, and on the mantelpiece and hanging around the walls are the family photos, and this is their home... and if you're in a family home you have a pet, so why shouldn't the dogs be here. And it suddenly made sense to the kids that they were in a home, they were not in a hospital." (Volunteer Dog Handler 1, p. 15)

Other theories put forward by interview participants included: the need for caring, something to look forward to, and "it just works!"

The need for caring

"I think people have an inbuilt nature to care for others and that an animal provides that, that you can feel needed and wanted and be able to give your love, so that makes people feel special and just having something there like an animal that does love unconditionally is a really good thing. They're just very calming pooches" (Staff Member 2, p. 7)

Something to look forward to

"they'd have something to look forward to because that's one of the sad things of aged care and people with disabilities, they don't know why they're waking up in the morning, they want something to wake up for and get out of bed for" (Staff Member 1, p. 10)

Combination of things

Some people felt that the positive effects were due to a combination of the above-mentioned factors and other factors also:

“I think probably, firstly, it’s something of interest, because a lot of people talk about how boring it gets in here, those that still have reasonable thinking powers, and really miss seeing the dog if they don’t ... and all that kind of thing... And I think maybe, it also triggers memory of their own pets, because some of them always immediately start talking about their pet and what sort of dog it was and all that kind of thing. I know with my parents, who both ended up with dementia, it was their short term memory that went first, and I mean, they could remember everything that happened a long time ago, really well, so of course they’ll remember their dog that they had ten years ago but they mightn’t remember what you tell them to do yesterday – that’s my experience” (Volunteer Dog Handler 2, p. 9).

“I think it’s a combination, I think it’s a combination of when you see animals, most people they smile, animals bring a smile to your heart... I think they just felt comforted that’s another thing, comfort, and it comes back to when they were young and of how much they loved their own pet and so they’re reliving their past as well so there’s a real combination a lot of things” (Staff Member 1, p. 7).

Finally one of the volunteer dog handlers admitted she really doesn’t know how, it just works!

It just works!

“I really don’t know how pet therapy works. It’s marvellous, and there’s no doubt it works – you know, I see things and see responses that to me are par for the course, but for other people it’s just astounding, because they haven’t happened before, and yet it happens all the time – how or why, I don’t know, I really don’t know.” (Volunteer Dog Handler 1, p. 16)

3. Limitations of Animal-Assisted Intervention programs

When asked about any limitations, most people spoke of the need to have animals with the right temperament:

“as long as they’re a docile animal, used to people, you couldn’t have a little snappy thing, and I guess elderly people like children they tend to prod and poke” (Family Member 1, p. 9)

“Well you’d have to be careful with the type of dog that you have, they don’t get vicious or anything like that and snap at somebody, the temperament’s got to be right to put up with the residents because they’re not, the residents don’t know, they might just go out quickly with their hand or something, that frightens the dog” (Family Member 2, p. 9)

“And the other one is the dogs themselves, there are only certain dogs that are suitable for this. You need a nice quiet, laid back dog that’s not a barker, that doesn’t nip, that

doesn't jump up – it needs a well trained and well behaved, gentle dog – and you want one that'll sit nice and quietly with the people and you don't want one that comes in and tries to crawl under the beds, so they can't touch him, and all those things. And you know, maybe – enough dogs that are like that are a bit hard to find with people that have got the time and the ability to bring them in.” (Volunteer Dog Handler 2, p. 11)

“you have to have animals that are really well behaved” (Staff Member 1, p. 5)

“Not all dogs are suitable – the drop out rate for handlers is quite high, because it is very draining, it's very exhausting.” (Volunteer Dog Handler 1, p.18)

4. Future directions for Animal-Assisted Intervention programs

When asked this question, seven out of the eleven people interviewed would like to see the nursing home adopt a resident dog.

Resident Dog

“I would like to even consider having a resident dog here” (Family Member 1, p. 7).

“if you could maybe have a dog as a resident” (Family Member 6, p. 5)

“Well I would love to see every nursing home have a pet” (Family Member 3, p. 5)

“We need a dog... Yeah a resident dog... I think it would be good if we could get a resident dog”, (Staff Member 2, p. 5)

“we’ve got a greyhound at home that we recently adopted, an ex racer and they are like beautiful dogs as well, they are just so gentle and placid, so there are options out there ... And also the blind dogs, there are a lot of dogs that fail their testing and they’re still highly trained...” (Staff Member 2, p. 8)

“I would actually like to see an animal live here, like placed here I’ve been to a lot of nursing homes and they do have a resident dog or cat, I mean we have a cat but you don’t actually really see Lucky so I’d like to see a little dog, something little I think too although it’ll probably get under people’s feet, I’d just think that would be nice. It would get fed probably too much” (Staff Member 3, p. 5).

However, some people did express concerns with having a resident dog:

“I think for this therapy to work, you really need an independent person coming in with an animal and he or she takes responsibility for the animal, as much as I would love to say I’d love a dog to be part of the facility” (Staff Member 1, p. 8)

“Dog’s living in nursing homes is not a good idea, because they become too sedate, there’s not enough stimulation, which is why dogs don’t live in nursing homes, why we bring them in as visitors.” (Volunteer Dog Handler 1, p. 14)

The most common problem raised with having a resident dog was the problem of overfeeding:

Overfeeding

“I’ve cut it out now, but they used to always wanted to feed her cake and all that, it’s not so good for her, especially chocolate” (Family Member 2, p. 7).

“Well I would love to see every nursing home have a pet but then there’s the problem of residents overfeeding it, I think that’s what stops a lot from having it. If you could overcome that problem, you’d have a winner”, (Family Member 3, p. 5).

“It would get fed probably too much” (Staff Member 3, p. 5).

“the dog got really fat because everyone feeds it and we actually had to take the dog away from the facility” (Staff Member 1, p. 8)

“And also, the fact that everyone gives them a little bit, they get a little bit of food and then they get huge.” (Volunteer Dog Handler 1, p 14)

Practical issues, eg. walking, bathing

There were also concerns with the logistical issues such as walking and taking care of the dog. Not surprisingly these issues were raised mainly by the staff members who would be potentially responsible for these duties:

“Oh I guess just working out the logistics of picking up the poos and the feeding, where it’s going to sleep and that sort of stuff but anything can be trained”, (Staff Member 2 p. 8).

“I think so and I think who looks after the dog, that’s another issue, who feeds, a dog’s got to be walked so there’s probably a lot of - also there are probably just a small number of people that are animal lovers so how would that then affect the other lot of residents who aren’t interested in having an animal so who’s it going to target” (Staff Member 3, p. 6).

“and also exercise (walking the dog), it’s always left to the staff and they’re always very busy so I don’t really see it being part of the facility but I see it very much as a specialised person coming in to many facilities” (Staff Member 1, p. 8)

“there’s not many people here that could take a dog for thirty-five, forty-five minute walks every day, which you need to do for a dog. Staff members bringing dogs in, that could be encouraged more than it is now.” (Volunteer Dog Handler 1, p. 19)

More regularly/consistently

If a resident dog wasn't possible, the people interviewed would like to see visiting programs become a more regular and consistent activity:

“on a weekly basis definitely if we had to bring in (visiting) dogs because I think Dementia patients need that familiar, if you leave things for too long, it takes them a while to then focus back onto a particular subjects so it's regularity and familiar”
(Family Member 1, p. 7).

“Probably happen more consistently” (Family Member 6, p. 5)

“I'd just like to say that you've done a wonderful job and I think you should introduce it more”, (Family Member 3, p. 6).

“Just keep bringing them along, whichever ones you can get that you think are suitable”
(Family Member 5, p. 4).

“I think there should be more of it. More of it would mean that more people get more regular visits, where we're now, only able to do monthly visits or fortnightly visits, if we could do weekly visits, not necessarily the same dogs, but have a pet visit more regularly” (Volunteer Dog Handler 1, p. 17)

The potential benefits of Animal-Assisted programs for staff (as well as residents) were also raised:

“I think the staff would benefit. I mean, let’s face it, the staff pat and enjoy the dogs just as much, and sometimes if they’re stressed out, more than the residents, because it does give them a break as well when they pat the dogs on the way through.” (Volunteer Dog Handler 1, p. 17)

Other animals

Dogs were not the only animals discussed; many people interviewed felt other animals in the nursing home can be very beneficial also:

“whether I take Mum out to the birds and we can count the birds or talk about the budgies, that’s stimulating for them I guess it doesn’t have to be necessarily dogs, I’d like to see here also a fish aquarium, but it would have to be secured really well” (Family Member 1, p. 7)

“introduce other pets as therapy whether that be fish, I know the birds have been really useful, the budgies that you have out in the cage, in our circumstances we often take Grandma who gets quite agitated in the evenings, we’ll take her out to the bird cage and she relaxes instantly, it gives her something to focus on, a point of conversation, something once again she can relate to back home, she had birds at home, she’ll quite

often get confused and say “I need to clean the cage or I’ll do that tomorrow”, things like that” (Family Member 6, p. 5).

“...more animals, not necessarily dogs – I mean, cats can visit. If there’s a pet therapy, if they have their own rabbits in the back yard, or even if they have their own chooks, that sort of home like atmosphere would make people relax more, release the tension and take away the institution atmosphere” (Volunteer Dog Handler 1, p. 17)

Animal-Assisted Interventions as a recognized therapy?

All interview participants were asked if they could see Animal-Assisted interventions potentially becoming a recognized (and government funded/health rebated) therapy, such as speech therapy. There were some very positive comments:

“Dogs are used now, for the hearing and the blind, I can’t see why they can’t be used for dementia, I really can’t – you know, it’s just a different form of illness – you know, dementia is an illness, so yeah, I can’t see why they can’t be used as much as word games, or bingo, or music – music is used a lot, you know, that they have the music therapist, why not a dog therapist – yeah, absolutely, yeah.” (Volunteer Dog Handler 1, p. 18)

“I see it as a very positive part of aged care and not only aged care but people with disabilities as well that it should be a therapy just as we have physiotherapy, massage therapy, speech therapy, it’s a therapy that I think has an extremely positive effect on certain people” (Staff Member 1, p. 7)

“ for example I really would love to see our young lad (Resident 2) who’s thirty years young have a responsibility of a person coming in maybe once a week whose from a Pet Therapy that’s his or her job and she comes in and they take care of this pet, they take the pet for a walk, they feed the pet, they bath the pet and he has got some sort of responsibility again and he’s got something to look forward to and think “oh yes, my dog’s coming in next week, I’d better go and get him a bone or I’d better go and do something”, he’s got something to care and think about and someone to love” (Staff Member 1, p. 7).

“Oh okay like just where we are, the (suburb) area, I can think of six places which are aged care complexes and also the rehab which I think is somewhere people are getting back on their feet, and if you had say for example six clients per day, you could take the animals around and these people would be looking forward to Monday, that person comes, on Tuesday that person comes and they’d be looking forward to taking the dog for a walk, grooming the dog, bathing the dog, it would be taking responsibility for the person and also they’d have something to look forward to because that’s one of the sad things of aged care and people with disabilities, they don’t know why they’re waking up

in the morning, they want something to wake up for and get out of bed for” (Staff Member 1, p. 10)

“I think it’s definitely something which should be continued. I think it’s the one-on-one stuff with the dog that’s probably of most benefit” (Volunteer Dog Handler 2, p. 9).

Other noteworthy comments...

One resident’s daughter spoke of how it was very difficult for her mum to give up her pet when she moved into the nursing home:

“My mother has had dogs for probably the last fifteen years and then on coming into residential care unfortunately she had to give up her pet which was very sad and I guess we would’ve come into residential care previously if it wasn’t for the dog, the dog kept her home longer” (Family Member 1, p.1).

“ Unfortunately she didn’t have a choice to coming into aged care because she just couldn’t look after herself at home but she would never have chosen to have come in and leave her dog... The dog was her life”.

When asked if there were any facilities that she could have taken her dog with her:

“ No, as far as aged care facilities, I did enquire but they have residential dogs that actually live on the premises, you couldn’t bring your own in”

“I guess safety for other residents and if dogs or cats don’t get on then what do they do”.

(Family Member 1, p. 2)

A staff member also spoke about this issue:

“I’ve worked in the industry for fifteen years and what do they lose and what do they miss, some say their house, but so many say their animals and their family, but animals are so important of an older person because all the family may go and they might be by themselves and that animal is their lifeline and when they come to a facility like this they are just lost without their animals” (Staff Member 1, p. 6)

One of the volunteer dog handlers talked about some of the positive reactions she has witnessed with stroke victims at other nursing homes:

“And we’ve seen other people – people who have had strokes will come out and move and react, and do things that are quite out of their normal behaviour that they will respond to the dogs, whereas they won’t respond to people or any other stimuli, the dogs will respond to them. In fact, there was one last week. ” (Volunteer Dog Handler 1, p. 5)

“Anyway, we went in there and I put Dana up on the chair, and that man’s face just lit up – absolutely lit up. He had this huge smile on his face, and he said, Matey – and Matey turns out to be his dog’s name. Well the woman promptly burst into tears, so she’s

standing there crying on my shoulder, and he's there with this big smile on his face, patting the dog, and he had not responded to anything in six weeks, and that was – you know, I mean, it's – and that happens more often than not.” (Volunteer Dog Handler 1, p. 6)

A staff member concluded with:

“thank you for coming in and working with us because I think this is the only way things are going to change, is for people to do what you're doing and analyse it because I feel that and as I've lectured in this area that when I say what are your losses, immediately it's house, family and animals, they have to be the three things that people talk about the most and house as they say you can get used to that, family come in but your pets don't come in too much so I would really love to see that happen, it would be a joy” (Staff Member 1, p. 8).

