Connecting Animals with People: implications for well-being and therapeutic applications.

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Australians' love of pets is reflected in our rates of pet ownership and the money we are prepared to spend on them. In a national study Animal Medicines Australia (AMA, 2016) found that 5.7 million households had at least one pet and it is estimated we spend more than $12.2 billion on pet products and services each year (AVA: 10). With 62% of Australians owning a pet we have a slightly higher rate of ownership than the international average of 57% (AMA: 16); 38% of households have a least one dog and 29% have a cat (AMA: 10). Companionship was cited as the number one reason for owning a pet with the majority of pet owners considering them a part of the family (65% of households with dogs and 66% of households with cats) (AMA: 49). The term 'fur baby' is now part of our lexicon.

Researchers from the University of Western Australia have reported that pet ownership leads to stronger ties between neighbours and increases social connectedness within local communities — and it doesn't matter where you live or what kind of pet you own. The study focused on over 2,600 pet owners in Perth and in the US cities of San Diego, Portland and Nashville. It found that pet owners are perceived as being more trustworthy and an increase in social capital, which helps build stronger community ties. Pet owners led to more connected communities with pets enhancing contact between neighbours. (Woods et al; 446)

Pets can encourage us to lead healthier lifestyles and pet ownership has been found to be significantly correlated with a number of health benefits such as fewer doctor visits, lowered stress and increased social support for individuals. Additionally, pets have been found to help people cope with diseases such as heart disease, dementia, AIDs and cancer (Morrison, 2007). A correlation between the presence of companion animals and the alleviation of depression, loneliness and low morale whilst dealing with the treatment of chronic illness has also been reported. (AMA: 54)

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While owning a pet can have various positive outcomes for their owners they are not necessarily considered to be providing an Animal Assisted Intervention (AAI) per se. The American Veterinary Medical Association (AVMA) classifies AAI into three categories: (i) animal-assisted activities (AAA) that utilise companion animals in spontaneous, unspecified manners (ii) animal assisted-therapy (AAT) that utilises therapy animals, and (iii) service animal programs (SAP) that utilise service animal. (Kamioka et al, 2014).

Krskova (2010) defines AAT as "..a goal-directed intervention in which an animal that meets specific criteria is an integral part of the treatment process. AAT is practiced with human professionals. Key features include: specified goals and objectives for each individual and measured progress. AAT is designed to promote an improvement in human physical, social, emotional, and cognitive function" (Krskova, 2010: 140). While Maber-Aleksandrowicz (2016) state ''Animal-assisted therapy includes deliberately planned pedagogic, psychological and socially integrative interventions with animals for children, youths, adults and senior citizens with cognitive, social-emotional and motoric disabilities, and behavioural problems, and for focused support. It also includes health-promoting, preventive and rehabilitative measures. Animal-assisted therapy takes place individually and within a group setting. Animal assisted therapy is based on the relationship and process structure within a triangular relationship between the client, animal and therapist. Animal-assisted therapy involves methods by which clients interact with animals, communicate via animals or are active for animals." (Maber-Aleksandrowicz 2016: 334)

The most common AAT animal is the dog, which is probably not surprising when you consider that archaeologists have found evidence of our shared evolutionary past reaching back over 140,000 years (Solomon, 2012: 145). Through their continued connection to humans dogs have been selectively bred through generations to pay attention to people and MRI scans have shown that dog brains respond to praise from their owners just as strongly as they do to food. (http://www.abc.net.au/news/2017-06-21/pet-owners-make-stronger-neighbour-ties-uwa-study-finds/8638432). Other animals frequently used include horses and dolphins with an increasing use of small animals or 'pocket pets' (Hall, 2016; Krskova, 2010).

In Australia the traditionally recognised service or assistance animal was a 'guide dog' for people with vision impairment. More recently it has been recognised that assistance animals can provide a variety of supports and this is now so commonly accepted that the NSW Ministry of Health in 2012 set Guidelines on animal visits and services in health services (MOH 2012). In this document they recognise that animals provide "comfort, entertainment, distraction, solace and a unique form of interaction. Animals also provide a unique source of assistance in education and supporting patients through clinical procedures" (MOH 2012: 2). It covers a range of scenario's and sets out policies for visits from family pets, general animal visits, companion animals, therapy animals and specialised assistance or service animals.

The legislative guidelines pertaining to Assistance Animals are governed at both a Federal and a State level with significant variation among states and territories regarding accreditation and regulation of assistance animals. Under Australian Federal Law, Owner-Trained Assistance Dogs must pass a strict Public Access Test. Service animals are also legally defined and recognised by federal law Under Australian Federal Law the Commonwealth Disability Discrimination Act 1992 which makes it unlawful to discriminate because someone is using an assistance dog as a disability aid. AA must be accredited under state law and trained appropriately by recognised organisation (Rossetti & King, 2010). This website provides information on laws for assistance animals under the *Companion Animals Act 1998* in NSW only.

