

COMPANION ANIMALS AND WELL BEING IN PALLIATIVE CARE

NURSING: A LITERATURE REVIEW

Julie M. MacDonald and David Barrett

University of Hull

What does this paper contribute to the wider global clinical community?

- There is some evidence that having a companion animal has a substantial impact on the well-being and healthcare needs of patients requiring palliative care
- In some cases, the delivery of palliative care can be enhanced by using animals as an adjunct to usual care
- More research is required in this area to help nurses understand the role of animals in palliative care.

AIMS AND OBJECTIVES

To evaluate and critique current knowledge regarding the role of animals in palliative care. To explore the impact that animals may have on the wellbeing of individuals and to identify gaps in the evidence base.

BACKGROUND

There is recognition that having a companion animal will affect patient experience. Similarly, there has been some previous exploration on the use of specific animal assisted therapies for patients with different healthcare needs.

DESIGN

A literature review was conducted to identify published and unpublished research about companion animals or animal assisted therapy in palliative and/or end of life care. The primary objective was to explore the impact of animals on well-being at the end of life.

METHODS

A search for literature was carried out using a variety of databases and different combinations of search terms linked to animals in palliative care. Included works were critically appraised and thematically analysed.

RESULTS

A limited range of literature was identified. From the small number of studies included in the review (n=4), it appears that there is some evidence of animals (either companion animals or those used specifically to enhance care) having a positive impact on the patient experience.

CONCLUSION

This study suggests that animals play a large part in the lives of people receiving palliative care. Using animals to support care may also offer some benefits to the patient experience. However, there appears to be a dearth of high quality literature in this area. More research is therefore required.

RELEVANCE TO CLINICAL PRACTICE

Nurses providing palliative care need to be aware of the part that a companion animal may play in the life of patients. There may also be the opportunity for nurses in some settings to integrate animal therapy into their provision of palliative care.

KEYWORDS

Palliative Care, Nursing Care, End of Life Care, Complementary Therapies

INTRODUCTION

Throughout history, some species of animals have been domesticated as both companions (pets) and working animals, offering a significant presence in human lives (Sable 1995, Brodie and Biley 1999, Paschano, Massavelli & Robleda-Gomez 2011). The use of animals for food procurement and pets for human companionship is a worldwide phenomenon. In recent years, interest has developed around the concept of the 'human-animal bond' based upon the nature of unconditional mutuality and interdependency that can sometimes be lacking in human-to-human relationships (Chur-Hansen, Zambrano & Crawford 2013). Wollrab (1998:1675) defines this human-animal bond as, "*a mutually beneficial and dynamic relationship between people and other animals that is influenced by behaviours that are essential to the health and well-being of both.*"

The bond between humans and companion animals in the context of healthcare was highlighted by Florence Nightingale (1859:58): "*A small pet animal is often an excellent companion for the sick, for long chronic cases especially.*" Weiss (1974) reiterated this sentiment by stating that pets could provide opportunities for attachment, social interaction and for more extended social networks. Pets could also substitute for an absence of human companionship and mitigate against loneliness and social isolation. The notion of using pets as a way of managing the absence of human interaction was also identified by Muschel (1984), who interviewed hospice cancer patients in receipt of visits from a pet therapy programme, concluding that the animal interactions addressed a variety of needs not met by staff. The essence of pet interaction was discussed in a study by Allen, Hammon, Kellegrew and Jaffe (2000) on seven men with human immune deficiency virus (HIV) or acquired immune deficiency syndrome (AIDS) which demonstrated the value placed on animal companionship and emotional wellbeing.

Elsewhere, studies have reported the reciprocal unconditional love offered by pets and the need for recognition of the relationship between emotional well-being and physical health. One pet owner described his pets as an emotional buffer against his disease and felt that his pets were as much a part of his longevity as any doctor or medicine (Johnson, Meadows, Haubner & Sevedge 2003). Branch (2008) studied the human-animal bond between pets and women's later life development, finding that women experienced a sense of improved

mental health because of their feeling of unconditional love for their dogs, enhanced physical health through exercising their dogs, and a resulting improvement in their quality of life. Participants particularly highlighted the importance of the human-animal bond in providing unconditional love during times of transitional emotional upheavals such as death. The use of animals in some aspects of healthcare therefore seems to offer a potentially valuable resource for addressing health needs in patients. However, the evidence base related to the role of animals in palliative care is still fragmented and unclear, which may result in care providers overlooking the potential benefits. A literature review was therefore carried out to try and establish the current evidence in this area of care and identify gaps in knowledge that require further study.