Residents' comments:

Residents were asked what they thought about the visiting dog(s) after the intervention sessions. Twenty residents, out of the total thirty residents involved in the study, made verbal comments about the dogs. Some residents have difficulty or are unable to communicate verbally. No resident made negative comments about the dogs. The results of the residents' comments were analysed separately from the formal interviews. The six phase thematic analysis (Braun &

Clarke, 2006), described in detail earlier, was also used to analyse the residents data. A number of themes emerged from the data. The themes are as follows:

1. *The dogs are beautiful/gorgeous/lovely*
2. *Memories of past animals*
3. *Love for the dogs*
4. *Joy/pleasure*
5. *Prefer animals over people*

1. *The dogs are beautiful/gorgeous/lovely*

A major theme that was evident in the residents comments were comments about the dogs being beautiful, gorgeous and lovely. Fourteen residents commented on this. Examples of these comments include:

“Beautiful – no other word to describe them” (Resident 9)

“Beautiful – is it a boy?” (Resident 5)

“Beautiful – are they yours?” (Resident 10)

“Gorgeous dog, good dog” (Resident 2)

“They’re gorgeous – and so well behaved. I like most dogs” (Resident 12)

"Gorgeous dog" (Resident 11)

"Oh he's lovely – he's been here all afternoon" (Resident 13)

"Yes, they're lovely. Gorgeous and so well behaved. She's a lovely lady too." (Resident 8)

"Lovely, beautiful dog" (Resident 1)

2. Memories of past animals

Another dominant theme that emerged from the data was the memories about past animals that the visiting animals seemed to trigger. Seven residents spoke about this:

"I had a border collie." (Resident 3)

"We grew up with a cat and a dog our whole life – the dog was the most precious thing. In the early days there was no television" (Resident 15)

"I had dogs on the sheep station" (Resident 14)

"My husband was a vet – we always had dogs" (Resident 16)

"We always had dogs" (Resident 11)

"I used to have sheep dogs on the farm" (Resident 17)

"They're lovely aren't they? I had two dogs – Fluffy and Toby." (Resident 10)

3. Love for the dogs

Another dominant theme that emerged from the data was the love that the residents expressed for the dogs. Six residents spoke about this:

"I love dogs" (Resident 16)

"I love them" (Resident 11)

"I love you (the dog)" (Resident 2)

"They're lovely aren't they – I love all dogs" (Resident 12)

"I love dogs – small dogs" (Resident 18)

"I love them" (Resident 7)

It must be noted that some quotations have been double coded and used to illustrate different themes.

4. Joy/pleasure

Five residents also talked about the joy/pleasure they receive from the dogs:

"We've been having a lovely time talking to the dog and my friend" (Resident 16)

"I enjoy it" (Resident 15)

"They're fascinating – just about take over your life" (Resident 19)

"I'll do anything for those two little dogs – I had one in one hand and one in the other. I wouldn't miss it if I can help it. It's the best thing in my life." (Resident 9)

"There were little dogs going around – I did enjoy it!" (Resident 14)

5. Prefer animals over people

Two residents spoke about their preference for animals over people:

"I think they're wonderful. I love animals. You can trust animals" (Resident 18)

"My own dog is with my son. I worry more about what happens to the dog than my kids!" (Resident 16)

Was the hardest thing to leave behind

One resident talked about having to give up her dog when she moved into the nursing home:

"...we always had dogs. My own dog is with my son. That was one of the hardest things to leave behind when I came in here" (Resident 16)

We should have a dog in here

One resident said that there should be a dog living in the nursing home:

"I think we should have a dog here. Will they be coming regularly?" (Resident 11)

It must be noted that, as described above, the residents were not asked formal interview questions, rather simply asked what they thought about the dogs visiting. Therefore this information was volunteered in general conversation, rather than specific questions being asked.

Discussion

As described in detail above, interview data was collected from eleven participants about their observations, opinions and experience with regard to the Animal-Assisted intervention. The participants interviewed included: six resident family members, three nursing home staff members and two volunteer dog handlers. Residents were also asked about their impressions directly following the AAT sessions. The interview data was analysed separately from the residents' data.

Summary of findings

A number of themes emerged from the interview data. The themes were organized and presented under the four headings: observations of the effects of the Animal-Assisted intervention program on residents, reasons why Animal-Assisted intervention programs are effective, limitations of Animal-Assisted intervention programs and future directions for Animal-Assisted intervention programs. The participants' observations of the effects of the intervention program on dementia residents included: increased joy/pleasure, effects on memory, increased relaxation, improved focus, reduced agitation, reduced wandering, increased social behaviour and physical activity. The reasons

participants suggested for why Animal-Assisted intervention programs are effective included: animals can provide a diversion/distraction for residents, animals can satisfy the human need for touch, animals are something novel/different in the nursing home environment, animals bring back the home environment, animals can satisfy the human need for caring and provide something to look forward to. Limitations discussed included needing animals with the right temperament and also practical concerns for staff and the animals themselves. Future directions included suggestions for a resident dog, more frequent visiting programs and incorporating other animals as well as dogs. The themes that emerged from the residents' data included: comments that the dogs were beautiful/gorgeous/lovely, memories of past animals, love for the dogs, joy/pleasure and preference for animals over people.

Similarities/discrepancies to previous research findings

Given the lack of qualitative research in this area (as previously discussed), many of the findings of the present study are new findings. However, these findings will be discussed in relation to the limited previous qualitative research. Findings will also be discussed in relation to theory and previous quantitative research in this area.

The observations of the effects of the Animal-Assisted intervention program on dementia residents identified in the present study were partially consistent with previous research findings. A major theme that was evident in all of the interviews was the joy/pleasure that the visiting dogs brought to the nursing home residents. Many participants described this joy/pleasure by saying “their faces just light up”. Participants also spoke of increased smiling, more positive moods and that the dogs made the residents happy even for just a little while. This theme can be related to the theme “increased social behaviours” where participants observed increased smiling, laughing and talking of the dementia residents. It can also be related to the theme “conversation stimulus” where participants talked about the therapy dogs being catalysts for social communication. These findings are consistent with previous research by Walsh et al. (1995) that reported that nursing staff observed increases in pro-social interactions between patients and between patients and staff. The findings are also inline with the study by Richeson (2003) that reported that nursing staff and family members commented on how alert and responsive some of the participants were, talking endlessly about “the dogs”. The qualitative findings of the present study are also consistent with the quantitative findings of study two and previous research that found that Animal-Assisted interventions improved

social behaviour in dementia patients (Kongable et al. 1989, Batson et al. 1998, Churchill et al. 1999, Greer et al. 2001, Richeson, 2003, Sellers, 2005).

Positive effects on the memory of the dementia residents' emerged as the second most dominant theme. This was evident in most of the interviews. Participants talked about the visiting dogs seeming to trigger memories of childhood and past pets. This was a new finding as the limited previous qualitative research had not reported any effects on memory. This finding is, however, inline with the quantitative findings of study two that found that residents' memory problems significantly decreased during the Animal-Assisted intervention. The finding of the present study is also inline with the theory that therapy dogs may stimulate reminiscence and memories of past pets, thereby distracting the resident from displays of agitation (Churchill et al. 1999), previously discussed in chapter one.

Another dominant theme that emerged from the interview data was the calming and relaxing effects the dogs appeared to have on the dementia residents, as reported by interview participants. This was also a new qualitative finding. However, it is inline with the theory that Animal-Assisted interventions may produce effects in people with dementia through relaxation. It has been

suggested that this relaxing effect may contribute to effective pet therapy and these effects may also be of benefit in reducing the behavioural and psychological symptoms of dementia (Filan & Llewellyn-Jones, 2006), also previously discussed in chapter one.

Another dominant theme that emerged from the interview data was that the visiting dogs appeared to improve the ability to focus, which is another challenge for dementia residents. This was also a new qualitative finding. This finding can be related to another theme that emerged from the interview data, namely that the dogs appeared to decrease wandering behaviour in the dementia residents. This was also a new qualitative finding. Both increased restlessness and wandering are behavioral symptoms of dementia, as discussed in chapter one. Increased agitation is also another behavioural symptom of dementia.

Interview participants also observed that agitated behaviours of the dementia residents were reduced in the presence of the visiting therapy dogs. This was also a new qualitative finding. However, this finding is in line with the quantitative findings of study two that found that residents' disruptive behaviour significantly decreased during the Animal-Assisted intervention and previous research that found that Animal-Assisted interventions reduced

agitated behaviour in dementia patients (Walsh et al. 1995, Churchill et al. 1999, Kanamori et al. 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005).

Finally, a minor theme that emerged from the interview data was “increased physical activity/mobility”. Some participants observed positive effects on physical activity and the often limited mobility of dementia residents. This finding is in line with the qualitative findings of study one, where residents interviewed reported physical health benefits of pets in the nursing home.

Interview participants were also asked if they observed any possible negative effects of the intervention program. The majority of participants said “no”. One residents’ family member reported some negativity from staff and two of the staff members interviewed reported negative feedback from night staff members. They reported that the night staff commented that residents were calmer while the dogs were there but then were more aggressive to others when the dog had gone. One of the volunteer dog handlers reported that she didn’t observe any negative effects in this study but has encountered a couple of residents that don’t like the dog or were scared of him, at another nursing home. This finding could

reflect the fact that residents that don't like or were afraid of dogs were excluded from the present study.

Participants were also asked about their observations at the non-dog sessions. One of the volunteer dog handlers reported that the sessions without the dogs were not as successful and it was really hard work to try to fill in the time. One resident family member reported that during the non-dog sessions residents were roaming around, weren't focused and lost interest. Where as, during the sessions with the dogs residents' participated in conversation more and reminisced about their past. This is inline with the quantitative results of study three that found that residents' pro-social behaviour was significantly higher for the Animal-Assisted intervention than the non-dog control condition.

Interview participants were also asked if they observed that the intervention program was more effective with some residents. All participants said they observed the program to be more effective for animal lovers and residents who had previously owned pets. This again raises the question of whether Animal-Assisted programs would be as effective for people who don't have an interest in animals or a history of pet ownership, or do these programs only work for animal lovers? As suggested in study two, the inclusion of "animal neutral"

participants in future research would be useful for answering these sorts of questions.

When interview participants were asked why they think Animal-Assisted intervention programs are effective, they offered various suggestions. The dominant theory proposed by interview participants was that the intervention program provided a form of distraction or diversion for the residents, distracting them from their worries, aches and pains, thereby producing positive effects. This is in line with one of the major theories about why Animal-Assisted interventions are effective for people with dementia, discussed in chapter one. Researchers have suggested that a therapy dog may stimulate reminiscence and memories of past pets, thereby distracting the resident from displays of agitation (Churchill et al. 1999).

Another dominant theory that emerged in the interviews was that the positive effects of the intervention might have something to do with the physical touch of the animals. This is in line with another theory proposed by Churchill et al. (1999) that a therapy dog can provide the missed physical contact often experienced by people with dementia, by allowing petting, kissing and hugging. Churchill et al. (1999) and Batson et al. (1998) state that touch may fulfill many

functions, such as comfort and contact with reality, and has been suggested as a necessary element of mental and physical health (Weiss, 1979).

Other theories that interview participants proposed included: animals provide a novel stimulus in an often boring nursing home environment, pets put the 'home' back into the nursing home, animals satisfy the human need for caring, pet therapy programs give residents something to look forward to and it just works! The ideas and opinions of the people who work in and visit these care facilities on a regular basis are very valuable indeed. These "insider" insights provide us with important information about the effects of Animal-Assisted programs in the real-world nursing home environment that can be incorporated into future research in this area.

Interview participants were also asked about any limitations. Most participants talked about the need to have animals with the right temperament for programs. Participants spoke about having a quiet, docile animal that is good with people and doesn't nip. Both the volunteer dog handlers also said it is hard to find people with the time and ability to bring dogs in and explained that drop out rates for handlers is quite high because it's very draining work. Interview

participants also spoke about further limitations when asked about future directions. These will be discussed in the next section.

When asked about future directions, most participants said they would like to see the nursing home adopt a resident dog. One staff member suggested rescued grey hounds would be very suited to the nursing home environment because they are gentle and placid dogs.³ The interview participants did raise concerns with having a resident dog in the nursing home. The main concern was with over-feeding. Other issues discussed included practical issues such as who would be responsible for walking, bathing and taking care of the dog. It is interesting to note that these concerns mainly came from nursing home staff members.⁴

Interview participants also reported that they would like to see visiting pet programs become a more regular and consistent activity, if a resident dog wasn't possible. The possibility of other animals (as well as dogs) was also mentioned

³ The aged care facility I visited in the United States actually places rescued grey hounds in their facility because of their gentle temperament and they also don't easily put on weight, which is an important characteristic in the nursing home environment.

⁴ When I visited the nursing facility in the United States that has resident animals and allows residents to bring their pets with them, I asked the coordinator about this issue. Their answer was simple: "Pets are simply part of their philosophy". Looking after the pets is part of the job description and it's outlined during the recruitment process, that if you don't like animals, then it's probably not the right work place for you.

by participants. The participants spoke about having other animals in the nursing home, such as cats and fish. In fact, fish aquariums have been found to be beneficial in dementia residents' nutritional intake. A study, discussed in chapter one, found that when fish aquariums were present in the dining room of a nursing home, residents ate more of their meals and gained weight (Edwards & Beck, 2002).

Interview participants were also asked if they could see Animal-Assisted interventions potentially becoming a recognized (and government funded/health rebated) therapy, as are interventions such as speech therapy. There were some very positive comments from participants. One of the volunteer dog handlers said that dogs are used for the blind and the deaf and she can't see why they can't be used for dementia. One of the staff members said that pet therapy should be a therapy just as we have physiotherapy, massage and speech therapy. All recognized modes of therapy that we are familiar with today had to have their beginnings somewhere.

Of particular relevance to the present study, one of the residents' family members spoke of how it was very difficult for her mother to give up her pet when she moved into the nursing home and she reported not being able to find a

care facility that allows residents to bring their pet with them. One of the staff members also spoke about this issue and said pets were one of the major losses an elderly person experiences when they move into care. The residents interviewed in study one also reported missing their pet terribly when they moved into care. As discussed previously, future research should investigate facilities that allow residents to bring their pets with them.

As previously stated, residents were asked about their impressions of the visiting dogs after the intervention sessions. The results of the residents' comments were analysed separately from the formal interviews. A number of themes emerged in the data. The themes included: comments about the dogs being beautiful/gorgeous/lovely, the dogs triggering memories of past animals, the love residents expressed for the dogs, the joy/pleasure the dogs provided and a preference for animals over people. The findings were largely consistent with the limited previous research.

A major theme that was evident in the residents' comments were comments about the dogs being beautiful, gorgeous and lovely. Comments such as these about the therapy dogs are consistent with previous research that has reported similar comments from residents, such as "nice dog" (Batson et al. 1998), "good

doggie” (Churchill et al. 1999) and “they are very cute” (Kanamori et al. 2001). Both Batson et al. (1998) and Churchill et al. (1999) propose that such statements are consistent with Netting, Wilson and News’ (1987) presumption that pets may allow the elderly opportunity for other roles, such as caregiver, confidant, or companion. This is also in line with the findings of the interviews with residents from study one. Residents interviewed spoke about animals giving them someone to care about, making them feel needed and responsible for someone other than themselves. They also spoke about pets providing companionship and being a source of emotional and psychological support. However, residents spoke about these things in relation to previously owned pets rather than visiting animals in the nursing home.