In Australia, there are generally four options for a person looking for an Assistance Dog. These are:
Being accepted in to an organisation that will place an Assistance Dog with you.
Being accepted in to an organisation that will assist you in training your own dog (subject to certain criteria

being met). These organisations require you to pass their own Public Access Test (PAT) however they may or may not be accredited by state authorities.
Training your own dog to Assistance Dog standards and applying to sit the PAT through a state government body.
Training your own dog to meet standards of hygiene and behaviour that are appropriate for an animal in a public place.

Note that in all, it is generally a requirement that a General Practitioner AND a Psychiatrist or Psychologist (in the case of a psychiatric disability) must specifically prescribe an Assistance Dog for your medical condition. (Rossetti & King, 2010).

AAT as an intervention is unique and different to pharmacological or traditional rehabilitation methods. Because it complements treatment and affects the way a patient experiences symptoms it is often classified under or considered to be a subset of alternative and/or complementary medicines (Kamioka 2014; Urbanski & Lazenby, 2012; Goddard 2015)

One of the first recorded instances of animals being used for a therapeutic purpose was in the York Retreat that opened in 1796 for the rehabilitation of the mentally ill. Florence Nightingale was also known to use pets with wounded soldiers in the early 19th century to facilitate the healing process (Goddard and Gilmer 2015). In the 1960's Dr Boris Levinson a practicing child psychologist noted that his patients were less anxious and had less resistance to therapy when his dog, Jingles, was involved in the sessions (Rossetti & King, 2010; Goddard and Gilmer 2015). Another pioneer in this field was Dr Corson who was labelled the "father of pet-assisted therapy" after his death in 1998 (Goddard and Gilmer 2015).

Reports on the beneficial effects of dogs with severely withdrawn children date back to the 1960's but it is only since the turn of the century that the field of research has been receiving growing attention (Berry et al, 2013:74). Over the next few decades anecdotal and case-based evidence has continued to grow and stands alongside a growing "body of evidence showing the overall ''de-arousing effect'' of human–animal interactions on human physiology" (Berry 2013: 77).

The positive effect of AAT has been found across a range of settings, with clients who had various health problems: at an inpatients facility for individuals with schizophrenia those assigned to the dog treatment group showed significant improvement; older patients in a rehabilitation unit had a decrease in depression following the presence of a companion bird; interactions dolphins led to a decrease of symptoms for those with mild to moderate depression; animal petting has been found to improve gross and fine motor skills. (Busch, 2016, Kamioka 2014, Gagnon et al., 2004).

A study focusing on children hospitalised on a pediatric oncology unit found 89% of the children who received canine therapy had increased independence and appetite, as well as decreased fear and pain from treatment and procedures (Gagnon et al., 2004). The beneficial effect of canine-assisted interventions on ADHD symptoms was superior to a cognitive-behavioural intervention without canine-assisted intervention, in which only toy dogs (realistic puppets) were utilised; parents rating of their child's social skills and prosocial behaviour also increased after treatment. However, although standardised measures were used, parent ratings were not blind, which might have inadvertently influenced the results. Moreover, these positive changes in behavior did not differ significantly from the treatment with CBT alone (Schuck et al., 2015). Child psychologists have found that AAT is especially useful in helping children who have been

abused or neglected and have insecure attachments (Parish-Plass, 2008).

While there is now a wealth of research completed in this area it has generally suffered from poor design and implementation. There has been consistent difficulty with the internal validity of trials; specifically methodological problems in generating appropriate concealment, blinding, and intention-to-treatment (ITT) analysis (Kamioka et al, 2014). In addition, the variation in animals used and subjects reported illness or disability along with the diversity of intervention used make rigorous analysis and retesting impossible. Furthermore "Although there is increasing information available on the effects of trained dogs used in Animal Assisted Interventions (AAI), including Animal Assisted Therapy (AAT)..... there is little literature available on the effects of pet dogs as an autism therapy. Indeed, the evidence base in the area of AAI in general is constrained by a lack of high quality studies" (Hall, 2016: 2).

A review by Berry et al (2013) investigating the results of six published studies which looked at the effect of assistance and therapy dogs for children ASD. Berry et al (2013) excluded qualitative (anecdotal) studies and only included experimental studies, semi-structured interviews, and case studies, published in the English language in peer-reviewed journals. Burrows et al used the cortisol awakening response (CAR) when examining the effect of assistance dogs on the general welfare of families with children affected by ASD and reported "CAR was decreased upon the introduction of dogs (acute effect), whereas it rose again when the animals were removed from the families (long-term effects)" In semi-structured interviews completed with the parents they reported a decrease in problematic behaviours when the dogs were living with them however an accurate analysis of behavioural change would need to be based on systematic observations (Berry et al, 2013:75).

In another study the introduction of a friendly dog into a therapeutic session, with seriously withdrawn children with ASD, showed a sharp increase in the frequency of both verbal and non-verbal social behaviours. These behaviours were directed toward the dog and the therapist and matched by a corresponding decrease in children's withdrawal. The improvement was maintained to a lesser extent on a 1 month follow-up. Unfortunately the research lacked information on the diagnostic criteria used and a control condition, as such it may be that the positive effects observed was due to the introduction of a novel and exciting stimulus (Berry et al, 2013:75).