AIM

To evaluate and critique current knowledge regarding the role of animals in palliative care. To explore the impact that animals may have on the wellbeing of individuals and to identify gaps in the evidence base.

METHODS

A literature review was conducted to identify published and unpublished research about companion animals in palliative or end-of-life care. The primary objective was to explore the benefits of animals on well-being at the end of life.

The scope of the study was identified using the 'Context, How, Issues, Population' (CHIP) tool outlined by Shaw (2013). This tool enabled identification of the search parameters by confirming the emphasis on animals and well-being in palliative care (Context), the inclusion of studies adopting any research methods (How), the desire to explore patient experience and impact on care (Issues) and the focus on patients at the end of life (Population).

The CHIP tool was also used to categorise the key characteristics of the included studies (table 1). The quality of studies was appraised using the six-question framework (where, how, when,

what, who, why) described by Aveyard (2011). Findings from the selected studies were subjected to thematic analysis, allowing the identification of implications for practice and further research.

Search Strategy

Medline, CINAHL, PsycInfo, and Academic Search Premier were searched. Boolean operators were used to combine the following search terms: (pet* OR “companion animal*”) AND (“palliative care” OR “end of life care” OR dying) AND (“well-being” OR “quality of life” OR lifeworld). This was supplemented by manual searching and the use of the Google internet search engine to identify any grey literature, inclusion of which was felt to be important to minimise the effects of publication bias (McAuley, Pham, Tugwell & Moher, 2000; Hopewell, McDonald, Clarke & Egger, 2007). Some seminal historical health texts were reviewed to gain generic background information. The search criteria included publication between 2000 and 2013, within English-speaking journals. Papers were deemed suitable for inclusion if they studied (through either quantitative or qualitative methods), or reviewed the role of, animals in the delivery of palliative care.

The literature search of electronic databases elicited a number of papers, which were then reviewed to establish their relevance to the provision of palliative care. CINAHL produced six articles, only two of which (Engelmann 2013 and Kumasaka, Masu, Kataoka & Numao, 2012) discussed palliative care and animals and were therefore suitable for inclusion. Academic Search Premier and PsychInfo searches yielded 161 and 275 articles respectively, but the only suitable papers were duplicates of the two articles found by CINAHL. A Medline search produced 275 articles, only one of which - Tanneberger & Köhler (2013) – discussed companion animals in palliative care, but this needed to be excluded as the abstract was in English but the article was written in German. Due to these limited results, the

search was revised by removing the terms ‘wellbeing’, ‘quality of life’ and ‘life world’, resulting in the identification of two suitable articles (Chur-Hansen *et al*, 2013; Chur-Hansen, Stern & Winefield, 2010). In total, four papers were included in the review, the key characteristics of which are summarised in table 1. A summary of the search and screening process, based on the PRISMA template (Moher, Liberati, Tetzlaff & Altman, 2009) can be found in figure 1.

Insert Figure 1 here.

Insert Table 1 here.

RESULTS

Though only four suitable papers were identified during the literature search, it was possible to identify three themes from their findings: categorisation of animal involvement, enhancement of care and methodological challenges.

Categorisation of animal involvement

The four papers described different methods through which animals **be involved with and impact on the well-being** of patients receiving palliative care. In their synthesis of current knowledge, Chur-Hansen *et al* (2010) made an important distinction between the role of companion animals (which were part of patients’ lives outside of healthcare) and that of Animal Assisted Interventions (AAIs), in which specific activities are carried out using animals (such as dogs visiting hospices). This distinction between companion animals and specific, planned interventions involving animals was also made during a follow-up literature review focused more specifically on the role of animals in hospice and palliative care (Chur-Hansen *et al*, 2013).