Another dominant theme that emerged from the data was the memories about past pets that the visiting dogs seemed to trigger in the residents. This finding is in line with the findings from the interviews with residents’ family members, staff members and volunteer dog handlers, who also observed the therapy dogs seeming to trigger memories of childhood and previously-owned pets.

Another theme that emerged from the data was the love that the residents expressed for the dogs. This is consistent with previous research by Churchill et

al. (1999), where residents made comments such as “I love you” and Motomura et al. (2004) who reported that residents liked the dogs very much. It is also in line with the findings from the interviews with residents in study one, where the benefits of visiting/resident animals in the nursing home reported by residents included love for/attachment to the animals.

In the present study, residents also spoke about the joy/pleasure they received from the therapy dogs. This is consistent with previous research by Motomura et al. (2004) that reported that residents said it was fun to attend dog therapy. It is also in line with the findings of the interviews with residents’ family members, staff members and volunteer dog handlers, where the joy/pleasure that the visiting dogs brought to the nursing home was the dominant theme that emerged. It is also in line with the finding of the interviews with residents from study one, where pleasure/joy was the major benefit of visiting/resident animals in the often boring nursing home environment.

Two residents spoke about their preference for animals over people. This is consistent with the interviews with residents from study one. However, residents spoke of their preference for animals over people in relation to previously-owned pets rather than animals in the nursing home.

One resident talked about having to give up her dog when she moved into the nursing home, and said it was one of the hardest things to leave behind. This is consistent with the interviews with residents from study one and also the interviews with residents' family members and staff members who also talked about this issue. As previously mentioned, future research should investigate facilities that currently allow people to bring their pets with them. Does it help with the transition from home to care facilities for elderly people?

Implications of findings

The present study has further contributed to the limited qualitative research investigating key people's experiences with Animal-Assisted intervention programs. Many of the themes that emerged in the interview data were new qualitative findings due to the very limited previous qualitative research in this area. However, an interesting finding was that many of the themes identified are consistent with previous quantitative research findings. For example, the qualitative observations that the Animal-Assisted intervention increased dementia residents' social behaviour, reduced agitation and had positive effects on memory were consistent with the quantitative findings from study two and previous research that found that Animal-Assisted interventions increased social

behaviours (Kongable et al. 1989, Batson et al. 1998, Churchill et al. 1999, Greer et al. 2001, Richeson, 2003, Sellers, 2005) and decreased agitated behaviours (Walsh et al. 1995, Churchill et al. 1999, Kanamori et al. 2001, McCabe et al. 2002, Richeson, 2003, Motomura et al. 2004, Sellers, 2005) in people with dementia. Study two also found that memory-related problems were improved during the Animal-Assisted intervention. It must be noted that the themes spontaneously emerged in the qualitative data and interview participants were not directly asked about the effects of the intervention on any specific behaviours. Therefore, the observation that the qualitative data is consistent with the more well-established quantitative data is an important finding, as it lends further support for the efficacy of Animal-Assisted intervention programs for people with dementia. Further more, the interviews provide us with important insights from the people most directly involved with the programs, and add rich qualitative data to the existing body of quantitative research.

The present study also asked interview participants about any negative effects of the Animal-Assisted intervention. The majority of people interviewed said “No”. Interview participants also reported that the sessions without the dogs were not as successful as the intervention sessions. This qualitative finding also supports the quantitative findings of study three. As previously noted, it must

be cautioned that the selection of interview participants may have resulted in possible biases towards the perceived success of the intervention. This will be discussed further in the next section addressing the limitations of this research.

Interview participants also reported that the intervention seemed to be more effective with the pet lovers and residents who had previously owned pets. This finding has implications for the selection of participants in future intervention programs. Are these programs only successful with residents who love animals or who have previously owned pets?

The present study also asked interview participants about their theories on why Animal-Assisted interventions are effective. The theories that animals can provide a diversion/distraction for residents and animals can satisfy the human need for touch that emerged in the interview data, are inline with major theories proposed by researchers in this area. Again, the fact that these theories spontaneously emerged in the interview data is an important finding as it lends further support for these theories. The other theories proposed such as: animals are something novel/different in the nursing home environment, animals bring back the home environment, animals satisfy the human need for caring and

provide something to look forward to warrant further investigation in future research.

The present study also asked interview participants about any limitations and future directions for Animal-Assisted interventions. Suggestions for resident animals and potential problems such as overfeeding by well-meaning residents and who would be responsible for the care of the animals were discussed. It is important to allow the people most directly involved with the programs the opportunity to voice their opinions and express their concerns. Their opinions have implications for future research and practice. As previously stated, future research should investigate facilities that have resident animals and see how they successfully manage them. For example, the facility that I visited in the United States has resident greyhounds for the reason that they don't put on weight easily, so they are ideal for the nursing home environment. Interview participants also spoke about having visiting animal programs as a more regular and consistent activity and also suggested using other animals, other than dogs in the future. These suggestions could have implications for future research and practice as we continue to push the boundaries and try new and different things. This could include using cats, birds and fish as well as dogs in intervention

programs. It could also involve using rescued animals in nursing homes. This will be further explored in the following chapter.

As discussed previously, the residents were also asked about what they thought about the visiting dog(s) after the intervention sessions. The findings of the present study lend further support that elderly people enjoy attending the program sessions, reminisce about their past animals and sometimes prefer the company of animals over people! This could have implications for future research and practice. Research could work to further answer questions such as why people prefer the company of animals over people, even caring people. This will be expanded on in the next chapter.

Limitations of this research

As is the case with most research, the present study was not without its' limitations. Some of these limitations have already been raised in the above discussion. As previously discussed, it is possible that the selection of interview participants could have biased the evaluations of the study. It is possible that residents' family members, staff members and volunteer dog handlers really wanted the intervention to be effective and have therefore given it positive evaluations. As the study did not conduct "pre" interviews it is hard to judge

the extent to which this factor may have been in operation, but it can't be ruled out as a possible influencing factor when interpreting the results.

Another limitation of this research was that the interviews were conducted by the author. This also could have influenced the evaluations of the intervention program given. Participants may have felt obligated to give positive evaluations to the researcher responsible for implementing the study. The present study was operating on a very limited budget (as is often the case in student research) and decisions about selection of interview participants and who would interview them, reflected this. Future research would be strengthened by the inclusion of "pre" interviews and also the use of independent interviewers (where possible) in order to minimise any potential biases.

The interview participants were also limited to residents' family members, staff members and volunteer dog handlers from one private residential care facility, with participants being from similar socio-economic and cultural backgrounds. Future research should include participants from public care facilities as well, to include a broader range of participants from different cultural and socio-economic backgrounds. It must also be noted that the small number of interview participants in the present study means that generalizations about findings are

limited. Further research in this area will add to the generalizability of research findings.

Directions for future research

As there is currently only a small body of qualitative research in this area, there are many potential areas for future research. The present study has identified a number of directions for future research and some of these ideas have already been discussed in the previous sections.

The present study found that some of the facility staff members reported some negative feedback from night staff members. They reported that the night staff members commented that the residents were calmer while the dogs were there but were more aggressive towards others after the dogs had left. One of the staff members interviewed suggested that perhaps the residents enjoyed having the dogs there so much and then when they left it actually had a negative impact on them. As these were isolated comments, future research could interview night staff members about their observations and further investigate any potential negative effects after the visiting dogs leave the facility. Perhaps a resident dog that permanently lives at the care facility would be a potential solution.

In fact, most interview participants suggested that the care facility adopt a resident dog that residents could interact with on a daily basis. However, participants also expressed concerns with having a resident dog, such as overfeeding by residents and who would be responsible for walking, bathing and grooming of the dog. As previously discussed, future research should investigate care facilities that have resident animals and see how they successfully manage them. Future research could also further explore the observed effects of a resident dog versus a visiting dog program. The study by Kongable et al. (1989), reviewed in chapter three, found no differences in social behaviour of residents between visiting and resident dog conditions. However, the measures were only assessed two weeks after the dog had become a permanent resident on the unit. Perhaps this was not long enough for residents to bond with the dog. Further research could explore the effects over a longer period. For example, a six-month comparison study of the effects of a resident dog versus a visiting dog program could be conducted. Both quantitative data and qualitative data could be collected during the study period.

As discussed previously, future research should investigate care facilities that allow elderly people to bring their animals with them. Does it make the transition into care easier for the elderly person? How do the animals get along

with other animals in the facility? Who is responsible for the care of the animals? Future research could seek to answer these sorts of questions. Trials of allowing people to bring their animals with them into care facilities and evaluation studies of the benefits and also problems encountered could be conducted.

In the meantime, visiting animals seem to be the most viable alternative. Interview participants in the present study would like to see more regular and consistent programs. The volunteer dog handlers interviewed said it was hard to find volunteers with the time and ability to bring dogs in. They explained that drop out rates for handlers are quite high because it is very draining work. Future research could investigate the availability of trained therapy dog and handlers. Is there enough to meet the demand here in Australia? Also, what are the potential negative effects on handlers/dogs?

It is in applied research endeavors that future directions for Animal-Assisted interventions in Australia exist. The evidence is mounting for the efficacy of Animal-Assisted interventions for people with dementia. Research can now also turn to investigating the availability of visiting animal programs and also expand into new directions such as investigating the potential for having more resident animals in care facilities and allowing elderly people to bring their beloved pets

with them into care. Intervention programs could include various types of animals as well as dogs and the potential for using rescued animals in care facilities should be explored. Facilities overseas report that they are successfully operating under pet-friendly policies and investigation of these facilities could lead to more facilities in Australia adopting this approach.

Chapter Six

≈

The final word...

Discussion

“My dad had nine children and was the best father to every one of us. He never forgot to smile and be happy. There are so many good things to say about him.

His personality changed slowly; we thought it could be the wrong diagnosis. Then he started forgetting things. He couldn't remember our names. He repeated himself and was not able to care for himself as he once did.

Eventually, Alzheimer's changed him into a completely different person. But I will forever remember my father as the sweetest person in the world.”

THE ABOVE PASSAGE WAS WRITTEN BY THE DAUGHTER OF A PERSON with Alzheimer's disease. It illustrates the devastating impact the disease can have at a very personal level. Alzheimer's disease is the most common form of dementia. On a broader level, it has been estimated that approximately 200,000 Australians aged 65 years or older currently have dementia, as discussed in the introduction chapter of this thesis. With the projected rise of Australia's aged population, this figure is expected to more than double over the next twenty years. There is currently no known prevention or cure for dementia. As also previously discussed, it is imperative that research investigates more effective therapies for this devastating disease as pharmacological regimes are only

moderately effective, have significant side effects and further impact on the quality of life of sufferers. One of the most promising non-pharmacological therapies for improving social behaviour and reducing the behavioural and psychological symptoms in people with dementia are Animal-Assisted Interventions. The present research further investigated this promising intervention.

A summary of the four research studies and major findings...

The present program of research consisted of four studies that extended the previous research on Animal-Assisted Interventions for people with dementia. A brief summary of each study, together with the major research findings, will be presented below:

Study one – the exploratory interview study

The first study was an exploratory interview study that investigated the lived experience of elderly people living in residential care, in relation to previous pet ownership, having to give up their pet when moving into care and also current experience with resident and/or visiting animals in the facility. Six elderly nursing home residents were interviewed. The benefits of pet ownership identified in the interview data included: love/attachment, companionship,

unconditional love, caring, pleasure/joy and support. Losing/giving up a pet when moved into care left most residents 'heart-broken', however, this grief was followed by acceptance, in most cases. The benefits of visiting/resident animals in the nursing home included pleasure/joy, someone to talk to, physical benefits, and love.

Study two – the trial of an Animal-Assisted intervention program

The second study was a trial of an Animal-Assisted intervention program for people with dementia living in a residential care facility. Thirty residents with dementia participated in the trial. Immediate and longer-term changes in behavioural and physiological measures were recorded across baseline, intervention and follow-up periods. Residents' social behaviour (pro-social behaviour) was found to significantly increase during the intervention and decrease during the follow-up phase, however this decrease was not significant. Residents' disruptive behaviour was found to significantly decrease during the intervention and significantly increase during the follow-up phase. Residents' memory problems and depressive behaviour were also found to significantly decrease during the intervention and significantly increase during the follow-up phase. However, physiological measures of heart rate and diastolic blood

pressure were not found to significantly differ across the baseline, intervention and follow-up phases.

Study three – the control trial

The third study was a control trial that aimed to control for human-interaction effects by measuring the behavioural and physiological effects on dementia residents when the volunteer dog handlers visited without the dogs. Seven residents with dementia participated in the control trial. Residents' social behaviour (pro-social behaviour) was found to be significantly higher for the Animal-Assisted intervention than the non-dog control condition. Residents' memory-related problems were found to be significantly lower for the intervention than the non-dog control condition. Residents' depression scores were found to be significantly lower for the intervention than the non-dog control condition. Residents' disruptive behaviour was not found to significantly differ for the intervention and the non-dog control condition. There were no significant differences found for heart rate and diastolic blood pressure for the intervention condition and the non-dog control condition.

Study four – the follow-up interview study

The fourth study was an interview study that investigated the experiences of residents, facility staff, residents' family members and the volunteer dog handlers, with regard to the Animal-Assisted intervention. Eleven participants were interviewed. The interview participants' observations of the effects of the intervention on residents included: increased joy/pleasure, effects on memory, increased relaxation, improved focus, reduced agitation, reduced wandering, increased social behaviour and physical activity. The reasons participants suggested for why the intervention was effective included: diversion/distraction, touch, novel/different, the home environment, the need for caring and something to look forward to. The themes that emerged from the residents' data included: comments that the dogs were beautiful/gorgeous/lovely, memories of past animals, love for the dogs, joy/pleasure and preference for animals over people.

Integrated discussion of findings...

The research findings from the four individual studies will be discussed together, and with regard to the broader research context. How the studies collectively advance knowledge in this area will be also be examined. The following four questions will be used to frame this discussion:

1. *How has the present research contributed to knowledge about the importance of pets for elderly people?*
2. *How has the present research contributed to knowledge about the efficacy of Animal-Assisted intervention programs for people with dementia?*
3. *How has the present research contributed to knowledge about the mechanisms through which Animal-Assisted intervention programs may have beneficial effects?*
4. *What has the present research suggested about how to identify the nursing home residents who may or may not benefit from Animal-Assisted intervention programs?*

This discussion will conclude with an examination of the strengths and weaknesses of the present program of research, together with suggestions for future research directions in this area.

How has the present research contributed to knowledge about the importance of pets for elderly people?