Taken together, the studies reviewed are encouraging, since the interaction of children affected by ASD with therapy dogs was able to promote verbal and nonverbal behaviours, directed both towards the dog and the therapist. Berry et al note that methodological problems, small sample sizes and a lack of RCT is a problem for studies in this field but that "intervention strategies, based on exploiting the emotional aspects of the relationship with a dog, can overcome the inability of children affected by ASD to relate and interact with others by targeting some of the core symptoms of this disorder"(Berry et al, 2013:77).

Kamioka et al (2014) conducted a systematic review of articles published between 1990 and 2012 using multiple databases with no data restrictions. From a cache of several hundred potential papers 57 were assessed but only 11 met their selection criteria where the design was a RCT and one of the interventions used was a form of AAT. Protocols without results were excluded and the primary outcome measure was a cure or rehabilitation effect. The animals used in the studies included dogs, cats, dolphins, birds, cow, rabbit, ferret, and guinea pig. Patients were suffering from a range of physical and mental ailments including schizophrenia, cancer, advanced heart failure, depression, ambulatory motor impairment and neurologic conditions. Of the 11 studies, seven studies were focused on mental and behavioural disorders. (Kamioka, 2014: 5).

Kamioka et al "... could not perform a meta-analysis. Due to poor methodological and reporting quality and heterogeneity, there was insufficient evidence in the studies of AAT, and we are therefore unable to offer clearly any conclusions about the effects of AAT based on RCTs" (Kamioka, 2014: 14). They concluded that AAT may be effective for cancer and other life-limiting chronic diseases and ASD but noted that this is likely limited to those patients who like animals as people who don't like animals will likely refuse the intervention altogether (Kamioka, 2014: 15).

Maber- Aleksandrowicz et al (2016) conducted a literature review of studies where AAT was used with people who had an Intellectual Disability (ID) in order to ascertain psychosocial outcomes including, behavioural,

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social, cognitive and emotional factors. They screened 2750 articles of which 47 were assessed eligible for full review based on their abstracts. Of these full text articles 36 were then excluded because they had mixed patient populations without subgroup analysis for the ID group, were not clear regarding the percentage of people with ID, or participants with ID < 85% of population. The remaining 10 studies generally had low numbers of participants so that there was a total number of 100 participants with ID across all studies, in eight out of the ten studies all participants had ID.

Their review once again noted that study designs were weak, with a failure to control for confounding factors and a lack of randomisation or standardised data outcome tools. Other issues include the lack of uniformity in the AAT and a failure to determine whether the positive results were simply a result of the novelty of the inclusion of an animal (Maber- Aleksandrowicz et al 2016: 333). Overall they conclude "Current evidence shows that AAT may be a potentially useful supportive intervention in improving quality of life in persons with ID but good quality research is lacking" (Maber- Aleksandrowicz et al 2016: 336).

While the evidence grows in support of AAT there are various hypotheses being proposed to explain why interactions between children with ASD and dogs result in positive behavioural and social changes. According to Solomon (2010) "Dogs highly anticipatory, unhurried, structurally simple and easy to interpret social actions may be generating a locally organised interactional ground against which is easily projected and realised by children with autism" (Solomon, 2010: 157). It may be that the "simple and interpretable pattern of movements that characterises dogs might facilitate the engagement of children with ASD in structurally simple social actions that do not require the interpretation of verbal cues and are highly repeatable and predictable" (Berry et al, 2013:74). Dogs may be acting as social catalysts or provide a "bridge" by which children can learn how to interpret dog behaviour and then human. Dogs also provide a strong multisensory stimulus. She notes that for children with autism dogs can generate a "social universe" without language and encourage interactions much easier than people can.

If AAT is to be successful there are important factors to consider such as individual patients allergies, fears or phobias. Some patients may feel a natural affinity for animals while others do not like them or are simply uninterested. For children who are diagnosed with ASD age has been found to influence outcomes with older children and those with better conflict management skills responding better (Hall, 2016). Sensory difficulties and arousal levels also need to be considered as

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this can be especially pertinent in children with ASD (Berry, 2013). As such an individual assessment of the patient, including risk factors and possible contraindication is essential (Hall, 2016).

As a therapeutic intervention the use of animals is in its infancy but this is changing and over the last couple of decades the field has rapidly expanded, engendering growing interest from across multiple disciplines. In effectively assessing the potential benefits of AAT research will need to address difficulties in regard to defining the intervention used, understanding the reasons for non-participation, including blinded studies and RCT methodology. Studies that help us understand in what circumstances and under which conditions AAT is beneficial and what may contribute to adverse effects (Kamioka, 2014). As our society becomes increasing urbanised and individuals more isolated animals may be one means by which we can maintain our connection not only with the natural world but also with each other.

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