The present research conducted two qualitative interview studies that have further contributed to existing knowledge about the importance of pets for elderly people. Study one interviewed elderly nursing home residents about

their past experiences of pet ownership, losing/giving up their animal when they moved into care and also their current experiences with Animal-Assisted programs and visiting/resident animals in the care facility. The findings of this study offered further support for the existing body of research that has reported many benefits of pet ownership, which include: love/attachment (Chur-Hansen, Winefield & Beckwith, 2009; Enders-Slegers, 2000; Turner, 2001; Endenburg, Hart & Bouw, 1994), companionship (Chur-Hansen et al. 2009; Endenburg et al. 1994), unconditional love (Chur-Hansen et al. 2009; Cohen, 2002; Turner, 2001), caring (Chur-Hansen et al. 2009; Enders-Slegers, 2000; Endenburg et al. 1994), pleasure/joy (Enders-Slegers, 2000) and emotional support (Cohen, 2002).

The interview participants in study one also spoke about either losing their pet through death prior to moving into care or having to give up their pet as a result of moving into the care facility. The findings regarding losing a pet through death offered further support for previous research (Chur-Hansen et al. 2009; Turner, 2001) that reported that people were “heart broken” and missed their pet terribly. This study was the first study to date to ask elderly people about their experiences of having to give up their pet when they moved into a care facility. The interesting finding was that interview participants spoke about the experience in the same way, regardless of whether they lost a pet through death

or had to give it up when they moved into a care facility. During the interviews of study four, one of the residents' daughters also spoke about how it was very difficult for her mother to give up her pet when she moved into the nursing home and actually delayed moving into the nursing home (even though she could no longer care for herself) because she did not want to leave her dog. She reported trying to find a facility that would allow her mother to bring her dog with her but said they were unable to find one. Similarly one of the residents in study four commented that her dog was one of the hardest things to leave behind when she moved into the care facility and said she worried more about what would happen to her dog than her own children! Her dog now lives with her son. Most residents in study one also reported that close family members were now taking care of their pet for them, and they were able to see their pet regularly. However, one resident was still very distressed when talking about being separated from her dog more than five years ago. This resident spoke of not having any close family members living close by, and not being able to see her pet regularly. The results of this research suggest that the presence of close family members who are able to care for the pet and also being able to visit with the pet regularly, could be mediating factors affecting the severity of grief experienced and subsequent acceptance of the loss. Future research could investigate this finding further. This will be discussed later. Residents were also

asked about their current experiences with visiting pets in the nursing home and reported benefits such as: providing pleasure and joy in the nursing home, giving them someone to talk to and physical health benefits.

The present two interview studies have contributed to the existing body of knowledge by further supporting previous research that has highlighted the importance of pets in the lives of elderly people and their many benefits. It has also gone one step further and asked elderly people about their experiences of having to give up their beloved pet when they moved into care, which they described as “heart-breaking”. As Bustard (1980) said:

“One of the worst things we can do to old people who are living alone is to remove them to a convalescent nursing or other retirement home, or an apartment where pets are not allowed. They are denied their companion animal, which is about the only thing that gives them unconditional love and affection.” (Quoted in Hogarth-Scott, 1982, p. 4)

One possible solution, previously discussed, would be to allow elderly people to bring their pets with them into care facilities. As also discussed previously, I had the opportunity to visit a facility in the United States that allows elderly people to bring their pets with them into the care facility and future research could

investigate facilities currently implementing pet-friendly policies. How do they successfully manage it and what are the benefits for the elderly people? This will be discussed further later.

How has the present research contributed to knowledge about the efficacy of Animal-Assisted intervention programs for people with dementia?

All four studies conducted in the present research have further contributed to existing knowledge about the efficacy of Animal-Assisted intervention programs for people with dementia. As discussed in the introduction chapter, dementia symptoms include the loss of memory, intellect, rationality, social skills and what would be considered normal emotions. Behavioural and psychological symptoms (BPSD) such as agitation, aggression, wandering and noisiness also very frequently accompany dementia. Study two conducted a trial of a six-week Animal-Assisted intervention program with dementia residents in a residential care facility, and assessed the efficacy of the program on positive social (pro-social) behaviour, disruptive behaviour, memory-related problems, depression, heart rate and blood pressure in the dementia residents.

The efficacy of Animal-Assisted intervention programs on pro-social behaviour

Pro-social behaviours assessed in the current study included behaviours such as smiling, laughing and having appropriate verbal communication with staff and/or other residents. Study two found that pro-social behaviour significantly increased during the Animal-Assisted intervention which further supports existing research that found that Animal-Assisted interventions improved social behaviours in dementia patients (Kongable et al. 1989; Batson et al. 1998; Churchill et al. 1999; Greer et al. 2001; Richeson, 2003; Sellers, 2005). However, none of these studies assessed the effects after the completion of the intervention. What happened after the dog stopped visiting? Were the positive benefits maintained or did they return to baseline levels? The present study included a six-week follow-up period after the completion of the intervention program. The results showed that pro-social behaviour decreased during the follow-up phase, after the completion of the six-week intervention, however this reduction was not significant nor were previous baseline levels returned to. This new research finding adds to our existing knowledge about the effects of Animal-Assisted interventions positive social (pro-social) behaviour of dementia residents. Not only is the program effective in increasing pro-social behaviours *during* the intervention, but positive effects can be *maintained* for at least six weeks after the

completion of the intervention program. Further research is needed to support this new finding. This will be discussed later.

The findings of study three also offer further support for the efficacy of Animal-Assisted interventions on pro-social behaviour of dementia residents. Study three assessed the effects of a control condition without the therapy dogs. Pro-social behaviour was found to be significantly higher for the intervention condition than the non-dog control condition where the volunteer dog handlers visited without the therapy dogs. This finding offered further support for the existing research that has found that social interaction behaviours were significantly higher when a therapy dog was present, than when a volunteer visited alone without a therapy dog (Batson et al. 1998; Churchill et al. 1999; Enders-Slegers et al. 2005). The findings of the present study and previous research findings together lend support for the notion that it is the therapy dog that is having the positive effect on the social behaviour of dementia residents, rather than the human volunteer.

The qualitative interview studies (study one and study four) also offer further support for the quantitative findings that Animal-Assisted interventions are effective in increasing the pro-social behaviour of dementia residents. Study one

was the first study to date to ask residents about their current experiences with visiting/resident animals in the nursing home. Residents spoke about interacting with the animals and animals giving them 'someone to talk to'. Study four was the first study to formally interview residents' family members, staff members and volunteer dog handlers about their observations at the Animal-Assisted intervention sessions. The interview participants observed increased smiling, laughing and talking of the dementia residents during the sessions. These new qualitative findings are in line with the quantitative findings of the present research and also previous research. Together, the research findings offer further evidence for the efficacy of Animal-Assisted intervention programs in improving the social behaviour of dementia residents.

The efficacy of Animal-Assisted intervention programs on disruptive behaviour

The present research also assessed the effects of an Animal-Assisted intervention program on the disruptive behaviours of dementia residents. Disruptive behaviours include being verbally aggressive to others (eg. residents or staff) and arguing, irritability and/or complaining. Study two found that disruptive behaviour significantly decreased during the intervention which further supports existing research that found that Animal-Assisted interventions reduced agitated behaviour in dementia patients (Walsh et al. 1995; Churchill et

al. 1999; Kanamori et al. 2001; McCabe et al. 2002; Richeson, 2003; Motomura et al. 2004; Sellers, 2005). Only one previous study assessed the effects after the dog was removed and found that the agitated behaviour significantly increased during a follow-up phase (Richeson, 2003). The present study also included a follow-up phase and found that disruptive behaviour significantly increased during the follow-up phase, which offers further support for the previous research by Richeson (2003). However, Richeson (2003) did not compare baseline and follow-up scores. The present study found that disruptive behaviour was significantly higher during the baseline phase compared with the follow-up phase. Therefore, even though disruptive behaviour significantly increased during the follow-up phase, it did not return to pre-intervention baseline levels. This new research finding adds to our existing knowledge about the effects of Animal-Assisted interventions on disruptive behavior of dementia residents. This new finding suggests at least some maintenance of the effects of the Animal-Assisted intervention on disruptive behaviour after the intervention. Not only is the intervention program effective in reducing disruptive behaviours during the intervention but the positive effects can carry on after the completion of the program. However, the maintenance effects demonstrated were not as strong as those found for pro-social behaviour. Further research is needed to further

investigate this new research finding and how positive effects may be maintained further. This will be discussed later.

The findings of the qualitative interview study four also offer further support for the quantitative findings that Animal-Assisted interventions are effective in reducing the disruptive behaviour of dementia residents. The interview participants observed that agitated behaviours (such as calling out and restlessness) were reduced during the intervention sessions. As the present study was the first study to formally interview residents' family members, staff members and volunteer dog handlers about their observations at the intervention sessions, these findings are new. These new qualitative findings are in line with the quantitative findings of the present research and also previous research. Together, the research findings offer further evidence for the efficacy of Animal-Assisted intervention programs in reducing the disruptive behaviour of dementia residents.

The efficacy of Animal-Assisted intervention programs on memory and depression

The present research also assessed the efficacy of an Animal-Assisted intervention program on memory-related problems and depression in dementia

residents. The Revised Memory and Behaviour Problems Checklist (RMBPC) used in the present research provided sub-scales for depression and memory-related problems, and therefore we had the opportunity to investigate the effects of an Animal-Assisted intervention on these two measures also. There has been limited research investigating the effects of Animal-Assisted interventions on depression or memory related problems. The studies conducted to date have found no significant differences in either depression (Motomura et al. 2004; Enders-Slegers et al. 2005) or memory (Motomura et al. 2004; Kanamori et al. 2001) after the implementation of the intervention. The results of study two found that both depression and memory-related problems significantly decreased during the intervention. It was also found that the two measures significantly increased from the intervention phase to the follow-up phase, however, the baseline phase was significantly higher than the follow-up phase, suggesting some maintenance of the positive effect.

The findings of study three also further support the positive effect of the Animal-Assisted intervention on depression and memory-related problems of dementia residents. Depression and memory-related problems were found to be significantly lower for the intervention condition than the non-dog control condition. These findings are contradictory to the study by Enders-Slegers et al.

(2005) that found no significant differences in depression scores. The present study was the first study to date to investigate memory and a non-dog control condition.

The qualitative interview studies (study one and study four) also offer further support for the quantitative findings that the Animal-Assisted intervention decreases depression and memory-related problems in dementia residents. In interview study one, the residents talked about the pleasure/joy that animals provide in the nursing home environment. The interview participants in study four also spoke about the joy/pleasure the Animal-Assisted program brought to the nursing home residents. Many participants described this joy by saying “their faces just light up”. Interview participants also observed increased smiling, more positive moods and that the dog made the residents happy even for just a little while. While the interview participants did not speak of depression, these observations about the positive effects on mood are in line with the quantitative findings that the Animal-Assisted intervention decreased depression in dementia residents. The interview participants in study four also spoke about the positive effects on memory that the visiting dogs seemed to have on residents, which is in line with the quantitative finding that the Animal-Assisted intervention decreased memory-related problems in dementia residents.

The efficacy of Animal-Assisted intervention programs on heart rate and blood pressure

The present research also assessed the efficacy of an Animal-Assisted intervention program on the physiological measures of heart rate and blood pressure. Study two found no significant differences for heart rate and diastolic blood pressure across the baseline, intervention and follow-up phases. Systolic blood pressure was found to be significantly higher for the intervention than the follow-up phase. However the baseline phase was not significantly different from either the intervention or follow-up phases. These findings are largely consistent with previous research that has found no significant differences in blood pressure (Walsh et al. 1995; Batson et al. 1998) and heart rate (Batson et al. 1998). However the study by Walsh et al. (1995) found that heart rate was significantly reduced in the AAT group. Study three also found no significant differences for diastolic blood pressure and heart rate for the intervention condition and the non-dog control condition, which is in line with the finding of Batson et al. (1998). Study three did find that systolic blood pressure was significantly higher for the intervention condition than the non-dog control, which was contrary to the findings of Batson et al. (1998).

Taken together, the findings of the present research and the previous research offer little evidence that Animal-Assisted interventions have a significant effect on the blood pressure or heart rate of dementia residents. However, in the qualitative interviews of study four, interview participants reported observing the calming and relaxing effect the therapy dogs seemed to have on the often-agitated dementia residents. It is possible that the research findings to date have not been able to measure this observed relaxation response, in a quantifiable way. Factors that have the potential to affect circulatory responses, such as medication usage and other medical conditions of the dementia residents could account for this. The effects of Animal-Assisted interventions on relaxation will be discussed further in the next section.

When examined collectively, the findings of the present four studies have added to existing knowledge about the effectiveness of Animal-Assisted intervention programs for people with dementia in numerous ways. The current research findings have offered further support for existing research that has found beneficial effects of Animal-Assisted interventions on pro-social and disruptive behaviour of dementia residents, and that these positive effects are unique to the therapy dog. The present research has gone one step further and demonstrated that these positive effects can be maintained even after the completion of the

intervention program. The current research has also shown that Animal-Assisted interventions can have positive effects on depression and memory-related problems of dementia residents. The present research also collected much-needed qualitative interview data to supplement the larger body of quantitative research. The findings of the qualitative data offer further support for the quantitative findings that Animal-Assisted interventions are beneficial in improving social behaviour, reducing agitated behaviour, depression and memory-related problems in dementia residents. However, the current research evidence for the effects of Animal-Assisted interventions on heart rate and blood pressure in dementia residents is not strong. This will be discussed further in the following section.

How has the present research contributed to knowledge about the mechanisms through which Animal-Assisted intervention programs may have beneficial effects?

As discussed in the introduction chapter, the mechanisms through which Animal-Assisted interventions may have beneficial effects are unclear. Therapy dogs may produce positive benefits with elderly people with dementia through several mechanisms. The major current theories include: relaxation, distraction and touch.

Relaxation

Previous research has found that petting a dog with whom a companion bond has been established has a relaxing effect by decreasing blood pressure in healthy participants, and decreasing blood pressure and increasing peripheral skin temperature in hypertensive patients (See Baun, Oetting & Bergstrom, 1991 for a review). It has been suggested that this physiological reaction may contribute to effective pet therapy and this relaxation effect may be of benefit in reducing the behavioural and psychological symptoms of dementia, such as agitation (Filan & Llewellyn-Jones, 2006). How does this theory hold up in the light of the current research evidence? If there was a relaxation effect operating, we would expect that measures of blood pressure and heart rate would decrease during the Animal-Assisted intervention. Study two found no significant differences for heart rate or diastolic blood pressure across the baseline, intervention and follow-up phases. Systolic blood pressure was found to be significantly higher for the intervention phase than the follow-up phase, which was the opposite of what was expected. However, the baseline phase was not significantly different from either the intervention or follow-up conditions. Study three also found no significant differences for heart rate and diastolic blood pressure for the intervention condition and the non-dog control condition. Systolic blood pressure was found to be significantly higher for the intervention condition than

the non-dog control condition, which was the opposite of what was expected. The findings of interview study four offered some support for the relaxation theory. Interview participants observed the calming and relaxing effects the intervention seemed to have on the dementia residents. Previous research has also largely found no significant effects in blood pressure (Walsh et al. 1995; Batson et al. 1998) and heart rate (Batson et al. 1998).

When looked at as a whole, the research evidence offers little support for the relaxation theory. In the light of the current research evidence, it appears that Animal-Assisted interventions have no significant effect on the blood pressure or heart rate of dementia residents. However, it is possible that the research to date has not been able to measure this relaxation response in a quantifiable way. Factors such as medication usage and other medical conditions of the dementia residents have the potential to affect circulatory responses and may explain why the relaxation response has been demonstrated in healthy participants but not in people with dementia. Batson et al. (1998) suggest that the greater alertness of participants and possibly increased activity associated with petting the dog may have offset a relaxation response, which is another possible explanation. Perhaps we have not been able to detect the relaxation response in complex real-world settings. More well-controlled studies that replicate the studies conducted with

healthy participants need to be conducted with dementia residents before firm conclusions can be made. Future research could monitor the blood pressure and heart rate (at regular intervals) for individual programs when a resident just 'quietly' strokes a dog rather than a busy group setting. This type of well-controlled research is necessary to further inform knowledge about the role of relaxation in the effectiveness of Animal-Assisted intervention programs for people with dementia. This will be discussed further later.

Distraction

It has also been suggested that distraction is another potential mechanism by which the presence of a therapy dog may benefit people with dementia. A therapy dog may stimulate reminiscence and memories of past pets, thereby distracting the resident from displays of agitation (Churchill et al. 1999). How does this theory hold up in the light of the current research evidence? If there was a distraction effect operating, we would expect that measures of memory would increase, and measures of agitation would decrease, during the Animal-Assisted intervention. The results of study two found that memory-related problems and disruptive behaviours significantly decreased during the intervention. The results of study three found that memory-related problems were significantly lower for the intervention than the non-dog control condition.

Another way of interpreting these results is that memory improved during the Animal-Assisted intervention. As noted previously, my own observations during the intervention sessions were that residents reminisced about past pets and their life prior to living in the nursing home during the AAT sessions. The animals seemed to trigger memories of past events, which seemed to show up in the memory scale. The interviews participants in study four offered further support for these observations. The interview participants reported observing positive effects on the memory of the dementia residents during the intervention program sessions. Some participants talked about the dogs providing a trigger for the residents to reminisce about memories of childhood and previously-owned pets. The residents in study four also talked about memories of their past animals after the intervention sessions. Further support for the theory of distraction came from interview participants' observations that the dogs provided a form of distraction or diversion for the residents, thereby producing the positive effects.

Previous research in this area has well-documented the finding that Animal-Assisted interventions reduce agitated behaviour in dementia patients (Walsh et al. 1995; Churchill et al. 1999; Kanamori et al. 2001; McCabe et al. 2002; Richeson, 2003; Motomura et al. 2004; Sellers, 2005). However, the present study was the

first study to date to find that an Animal-Assisted intervention program has a beneficial effect on the memory of dementia residents. Previous research has not found any significant effects on memory (Motomura et al. 2004; Kanamori et al. 2001). Future research in this area should explore this exciting new finding. It is possible that the stimulation of past memories about pets could lead to the retrieval of other long-term memories and even assist with short-term memory problems. Future research in this area should further investigate the effects of Animal-Assisted interventions on memory of dementia residents.

When examined as a whole, the current research evidence is beginning to build for the theory that Animal-Assisted interventions may stimulate reminiscence and memories of past pets, thereby distracting the resident from displays of agitation. However, as the present research was the first study to find that an Animal-Assisted intervention can have an effect on the memory of dementia residents and also the first study to conduct qualitative interviews about observations at intervention sessions, more research is needed to further support these new findings and the theory of distraction. The potential for Animal-Assisted programs to improve the memory of people with dementia is an exciting new area for research in this field.

Touch

It has also been suggested that a therapy dog can provide the missed physical contact often experienced by people with dementia (Churchill et al. 1999). Churchill et al. (1999) argue that people with dementia may experience a loss of personalized affection after they move into care. They suggest that a therapy dog can provide the missed physical contact by allowing petting, kissing and hugging. Churchill et al. (1999) and Batson et al. (1998) state that touch may fulfill many functions, such as comfort and contact with reality, and has been suggested as a necessary element of mental and physical health (Weiss, 1979). As discussed previously, I proposed that this theory be extended to include the missed social contact also, and that a therapy dog can provide the missed social contact by allowing social behaviours such as talking (to the therapy dog, the volunteer dog handler and other residents) and nonverbal behaviours also (such as looks and nods).

How does this theory hold up in the light of the current research evidence? The interviews of study one offered support for this theory. The residents interviewed reported that it was difficult to move into the care facility and particularly hard to leave their companion animal behind. The residents said that it was hard to make friends and find other people to talk to in the nursing

home. They said that animals in the nursing home environment gave them 'someone to talk to'. The results of study two found that residents' social behaviour significantly increased during the Animal-Assisted intervention. The results of study three also found that residents' social behaviour was significantly higher for the intervention condition than the non-dog control condition. The interviews conducted in study four also offer further support for this theory. Interview participants suggested that the beneficial effects of Animal-Assisted programs may have something to do with the physical touch of the animals. Interview participants also reported observing increased social behaviours of the dementia residents during the intervention sessions and that the dogs were a stimulus for social communication. Previous research has consistently found that Animal-Assisted interventions improved social behaviours in dementia patients (Kongable et al. 1989; Batson et al. 1998; Churchill et al. 1999; Greer et al. 2001; Richeson, 2003; Sellers, 2005).

When examined as a whole, the research evidence is mounting for the theory that a therapy dog may provide the missed physical (and social) contact experienced by people with dementia. However, as the majority of evidence from the current and previous research supports the addition of social contact,

more research is needed to further support the theory of physical touch, and its benefits for people with dementia.

Other theories proposed by the interview participants in study four included the theory that pets provide a novel stimulus in an often-boring nursing home environment, thereby producing positive effects with the dementia residents. Some participants suggested that pets quite simply put the 'home' back into the nursing home and take the residents back to their home environment, thereby producing positive effects. Other participants suggested that pets fulfill the human need for caring and pets provide something for the residents to look forward to as many don't have a reason for getting up in the morning. Other participants suggested that the positive effects were caused by a combination of factors.

When the research evidence is examined as a whole, this last suggestion has a great deal of merit. There is evidence that Animal-Assisted interventions can produce beneficial effects in dementia residents through relaxation, distraction, touch and probably other mechanisms also. It is only through further research, that we will increase our understanding about the mechanisms through which Animal-Assisted programs may have beneficial effects. In the meantime, one of

my favorite warm-hearted theories came from the interview with one of the volunteer dog handlers:

"I really don't know how pet therapy works. It's marvelous, and there's no doubt it works – you know, I see things and see responses that to me are par for the course, but for other people it's just astounding, because they haven't happened before, and yet it happens all the time – how or why, I don't know, I really don't know."

What has the present research suggested about how to identify the nursing home residents who may or may not benefit from Animal-Assisted intervention programs?

The present research has suggested that the nursing home residents who are likely to experience benefit from Animal-Assisted intervention programs are those residents with either a love for animals, a previous history with pet ownership, or had to give up their pet(s) when they moved into the care facility.

Study two and three included participants that were selected with the assistance of nursing home staff who suggested the residents they thought would like to participate in an Animal-Assisted program. Residents with pet allergies, fear of dogs, or aggression when in the presence of dogs were excluded from studies. Therefore, studies two and three were limited to residents who generally liked or

were interested in animals and consequently we are unable to make predictions about people who don't like or are more "neutral" towards animals from the present research. Additionally, the interview participants in study four observed that the intervention was more effective for residents who were real pet lovers and those who had previously owned pets.

Study one interviewed elderly residents about their experiences with previous pet ownership. It was also the first study to date to ask elderly people about their experience of having to give up a pet when they moved into care and their subsequent personal experience with Animal-Assisted programs and pets in the facility. The residents that reported having to give up their pet when they moved into the care facility described being "heartbroken" and missing their pet terribly. Most of the residents interviewed described eventually accepting that they just couldn't do what they used to be able to do, and this included caring for their pet. The residents interviewed reported that visiting pets in the nursing home seemed to go some way to easing their loss.

When taken together, the results of the present research have suggested that the nursing home residents who are likely to benefit from Animal-Assisted intervention programs are the residents who either:

1. *Like/love animals*
2. *Have owned pets previously*
3. *Had to give up their pet on moving into the nursing home*

The present research suggests that it is these nursing home residents that are likely to experience benefit from Animal-Assisted intervention programs and should be targeted during the implementation of programs. Perhaps when a resident first moves into the care facility, the previous history of pet ownership could be discussed and Animal-Assisted programs could be implemented. This may help with the transition into living in the care facility. Future research could explore this. As discussed previously, future research could also explore the effectiveness of Animal-Assisted interventions for people who don't have a prior history of pet ownership or preference for animals, to evaluate the effectiveness of these programs on these more "animal neutral" residents. This will be expanded on in the following sections.

Strengths and limitations of the present research...

The current research has built on existing research investigating Animal-Assisted interventions for people with dementia and has highlighted much new territory. The present research addressed the limitations of previous research and furthered existing knowledge in this growing area. Study one extended the limited qualitative research in this area, by interviewing elderly people about their experiences with previous pet ownership, having to give up their pet when they moved into the care facility and their current experiences with animals in the facility. Study two further extended the more-established body of quantitative research by conducting a trial of an Animal-Assisted intervention program that assessed the longer-term effects (after the completion of the intervention program) as well as the more well-documented immediate effects. The study also assessed both behavioural and physiological measures to provide a more complete picture of the efficacy of Animal-Assisted intervention programs for people with dementia. Study three furthered the limited research that included a control condition where the volunteer visited without the therapy dog. Study four extended the very limited qualitative research in this area and conducted interviews with the people most directly involved with the programs,

namely the residents, residents' family members, staff and volunteer dog handlers.

The current research further supported existing research in this area and also produced a number of new research findings. The present research offered further support for existing research findings regarding the effectiveness of Animal-Assisted intervention programs in improving social and disruptive behaviour of dementia residents. It also went one step further and demonstrated that these positive effects may be maintained even after the completion of the intervention program. The present research also found that the Animal-Assisted intervention can have beneficial effects on memory and depression in dementia residents which is an important new finding in this area. Improvement in memory-related problems was an unexpected finding of the current study. Any improvement in memory (regardless of how small) is a very important finding for this population. The current research also highlighted important new qualitative findings about the impact having to give up a pet can have on elderly people moving into care facilities, and documented observations by key people involved with the Animal-Assisted programs in the facility.

The limitations of the current research have been discussed at the end of each study chapter. The main limitations of the present research include: the participants were limited to people from similar socio-economic and cultural backgrounds, the selection of interview participants and nursing home residents was not random and could have biased the results of the study, the use of observational data is also vulnerable to experimental bias, the conduct of interviews by the researcher could also have influenced the evaluations given, and other medical conditions and medications participants were currently taking (that could have potentially affected results) were not recorded.

The current research had to be conducted in a real-world residential care facility environment on a very low budget. This resulted in some practical constraints and subsequent methodological weaknesses that must be acknowledged. Residential care facilities are very busy places and staff members have limited time and availability for research. I was very fortunate to have the support of management and staff to assist with the research and collection of observational measures. However, staffing constraints meant that the control study was only able to be run with the smaller group rather than all participants, which would have been preferable.

As noted previously, it must be acknowledged that due to the small number of participants, especially in the qualitative studies, generalizations about findings are limited and modesty about the outcomes is required. However, it must also be noted that efforts were made to boost sample size and it is difficult to gain access to nursing home participants. This was a relatively labour-intensive study, conducted without funding support, and needed support from nursing staff (who are already time poor) to collect observational data. As previously discussed, the small sample sizes of the present study are inline with previous studies in this area, which is reflective of the challenging nature of conducting research in busy aged care facilities.

The collection of observational data by staff could have resulted in experimental biases such as the staff really wanting the intervention to be successful and therefore giving it more positive evaluations. However, the use of multiple observers and a structured checklist should have helped with these issues. Similarly the conduct of the interviews by the researcher may have influenced the evaluations of the intervention given. Participants may not have felt comfortable giving more negative feedback. Independent interviewers and observers (blind to experimental conditions) would have been preferable, however the limited research budget prevented paid research assistants being

used. Future studies should use independent interviewers and observers where possible and in the case of student research perhaps undergraduate students could volunteer in exchange for extra study credit.

Through this experience I have learnt that conducting research in real-life environments requires a great deal of mutual support and flexibility from the care facility, staff, volunteers and the researcher. People wishing to conduct research in this area should be aware of the following practical issues:

- Care facilities are very busy places!
- Nursing staff are not always able to collect data when it is needed
- Research projects have to be flexible to suit the needs of the facility as well as the research needs
- Be prepared to be helpful and assist with tasks such as feeding and toileting of residents!
- There is also a high possibility of losing participants due to death or illness

Fortunately this was not the case in my research as no resident passed away during the duration of the project. However, in an elderly and frail population

death is an everyday occurrence and there is a real risk of losing people to death or illness. Many of the residents involved in my research have passed away since the completion of the research project. I hope that their last days were made a little brighter by the visits from the dogs.

Directions for future research...

The current research has identified a number of potential areas for future research. These have been discussed at the end of each study chapter. Study one extended the existing qualitative research in this area and had a number of new findings that could lead to areas for future research. It was found that the presence of close family members who were able to take care of the elderly person's pet when they moved into care and also being able to visit with the pet regularly seemed to ease the loss and grief experienced by the elderly person. Further research could explore these potential mediating factors. Future research could also investigate care facilities that allow elderly people to bring their pet with them. What are the benefits for the elderly person? This idea will be expanded on in the next section. It was also found that elderly people living in residential care seem to prefer the company of animals over people at times. Future research could investigate the mechanism of why this might be the case.

Research could work to further answer questions such as why people prefer the company of animals over people. Why do dogs work better than people, even caring, interested people? Perhaps it is the unconditional love animals provide or the fact that animals just listen and don't talk back or criticize. Perhaps nursing home residents are tired of people 'caring' for them and animals provide them with someone to care for, someone to make them feel needed. As suggested by Netting et al. (1987) pets may allow elderly people opportunities for other roles such as caregiver, confidant, or companion. These themes were evident in the interviews in study one and further research will help us to deepen our understanding about why animals seem to be able to give to humans in a different way than other humans can.

Study two extended the existing quantitative research in this area and had a number of new findings that could lead to areas for future research. It was found that the beneficial effects of the Animal-Assisted intervention can be maintained even after the completion of the intervention program. Further research could explore the potential of this new finding. How long can effects be maintained? It was also found that the Animal-Assisted intervention could have beneficial effects on memory and depression of dementia residents. Future research could investigate this exciting new finding. What kind of effects can

Animal-Assisted programs have on memory and can these effects lead to further positive impact on short and/or long term memory? Can these effects be maintained? It was also found that the Animal-Assisted intervention program did not have a significant impact on the heart rate and blood pressure of the dementia residents. This finding could reflect a genuine finding or could be attributed to methodology. More systematic research could further explore the effects of Animal-Assisted interventions on these physiological measures. Further research could also explore the current practice and implementation of Animal-Assisted programs here in Australia. How many facilities are currently implementing programs and what results are they achieving? Is there enough supply of volunteers and trained therapy dogs to meet the current needs?

Study three extended the existing research exploring the effects of a non-dog control condition. It offered further support for the notion that it is the therapy dog having the beneficial effect rather than the human volunteer. As there are only a handful of studies to date that have included a non-dog control condition, further research in this area should include such a condition, so that we can continue to gather evidence that the therapy dog are indeed having beneficial effects over and above the effects of the person.

Study four extended the existing qualitative research in this area and had a number of new findings that could lead to areas for further research. The results of the interviews found that staff members reported some negative effects at night after the dogs had visited. Further research could investigate the effects at night after the intervention program has finished. Interview participants would also like to see the facility adopt a resident dog. Future research could investigate facilities that have resident animals, as well as those that allow people to bring their own animals with them. How do the facilities practically manage the animals and what are the benefits for the elderly people? This will be expanded on in the next section.

The current study was limited to using therapy dog in the intervention, as is the case with most previous studies of Animal-Assisted interventions for dementia. The potential for using various animals as well as dogs in intervention programs should be explored. It is possible that the ex-owners of cats or birds may not benefit from visiting dogs. Visiting cat programs could be investigated as well as the possibility of resident birds and other animals. We could also further explore using rescued animals in nursing homes. A trial of an animal therapy centre for dementia residents such as the centre in the State Hospital in Scotland, discussed in the introduction chapter, could also be conducted. The possibilities are

limited only by creativity and committed people with time and resources willing to give new ideas a try.

A few potential projects that could be conducted in this area will be described below. These will incorporate the above suggestions and also the limitations of the current research discussed previously.

Animal-Assisted intervention trial...

A trial of an Animal-Assisted intervention program could be conducted to further investigate the effects of Animal-Assisted interventions on memory of dementia residents and also further systematic study of the impact of intervention programs on physiological measures of blood pressure and heart rate. A pool of potential willing participants would include elderly people with dementia living in residential care. The pool of participants would include people who are more “neutral” towards animals as well as animal lovers and people with a past history of pet ownership. There would be three experimental conditions:

1. *Individual Animal-Assisted program*
2. *Group Animal-Assisted program*
3. *Non-Dog Control*

Participants would be randomly assigned to participate in each condition and the order of treatment conditions would also be randomly assigned. Measures could be similar to those used in the current study, however independent assessors (not facility staff or the researcher) would be used to collect the data. Measures of blood pressure and heart rate would be collected more systematically and recorded at regular intervals (eg. every 3 minutes) during the intervention sessions. Behavioural measures of memory-related problems would be recorded using the observational checklists by independent observers (not staff members) and video observations would be recorded to cross-check with behavioural observations. As well as the observed memory problems, the Mini Mental State Exam would be administered before and after the study to further explore the effects on cognition and memory. Participants' current medication usage and other medical conditions would also be recorded before and after the study. This study would be a more systematic investigation of the impact of Animal-Assisted programs on the physiological measures of heart rate and blood pressure in both individual and group settings. It will allow the effects of a resident 'quietly' interacting with a therapy dog to be compared with the busy group environment. The effects of individual programs compared with group programs could be explored. Perhaps we might see greater improvements

working intensively with individuals rather than with groups. The potential effects of medications and other medical conditions can also be further explored. This study would also further explore the impact of Animal-Assisted intervention programs on cognition and memory. Behavioural observations of memory-related problems and video footage during the intervention sessions, as well as MMSE scores can be examined to further investigate the potential effects on short and long-term memory.

The above study could also trial using rescued animals from the Animal Welfare League or the Royal Society for the Protection of Cruelty to Animals. This would be of great benefit to the rescued animals who are in need of some care and affection and the elderly people who could benefit from the same! Many animals are destroyed every year and using these rescued animals may give them the second chance they need. Animals would need to be temperament tested for suitability for the nursing home environment. Collaborations between animal welfare organisations and health care facilities could represent a real win/win relationship for all involved: the animals and the people who could benefit from their companionship.

Interview Study...

An interview study could be conducted with participants from the following facilities:

1. *Facilities that allow residents to bring their pets with them into the facility*
2. *Facilities that have resident animals living in the facility*
3. *Facilities that do not allow resident animals or people to bring their own pets*

An independent interviewer (ie. not the researcher) would approach the managers of randomly selected care facilities across Australia and invite them to participate in a survey study. Potential interview questions might include:

1. *Do you allow animals in the facility?*
 - a. *Why/why not allow animals in the facility?*
2. *How do you manage animals in the facility?*
 - a. *Who is responsible for the care of animals in the facility?*
 - b. *How do the different animals get along?*
3. *What are the effects of the animals on residents?*
 - a. *Allowing residents to bring their pets with them?*
 - b. *Not allowing residents to bring their pets with them?*

Another study that could follow-on from this interview study would be to interview residents, residents' family members and staff members from the selected different facilities to obtain their perspectives on bringing/not bringing pets into the facility. A potential quantitative study that could follow-on from these studies would be to compare the effects on residents of bringing/not bringing their pet into the facility. One way of doing this would be to invite new residents to participate in the study and record measures such as: depression, social behaviour, disruptive behaviour and memory. Then these measures would be compared for residents who could bring their pet with them and residents who could not. A potential problem for the above projects is finding facilities that allow people to bring their pets with them to study! Perhaps research may need to investigate overseas facilities as well as facilities here in Australia. Another issue is the likelihood of selection biases such as that people entering a facility that accepts pets may be richer and have better access to health care, or just healthier to begin with – as they may not have delayed their entry. These kinds of issues should be considered in future research.

Future research in this growing field of Animal-Assisted interventions for people with dementia should continue to further explore the known and unknown

therapeutic benefits of Animal-Assisted interventions, and work towards making aged care facilities in Australia more pet friendly. The field of Animal-Assisted interventions is merely in its' infancy and we are only just beginning to understand the vast potential of our four-legged companions. It is hoped that this research will help to pave the way in this exciting new field of scientific enquiry.

References

- Allen, K., Shykoff, B.E., & Izzo, J.L., Jr. (2001). Pet ownership, but not ACE inhibitor therapy, blunts home blood pressure responses to mental stress. *Hypertension*, 38, 815-820.
- Australia Bureau of Statistics. 1994. *Australian Social Trends. Special Feature: Household Pets*. Retrieved 4/2/2010 from <http://www.abs.gov.edu/Ausstats/abs>.
- Australian Institute of Health and Welfare. *Dementia in Australia: National Data Analysis and Development*. Canberra, ACT: Commonwealth of Australia, 2007.
- Ballard, C., & Cream, J. (2005). Drugs used to relieve behavioural symptoms in people with dementia or an unacceptable chemical cosh? *International Psychogeriatrics*, 17, 4-12.

- Batson, K., McCabe, B. W., Baun, M. M., & Wilson, C. C. (1998). The effect of a therapy dog on socialization and physiological indicators indicators of stress in person's diagnosed with Alzheimer's disease. In Wilson, C. C. and Turner, D. C., Eds. *Companion Animals in Human Health*. Thousand Oaks, CA: Sage, 203-215.
- Baun, M. M., Oetting, K., & Bergstrom, N. (1991). Health benefits of companion animals in relation to the physiologic indices of relaxation. *Holistic Nursing Practice*, 5, 16-23.
- Baun, M. M., Bergstrom, N., Langston, N.F. & Thoma, L. (1984). Physiological effects of human/companion animal bonding. *Nursing Research*, 33(3), 126-129.
- Beck, A.M. & Katcher, A.H. (1996). *Between pets and people: The importance of animal companionship*. Purdue University Press, West Lafayette, IN.
- Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3, 77-101.

- Burns, A., Folstein, S., Brandt, J. & Folstein, M. (1990). Clinical assessment of irritability, aggression and apathy in Huntington and Alzheimer disease. *Journal of Nervous and Mental Disorders*, 178, 20-26.
- Chung, J.C.C. & Lai, C.K.Y. (2009). Snoezelen for dementia (Review). The Cochrane Library: John Wiley & Sons, Ltd.
- Churchill, M., Safaoui, J., McCabe, B. W. & Baun, M. M. (1999). Using a therapy dog to alleviate the agitation and desocialization of people with Alzheimer's disease. *Journal of Psychosocial Nursing*, 37, 16-22.
- Chur-Hansen, A., Winefield, H. R. & Beckwith, M. (2009). Companion Animals for Elderly Women: The Importance of Attachment. *Qualitative Research in Psychology*, 6, 281-293.
- Cohen, J. (1988). Statistical power analysis for the behavioural sciences (second edition). Lawrence Erlbaum, Hillsdale, New Jersey.
- Cohen, S.P. (2002). Can Pets Function as Family Members? *Western Journal of Nursing Research*, 24(6), 621-638.

Cohen, J. & Cohen, P. (1983). *Applied multiple regression/correlation analysis for the behavioural sciences*. L. Erlbaum Associates, Hillsdale, New Jersey.

Cohen-Mansfield, J. (1986). *Guidelines and Suggestions for Administering the Agitation Behaviour Mapping Instrument*. Rockville, MD: Research Institute of the Hebrew Home of Greater Washington.

Daubenmire, J., White, J., Heizerling, K., Ashton, C., & Searles, S. (1977). *Syncronics: A notation for the quantitative and qualitative description of presenting behaviours*. (Ohio State University Research Foundation RF 760059).

Davis, S.J.M. & Valla, F.R., 1978. Evidence for domestication of the dog 12,000 years ago in the Natufian of Israel. *Nature*, 276, 608-610.

Diesfeldt, H. (2004). Psychogeriatric day care outcome: A five-year follow-up. *International Journal of Geriatric Psychiatry*, 7(9), 673-679.

Edwards, N.E. & Beck, A.M. (2002). Animal-Assisted Therapy and Nutrition in Alzheimer's Disease. *Western Journal of Nursing Research*, 24(6), 697-712.

Endenburg, N., Hart, H. & Bouw, J. (1994). Motives for acquiring companion animals. *Journal of Economic Psychology*, 15, 191-206.

Enders-Slegers, M. J. (2000). The meaning of companion animals: qualitative analysis of the life histories of elderly cat and dog owners. In A.L. Podberscek, E.S. Paul & J.A. Serpell (Eds.), *Companion animals and us. Exploring the relationship between pets and people*, pp. 237-256, Cambridge University Press, Cambridge.

Enders-Slegers, M.J., Sturop, R., & Thomas, I. (2005). Research into the effects of visiting dogs on the well-being of elderly people in psycho-geriatric day-care facilities. *Poster presented at the 14th Annual Conference for the International Society of Anthrozoology, Niagara Falls, New York, USA.*

Evans, L.K. (1987). Sundown syndrome in institutionalised elderly. *American Geriatrics Society*, 35, 101-108.

- Filan, S. L & Llewellyn-Jones, R. H. (2006). Animal-assisted therapy for dementia: a review of the literature. *International Psychogeriatrics*, 1-15.
- Folstein, M.F., Folstein, S.E. & McHugh, P.R. (1975). 'Mini-mental state'. A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research*, 12, 189-198.
- Forbes, D., Forbes, S., Morgan, D.G., Markle-Reid, M., Wood, J. & Culum, I. (2008). Physical activity programs for persons with dementia (Review). The Cochrane Library: John Wiley & Sons, Ltd.
- Friedman, E. & Thomas, S.A. (1995). Pet ownership, social support and one-year survival after acute myocardial infarction in the Cardiac Arrhythmia Suppression Trial (CAST). *American Journal of Cardiology*, 76, 1213-1217.
- Friedman, E., Katcher, A.H., Lynch, J.J. & Thomas, S.A. (1980). Animal companions and one-year survival of patients after discharge from a coronary care unit. *Public Health Rep.*, 95, 307-312.

- Fritz, C. L., Farver, T. B., Kass, P. H. & Hart, L. A. (1995). Association with companion animals and the expression of noncognitive symptoms in Alzheimer's patients. *Journal of Nervous and Mental Disease*, 183, 459-463.
- Greer, K. L., Pustay, K. A., Zaun, T. C., & Coppens, P. (2001). A comparison of the effects of toys versus live animals on the communication of patients with dementia of the Alzheimer's type. *Clinical Gerontologist*, 24, 157-182.
- Grogan, J. (2006). *Marley & Me*. Hachette Australia, Sydney.
- Hansen, N.V., Jorgensen, T. & Ortenblad, L. (2008). Massage and touch for dementia (Review). The Cochrane Library: John Wiley & Sons, Ltd.
- Haycox, J. A. (1984). A simple, reliable clinical behavioural scale for assessing demented patients. *Journal of Clinical Psychiatry*, 45, 23-24.
- Headey, B. (1999). Health benefits and health cost savings due to pets: Preliminary estimates from an Australian national survey. *Social Indicators Research*, 47, 233-243.

Headey, B., Grabka, M., Kelley, J., et al., (2002). Pet Ownership is good for your health and saves public expenditure too: Australian and German Longitudinal evidence. *Australian Social Monitor*, 4, 93-99.

Headey, B. (2003). Pet ownership: Good for health? *Medical Journal of Australia*, 179, 460.

Hersch, D. L., Kral, V. A. & Palmer, R. B. (1978). Clinical value of the London Psycho-Geriatric Rating Scale. *Journal of the American Geriatrics Society*, 26, 348-354.

Hogarth-Scott, S. (1982). 'Pet Power': Changing community expectations in animal welfare and the human/companion bond. *Australian and New Zealand Association for the Advancement of Science 52nd Congress*. Sydney: Macquarie University.

Holt, F.E., Birks, T.P.H., Thorgrimsen, L.M, Spector, A.E., Wiles, A. & Orrell, M. (2009). Aroma therapy for dementia (Review). The Cochrane Library: John Wiley & Sons, Ltd.

- Howard, R., Ballard, C., O'Brien, J. & Burns, A. (2001). Guidelines for the management of dementia in care homes. *International Journal of Geriatric Psychiatry, 16*, 714-17.
- Kanamori, M., Suzuki, M., Yamamoto, K., Kanda, M., Matsui, Y., Kojima, E., Fukawa, H., Sugita, T., & Oshiro, H. (2001). A day care program and evaluation of animal-assisted therapy (AAT) for the elderly with senile dementia. *American Journal of Alzheimer's Disease and Other Dementias, 16*, 234-239.
- Katcher, A.H. & Beck, A.M. (eds). *New Perspectives on Our Lives With Companion Animals*. Philadelphia, PA: University of Pennsylvania Press, 1983.
- Kongable, L. G., Buckwalter, K. C. & Stolley, J. M. (1989). The effects of pet therapy on the social behaviour of institutionalised Alzheimer's clients. *Archives of Psychiatric Nursing, 3*, 191-198.
- Kuhn, D., Ortigara, A. & Kasayka, R. (2000). Dementia Care Mapping: An innovative tool to measure person-centred care. *Alzheimer's Care Quarterly 3*(3), 17-21.

- Lawton, M.P. & Brody, E.M. (1969). Assessment of older people: self-maintaining and instrumental activities of daily living. *Gerontologist, 9*, 179-186.
- Libin, A. & Cohen-Mansfield, J. (2004). Therapeutic robot for nursing home residents with dementia: preliminary inquiry. *American Journal of Alzheimer's Disease and Other Dementias, 19*, 111-116.
- Low, L., Gomes, L. & Brodaty, H. (2008). Australian Dementia Research: current status, future directions? *A report for Alzheimer's Australia, Paper 16*, 1-26.
- McCabe, B. W., Baun, M. M., Speich, D. & Agrawal, S. (2002). Resident dog in the Alzheimer's special care unit. *Western Journal of Nursing Research, 24*, 684-696.
- McHugh, S. (2004). *Dog*. Reaktion Books, London, UK.

Messent, P. R. & Serpell, J. A. (1981). An historical and biological view of the pet-owner bond, In: Fogel, B. (Ed.), *Interrelations between people and pets*.

Charles C. Thomas, Springfield, IL, pp. 5-22.

Molloy, D. W., Alemayehu, E., & Roberts, R. (1991). A Standardised Mini-Mental State Examination (SMMSE): Its Reliability Compared to the Traditional Mini-Mental State Examination (MMSE). *The American Journal of Psychiatry*, 148, 102-105.

Moniz Cook, E.D., De Vugt, M., Verhey, F. & James, I. (2009). Functional analysis-based interventions for challenging behaviour in dementia (Protocol). The Cochrane Library: John Wiley & Sons, Ltd.

Morley, C. & Fook, J. (2005). The importance of pet loss and some implications for services. *Mortality*, 10(2), 127-143.

Motomura, N., Yagi, T. & Ohyama, H. (2004). Animal assisted therapy for people with dementia. *Psychogeriatrics*, 4, 40-42.

National Institute of Clinical Excellence, NICE (2006). Dementia: supporting people with dementia and their carers. NICE Clinical Guideline 42, Vol. Number 33.

Netting, F., Wilson, C. & New, J.C. (1987). The human-animal bond: Implications for practice. *Social Work*, 32, 60-64.

Odendaal, J. S. J. and Meintjes, R. A. (2003). Neurophysiological correlates of affiliative behaviour between humans and dogs. *The Veterinary Journal*, 165, 296-301.

Paiva, Z. (1990). Sundown Syndrome, calming the agitated patient. *RN*, 46-48, 50-51.

Pachana, N.A., Ford, J.H., Andrew, B. & Dobson, A.J. (2005). Relations between Companion Animals and Self-Reported Health in Older Women: Cause, Effect or Artifact? *International Journal of Behavioural Medicine*, 12(2), 103-110.

Pallant, J. F. (2007). *SPSS Survival Manual: A step by step guide to data analysis using SPSS for Windows (Version 15)*.

Parslow, R.A. & Jorm, A.F. (2003). Pet ownership and risk factors for cardiovascular disease: another look. *Medical Journal of Australia*, 179, 466-468.

Parslow, R.A., Jorm, A.F., Christensen, H., Rodgers, B. & Jacomb, P. (2005). Pet ownership and health in older adults: Findings from a survey of 2,551 community-based Australians aged 60-64. *Gerontology*, 51, 40-47.

Perkins, J., Bartlett, H., Travers, C., & Rand, J. (2008). Dog-assisted therapy for older people with dementia: A review. *Australasian Journal on Ageing*, 27(4), 177-182.

Ray, W. A., Taylor, J. A., Lichenstein, M. J. & Meador, K. G. (1992). The nursing Home Behaviour Problem Scale. *Journal of Gerontology: Medical Sciences*, 47, M9-M16.

- Reisberg, B., Borenstein, J.B., Salo, S.P., et al. (1987). Behavioral symptoms in Alzheimer's disease: Phenomenology and treatment. *Journal of Clinical Psychiatry, 48(5)*, 9-15.
- Richeson, N. E. (2003). Effects of animal-assisted therapy on agitated behaviours and social interactions of older adults with dementia. *American Journal of Alzheimer's Disease and Other Dementias, 18*, 353-358.
- Richeson, N. E. & McCullough, W. T. (2002). An evidence-based animal-assisted therapy protocol and flow sheet for the geriatric recreational therapy practice. *American Journal of Recreational Therapy, 1(1)*, 25-31.
- Rogers, K. M. (2006). *Cat*. Reaktion Books, London, UK.
- Ruckert, J. (1987). *The four-Footed Therapist*. Berkeley, CA: Ten Speed press.
- Sellers, D. M. (2005). The evaluation of an animal assisted therapy intervention for elders with dementia in long-term care. *Activities Adaptation and Aging, 30*, 61-77.

Serpell, J.A. (1991). Beneficial aspects of pet ownership on some aspects of human health and behaviour. *Journal of the Royal Society of Medicine*, 84, 717-720.

Siegel, A. (1962). Reaching the severely withdrawn through pet therapy. *American Journal of Psychiatry*, 118, 1045-1046.

Siegel, J.M. (1990). Stressful life events and the use of physician services among the elderly: the moderating effect of pet ownership. *Journal of Personality and Social Psychology*, 58, 1081-1086.

Tabachnick, B.G. & Fidell, L.S. (2001). *Using Multivariate Analysis*. Allyn and Bacon, Boston.

Teri, L., Truax, P., Logsdon, R., Uomoto, J., Zarit, S. & Vitaliano. (1992). Assessment of Behavioural Problems in Dementia: The Revised Memory and Behaviour Problems Checklist. *Psychology and Aging*, 7(4), 622-631.

The Delta Society. (2010). *Standards of Practice for Animal-Assisted Activities and Therapy*. Viewed 20 November 2010, <http://www.deltasociety.org>

- The State Hospital. (2007). *Animals as Therapy in Mental Health*. Booklet produced by The State Hospital, Scotland.
- Turner, W.G. (2001). Our New Children: The Surrogate Role of Companion Animals in Women's Lives. *The Qualitative Report*, 6(1), viewed 5 February 2009, <http://www.nova.edu/ssss/QR/QR6-1/turner.html>.
- Velde, B.P., Cipriani, J. & Fisher, G. (2005). Resident and therapist views of animal-assisted therapy: Implications for occupational therapy practice. *Australian Occupational Therapy Journal*, 52, 43-50.
- Vink, A.C., Birks, J., Bruinsma, M.S., & Scholten, R.J.P.M. (2009). Music therapy for people with dementia (Review). The Cochrane Library: John Wiley & Sons, Ltd.
- Walsh, P. G., Mertin, P. G., Verlander, D. F. & Pollard, C. F. (1995). The effects of a 'pets as therapy' dog on persons with dementia in a psychiatric ward. *Australian Occupational Therapy Journal*, 42, 161-166.

Weiss, S. (1979). The language of touch. *Nursing Research*, 28, 76-80.

Willis, D.A. (1997). Animal therapy. *Rehabilitation Nursing*, 22, 78-81.

Wood, R. T. and Britton, P. G. (1984). *Clinical Psychology with the Elderly*.

Beckenham: Croom Helm.

Woods, B., Spector, A.E., Jones, C.A., Orrell, M. & Davies, S.P. (2009).

Reminiscence therapy for dementia (Review). The Cochrane Library: John

Wiley & Sons, Ltd.

Yesavage, J.A., Brink, T.L., Rose, T.L. et al. (1982-83). Development and

validation of a geriatric depression screening scale: a preliminary report.

Journal of Psychiatric Research, 17, 37-40.

Zasloff, R.L. & Kidd, A.H. (1994). Loneliness and pet ownership among single

women. *Psychological Reports*, 75, 747-752.

APPENDIX A

Information sheet and consent form used in study one



PET OWNERSHIP AND OLDER PEOPLE

My name is Ann-Marie Wordley and I am a PhD student at the University of Adelaide. I am undertaking a research project, which aims to investigate older people's opinions, experiences and difficulties regarding pet ownership. This information sheet will tell you about the project so that you can make a decision about taking part.

As a participant in this study you will be involved in a face-to-face interview, which if you agree, will be tape recorded and tapes will be kept secure. You will be asked questions about your opinions, experiences and difficulties regarding pet ownership, both past and present. For example: "What benefits do you think having a pet gives you?" and "What difficulties have you experienced with having a pet?"

There is limited previous research on older people's opinions and experiences with pet ownership and it is expected that this study will make a useful scientific contribution. The possible benefits of this study include: looking at how older people can keep or maintain contact with their pet animals when they move into residential facilities. This may be associated with benefits to physical and psychological health for older pet owners. Recommendations for pet-related policies in aged care facilities may be made as a result of this research. However, the benefits of this study are not certain and we do not expect any benefits or risks to follow for the individuals who decide to take part.

While there are no foreseeable risks or discomforts associated with taking part in the research project, information about Lifeline's 24-hour Telephone Counselling Service (ph. 13 11 14) is available in the event you should experience distress. You are also free to withdraw from the study at any time. If you decide to take part in the research, results will be kept strictly confidential. While information gained during the study may be published, you will not be identified and your personal results will not be divulged.

If you have any questions regarding the research project or require further information, please contact Ann-Marie Wordley (ph. 0408 851 668). You may seek more information about the ethical aspects from the Chair of the School of Psychology Ethics Committee, Dr Paul Delfabbro (ph. 8303 5744). You may also request a summary sheet of key findings when the results have been analysed later this year.

Thank you for considering taking part in this project.

Yours sincerely,

A black rectangular box redacting the signature of Ann-Marie Wordley.

Ann-Marie Wordley
PhD Student
19th February 2007

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

**STANDARD CONSENT FORM
FOR PEOPLE WHO ARE SUBJECTS IN A RESEARCH PROJECT**

1. I, *(please print name)*
consent to take part in the research project entitled:
..... *Pet Ownership and Older People*

2. I acknowledge that I have read the attached Information Sheet entitled:
..... *Pet Ownership and Older People*

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker.
My consent is given freely.

4. Although I understand that the purpose of this research project is to improve the quality of medical care, it
has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was
explained to me.

6. I have been informed that, while information gained during the study may be published, I will not be
identified and my personal results will not be divulged.

7. I understand that I am free to withdraw from the project at any time and that this will not affect medical
advice in the management of my health, now or in the future.

8. I am aware that I should retain a copy of this Consent Form, when completed, and the attached
Information Sheet.

.....
(signature) *(date)*

WITNESS

I have described to *(name of subject)*
the nature of the procedures to be carried out. In my opinion she/he understood the explanation.

Status in Project:

Name:

.....
(signature) *(date)*

APPENDIX B

Interview questions used in study one

SEMI-STRUCTURED INTERVIEW QUESTIONS

Older people living in residential care/assisted living facility & had to give up pet:

Age:

Gender:

Postcode (last address if living in a Residential Care Facility):

Type of pet (last pet owned):

Length of pet ownership:

1. Can you tell me about your pet?

2. When did you have to give your pet up?

3. Why?

4. What happened to your pet?

5. Did you want to take your pet with you when you moved into care?

6. Did you try to find other places that might allow pets?

7. Why did you have a pet?

8. What benefits do you think having a pet gave you?

9. Can you tell me about the people in your life that you can talk to?

10. How does the support/companionship you get from pets compare to that which you get from human relationships?

11. How did it affect you when you had to give up your pet?

12. Has anyone, such as a family member, friend or health care professional ever talked to you about these issues?

13. Is there any thing else you would like to tell me?

APPENDIX C

Behavioural checklists used in study two and three

After Pet Therapy Session - Behavioural Checklist

Pet Therapy Project Behavioural Checklist

Resident's name: _____

Staff member completing form: _____

Date: _____
 Did resident receive a visit today? Yes No
 (Circle response)

Instructions: The following is a list of social and anti-social behaviours that residents with dementia often display. Please could you tick the box that indicates best how often these behaviours have occurred **after pet therapy today**. If you're not sure please tick 'don't know' or write 'NA' if not relevant.

Behaviour	Frequency Rating					
	Not at all	Infrequently/ Sometimes	Once or twice per day	Often	Very Frequently	Don't know or NA
Smiled						
Expressed positive feelings appropriately						
Trouble remembering recent events (eg what they had for lunch)						
Destroying Property						
Trouble remembering significant past events						
Laughed						
Losing or misplacing things						
Forgetting what day it is						
Starting, but not finishing, things						
Difficulty concentrating on a task						
Having appropriate verbal communication with staff and/or other residents						
Doing embarrassing things (e.g. taking off clothes inappropriately)						
Waking up in the night						
Appearing anxious or worried						
Displayed positive nonverbal responses (eg. Looks, nods)						
Engaging in behaviour that is potentially dangerous to self or others						
Threatening to hurt oneself						
Shows appropriate awareness of time passing						
Sitting staring blankly at nothing in particular						
Asking the same question over and over						
Hoarding objects						
Verbally aggressive to others (eg. residents or staff)						
Appearing sad or depressed						
Expressed feelings of hopelessness or sadness about the future						
Crying and tearfulness						
Commenting about death (eg 'I'd be better off dead')						
Talking about feeling lonely						
Comments about feeling worthless or being a burden to others						
Comments about feeling like a failure or about not having worthwhile accomplishments in life						
Arguing, irritability and/or complaining						
Uncooperative with personal care routines						

	Frequency Rating					
	Not at all	Infrequently/ Sometimes	Once or twice per day	Often	Very Frequently	Don't know or NA
Behaviour						
Able to concentrate on a task for 5-10 minutes						
Displayed wandering behaviour						
Following staff directions willingly						
Talking loudly and rapidly or demanding attention						
Sleeping well						
Threatening to hurt others						
Participated in some exercise						

Weekly Behavioural Checklist

Pet Therapy Project Behavioural Checklist

Resident's name: _____

Staff member completing form: _____

Date: _____

Did resident receive a visit today? **Yes** **No**
(Circle response)

Instructions: The following is a list of social and anti-social behaviours that residents with dementia often display. Please could you tick the box that indicates best how often these behaviours have occurred over the **past week**. If you're not sure please tick 'don't know' or write 'NA' if not relevant.

Behaviour	Frequency Rating					
	Not at all	Infrequently/ Sometimes	Once or twice per day	Often	Very Frequently	Don't know or NA
Smiled						
Expressed positive feelings appropriately						
Trouble remembering recent events (eg what they had for lunch)						
Destroying Property						
Trouble remembering significant past events						
Laughed						
Losing or misplacing things						
Forgetting what day it is						
Starting, but not finishing, things						
Difficulty concentrating on a task						
Having appropriate verbal communication with staff and/or other residents						
Doing embarrassing things (e.g. taking off clothes inappropriately)						
Waking up in the night						
Appearing anxious or worried						
Displayed positive nonverbal responses (eg. Looks, nods)						
Engaging in behaviour that is potentially dangerous to self or others						
Threatening to hurt oneself						
Shows appropriate awareness of time passing						
Sitting staring blankly at nothing in particular						
Asking the same question over and over						
Hoarding objects						
Verbally aggressive to others (eg. residents or staff)						
Appearing sad or depressed						
Expressed feelings of hopelessness or sadness about the future						
Crying and tearfulness						
Commenting about death (eg 'I'd be better off dead')						
Talking about feeling lonely						
Comments about feeling worthless or being a burden to others						
Comments about feeling like a failure or about not having worthwhile accomplishments in life						
Arguing, irritability and/or complaining						
Uncooperative with personal care routines						

	Frequency Rating					
	Not at all	Infrequently/ Sometimes	Once or twice per day	Often	Very Frequently	Don't know or NA
Behaviour						
Able to concentrate on a task for 5-10 minutes						
Displayed wandering behaviour						
Following staff directions willingly						
Talking loudly and rapidly or demanding attention						
Sleeping well						
Threatening to hurt others						
Participated in some exercise						

APPENDIX D

Standardised Mini-Mental State Exam used in study two

NOTE:

Appendix D is included in the print copy of the thesis held in the University of Adelaide Library.

APPENDIX E

Information sheet and consent form used in study two and three



Pet Therapy Project – Information Sheet

My name is Ann-Marie Wordley and I am a PhD student in the School of Psychology at the University of Adelaide. I am undertaking a research project, which is looking at the effects of Pet Therapy for people with dementia. This information sheet will tell you about the project so that you can make a decision about you or your family member taking part.

Participants in this study will take part in a series of 1 hour group pet therapy sessions. A therapy dog “Jazz” will visit Oaklands Residential Care Facility twice a week for 6 weeks. Jazz is a 8 year-old Golden Retriever and he and his owner Jan already visit Oaklands from time to time. They are members of the Caring Canine Companions Community Visitors Scheme. All dogs are checked for temperament and suitability.

As well as being involved in the pet therapy sessions, participants will be assessed on measures of heart rate and blood pressure, and behaviour will be observed and recorded by Activities staff members. There is limited previous research on the effects of pet therapy for people with dementia and it is expected that this study will make a useful scientific contribution. However, benefits of this study are uncertain.

While it is not anticipated that there will be risks or discomfort associated with participating in the study, and every effort will be made to ensure the safety of all participants, contact with all animals is accompanied by risk. Any distress or injury that arises while participating in the study will be reported immediately to staff members and handled according to standard procedures for medical and emotional care currently employed at Oaklands Residential Care Facility and is covered under Oaklands Residential Care Facility’s Public Liability Insurance Policy. Participants are also free to withdraw from the study at any time. Results will be kept **strictly confidential**, and while information gained during the study may be published, participants will not be identified and personal results will not be divulged.

If you have any questions regarding the research project or require further information, please contact Ann-Marie Wordley (ph. 0408 851 668) or my supervisors, Dr Lisa Kettler (ph. 8303 5737) or Professor Helen Winefield (ph. 8222 5153). Please refer to the attached independent complaints form if you would like to speak to somebody regarding this project. You may also request a summary sheet of key findings when the results have been analysed later this year. Thank you for your interest in this project.

Yours sincerely,

A black rectangular box redacting the signature of Ann-Marie Wordley.

Ann-Marie Wordley
PhD Student

THE UNIVERSITY OF ADELAIDE
HUMAN RESEARCH ETHICS COMMITTEE

Document for people who are participants in a research project

CONTACTS FOR INFORMATION ON PROJECT AND INDEPENDENT COMPLAINTS
PROCEDURE

The Human Research Ethics Committee is obliged to monitor approved research projects. In conjunction with other forms of monitoring it is necessary to provide an independent and confidential reporting mechanism to assure quality assurance of the institutional ethics committee system. This is done by providing research participants with an additional avenue for raising concerns regarding the conduct of any research in which they are involved.

The following study has been reviewed and approved by the University of Adelaide Human Research Ethics Committee:

Project title: **Animal Assisted Therapy for Dementia**

1. If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the project co-ordinator:

Dr Lisa Kettler

Phone: 8303 5737 or

Ann-Marie Wordley

Phone: 0408 851 668

2. If you wish to discuss with an independent person matters related to
 - making a complaint, or
 - raising concerns on the conduct of the project, or
 - the University policy on research involving human participants, or
 - your rights as a participant

contact the Human Research Ethics Committee's Secretary on phone (08) 8303 6028

THE UNIVERSITY OF ADELAIDE HUMAN RESEARCH ETHICS COMMITTEE

STANDARD CONSENT FORM
For Research to be Undertaken on those
in Dependant Relationships or Comparable Situations
To be Completed by Guardian

1. I, (please print name)
consent to allow (please print name)

to take part in the research project entitled:

Animal Assisted Therapy for Dementia

2. I acknowledge that I have read the attached Information Sheet entitled:

Pet Therapy Project – Information Sheet

and have had the project, as far as it affects (name)
fully explained to me by the research worker. My consent is given freely.

IN ADDITION, I ACKNOWLEDGE THE FOLLOWING ON BEHALF OF

..... (name)

3. Although I understand that the purpose of this research project is to improve the quality of medical care, it has also been explained to me that involvement may not be of any benefit to him/her.

4. I have been given the opportunity to have a member of his/her family or friend present while the project was explained to me.

5. I have been informed that the information he/she provides will be kept confidential.

6. I understand that while it is not anticipated that there will be risks or discomfort associated with participating in the study, and every effort will be made to ensure the safety of all participants involved, contact with all animals is accompanied by risk. Any distress or injury that arises while participating in the study will be handled according to the standard procedures for medical and emotional care currently employed at Oaklands Residential Care Facility and will be covered under Oaklands Residential Care Facility's public liability insurance policy.

7. I understand that he/she is free to withdraw from the project at any time and that this will not affect medical advice in the management of his/her health, now or in the future.

8. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

.....Guardian
(signature and please indicate relationship)

.....
(date)

WITNESS

I have described to *(name of guardian)*

the nature of the research to be carried out. In my opinion she/he understood the explanation.

Status in Project:

Name:

.....
(signature) *(date)*

**STANDARD CONSENT FORM
FOR PEOPLE WHO ARE PARTICIPANTS IN A RESEARCH PROJECT**

1. I, *(please print name)*

consent to take part in the research project entitled:

Animal Assisted Therapy for Dementia

2. I acknowledge that I have read the attached Information Sheet entitled:

Pet Therapy Project – Information Sheet

3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.

4. Although I understand that the purpose of this research project is to improve the quality of medical care, it has also been explained that my involvement may not be of any benefit to me.

5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.

6. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.

7. I understand that while it is not anticipated that there will be risks or discomfort associated with participating in the study, and every effort will be made to ensure the safety of all participants involved, contact with all animals is accompanied by risk. Any distress or injury that arises while participating in the study will be handled according to the standard procedures for medical and emotional care currently employed at Oaklands Residential Care Facility and will be covered under Oaklands Residential Care Facility's public liability insurance policy.

8. I understand that I am free to withdraw from the project at any time and that this will not affect medical advice in the management of my health, now or in the future.

9. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.

.....
(signature) *(date)*

WITNESS

I have described to (*name of participant*)

the nature of the research to be carried out. In my opinion she/he understood the explanation.

Status in Project:

Name:

.....
(*signature*)

.....
(*date*)

APPENDIX F

Information sheet and consent form used in study four



Pet Therapy Project – Information Sheet

My name is Ann-Marie Wordley and I am a PhD student in the School of Psychology at the University of Adelaide. I am undertaking a research project, which is looking at the effects of Pet Therapy for people with dementia. This information sheet will tell you about the project so that you can make a decision about you or your family member taking part.

Participants in this study will take part in a series of 1 hour group pet therapy sessions. A therapy dog “Jazz” will visit Oaklands Residential Care Facility twice a week for 6 weeks. Jazz is a 8 year-old Golden Retriever and he and his owner Jan already visit Oaklands from time to time. They are members of the Caring Canine Companions Community Visitors Scheme. All dogs are checked for temperament and suitability.

As well as being involved in the pet therapy sessions, participants will be assessed on measures of heart rate and blood pressure, and behaviour will be observed and recorded by Activities staff members. There is limited previous research on the effects of pet therapy for people with dementia and it is expected that this study will make a useful scientific contribution. However, benefits of this study are uncertain.

While it is not anticipated that there will be risks or discomfort associated with participating in the study, and every effort will be made to ensure the safety of all participants, contact with all animals is accompanied by risk. Any distress or injury that arises while participating in the study will be reported immediately to staff members and handled according to standard procedures for medical and emotional care currently employed at Oaklands Residential Care Facility and is covered under Oaklands Residential Care Facility’s Public Liability Insurance Policy. Participants are also free to withdraw from the study at any time. Results will be kept **strictly confidential**, and while information gained during the study may be published, participants will not be identified and personal results will not be divulged.

If you have any questions regarding the research project or require further information, please contact Ann-Marie Wordley (ph. 0408 851 668) or my supervisors, Dr Lisa Kettler (ph. 8303 5737) or Professor Helen Winefield (ph. 8222 5153). Please refer to the attached independent complaints form if you would like to speak to somebody regarding this project. You may also request a summary sheet of key findings when the results have been analysed later this year. Thank you for your interest in this project.

Yours sincerely,

A black rectangular box redacting the signature of Ann-Marie Wordley.

Ann-Marie Wordley
PhD Student

THE UNIVERSITY OF ADELAIDE
HUMAN RESEARCH ETHICS COMMITTEE

Document for people who are participants in a research project

CONTACTS FOR INFORMATION ON PROJECT AND INDEPENDENT COMPLAINTS
PROCEDURE

The Human Research Ethics Committee is obliged to monitor approved research projects. In conjunction with other forms of monitoring it is necessary to provide an independent and confidential reporting mechanism to assure quality assurance of the institutional ethics committee system. This is done by providing research participants with an additional avenue for raising concerns regarding the conduct of any research in which they are involved.

The following study has been reviewed and approved by the University of Adelaide Human Research Ethics Committee:

Project title: **Animal Assisted Therapy for Dementia**

1. If you have questions or problems associated with the practical aspects of your participation in the project, or wish to raise a concern or complaint about the project, then you should consult the project co-ordinator:

Dr Lisa Kettler

Phone: 8303 5737 or

Ann-Marie Wordley

Phone: 0408 851 668

2. If you wish to discuss with an independent person matters related to
 - making a complaint, or
 - raising concerns on the conduct of the project, or
 - the University policy on research involving human participants, or
 - your rights as a participant

contact the Human Research Ethics Committee's Secretary on phone (08) 8303 6028

**STANDARD CONSENT FORM
FOR PEOPLE WHO ARE PARTICIPANTS IN A RESEARCH PROJECT**

1. I, *(please print name)*
consent to take part in the research project entitled:
Animal Assisted Therapy for Dementia
 2. I acknowledge that I have read the attached Information Sheet entitled:
Pet Therapy Project – Information Sheet
 3. I have had the project, so far as it affects me, fully explained to my satisfaction by the research worker. My consent is given freely.
 4. Although I understand that the purpose of this research project is to improve the quality of medical care, it has also been explained that my involvement may not be of any benefit to me.
 5. I have been given the opportunity to have a member of my family or a friend present while the project was explained to me.
 6. I have been informed that, while information gained during the study may be published, I will not be identified and my personal results will not be divulged.
 7. I understand that while it is not anticipated that there will be risks or discomfort associated with participating in the study, and every effort will be made to ensure the safety of all participants involved, contact with all animals is accompanied by risk. Any distress or injury that arises while participating in the study will be handled according to the standard procedures for medical and emotional care currently employed at Oaklands Residential Care Facility and will be covered under Oaklands Residential Care Facility's public liability insurance policy.
 8. I understand that I am free to withdraw from the project at any time and that this will not affect medical advice in the management of my health, now or in the future.
 9. I am aware that I should retain a copy of this Consent Form, when completed, and the attached Information Sheet.
-
(signature) *(date)*

WITNESS

I have described to *(name of participant)*

the nature of the research to be carried out. In my opinion she/he understood the explanation.

Status in Project:

Name:

.....
(signature) *(date)*

APPENDIX G

Interview questions used in study four

POST-PET THERAPY INTERVIEW QUESTIONS

Age:

Gender:

Postcode:

-
1. Please explain your involvement with the pet therapy sessions ie. Volunteer dog handler/activities staff/resident family member/other?
 2. Briefly explain your previous experience with pet therapy.
 3. Approximately how many pet therapy sessions did you observe?
 4. Tell me about your observations at the pet therapy sessions, what did you observe?
 5. How do you think the dogs affected the residents' behaviour/mood?

6. Tell me about the positive effects on residents' behaviour/mood?

7. Tell me about any negative effects on residents' behaviour/mood?

8. Was the therapy more effective with some residents over others? Please explain. If yes, who? Why do you think this might have been?

9. What do you think it was about the pet therapy, if anything, that seemed to have the most impact/biggest effect?

10. What would you like to see happen with this type of therapy in the future?

11. Can you see any negative aspects/limitations with this type of therapy?

12. Is there anything else you would like to tell me?