Two of the included papers described primary research which offered examples of AAIs. The intervention described by Engelman (2013) involved the use of a trained therapy dog with 19 patients receiving palliative pain management. Participants were able to spend time

stroking, watching and talking to the dog, as a supplement to traditional pain management interventions. Kumasaka, *et al* (2012) also explored the potential benefits of specific ‘animal assisted activities’ in palliative care. Focusing on an inpatient palliative care unit in a Japanese General Hospital, the work studied the impact of patients spending 30 minutes with an animal (dog, cat or rabbit).

To overcome issues with different terminology being used within selected studies, the rest of this paper will refer to either ‘companion animals’ or ‘Animal Enhanced Care’ (AEC). This latter term incorporates those planned interventions involving animals, referred to as AAIs or animal assisted activities in previous studies.

Impact on well-being

The evidence from this review suggests that there is a link between individual companionship of animals and the enhancement of human physical, psychological, emotional and spiritual health in the context of palliative care. A previous review of literature in this area also suggests that companion animals may also have symptomatic benefits in terms of pain, psychological distress and fatigue (Chur-Hansen *et al*, 2010).

Though the amount of primary research identified within this review was limited, it suggested that there may also be some **positive impact** for palliative care patients from specific, targeted use of ‘therapy animals’ to improve mood and mitigate symptoms. Engelman (2013) reported that patients found their time spent with a dog to be relaxing, reassuring and – in some cases – linked to a reduction in pain.

To identify the impact of animal assisted activities in the hospital setting, Kumasaka *et al* (2012) used the Loris Face Scale to test any mood changes. 20 patients completed the scale before and after spending 30 minutes with an animal. The mean mood score demonstrated a significant reduction (signifying an improvement in mood) after the interaction with the animal (8.10 vs. 2.66; $p < 0.01$). Sub-set analysis revealed that the impact of the interaction was slightly greater in those patients who – when asked – revealed a baseline fondness for,

or interest in, animals. In neither of the two pieces of primary research outlined above was there any reported harm or negative feedback related to the use of animals in care.

Mechanisms of action

The final theme that emerged from the included studies was related to the mechanisms through which animals may provide benefits.

Where long-term animal companionship brings benefits, Chur-Hansen *et al* (2010) suggest that this is due to a reduction in loneliness and contribution to a general sense of well-being throughout the life course. In planned interventions, Kumasaka *et al* (2012) argue that most of the benefits yielded came from patients viewing the animal as a ‘member of the family’. Similarly, the qualitative study of AEC by Engelman (2013) suggested that the mechanism of action may link to the presence of animals being like having a bit of ‘home in the hospital’. This may imply that another element of hospital-based AEC is to ‘soften’ or reduce the medicalization of the clinical environment and is most effective when delivered as a regular intervention.

Despite the potential, longer-term benefits of relationship-building from AEC, there was also some suggestion that the immediate impact of short, sporadic interventions should not be overlooked. Stroking and touching the animal can be calming, and can provide patients with a presence in the healthcare environment that offers unconditional affection (Chur-Hansen *et al*, 2013) The presence of an animal may also provide a topic of conversation unrelated to the patient’s condition, enabling discussion and strengthening the nurse-patient relationship.

DISCUSSION

This review of recent literature related to the role of animals in palliative care delivery has highlighted a paucity of research **and substantial gaps in the evidence base**. Yielding such a limited range of evidence limits the ability of the review to draw conclusions related to

the current state of knowledge.

However, the themes identified – categorisation of animal involvement, enhancement of care and methodological challenges – provide important starting points for informing practice and developing a more robust evidence base.

Implications for practice

Even though existing evidence is limited in both scope and method, it seems appropriate to conclude that animals in palliative care can potentially provide benefits to patients. However, the precise benefits, the mechanisms of action and the different roles of animals in care still require further clarification. Taking the latter point first, this review reinforces the two distinct roles that animals can play in palliative care. Firstly, there is the relationship between an individual and their own companion animal (often simply referred to as a ‘pet’); secondly there is that of AEC interventions, such as those studied by Kumasaka *et al* (2012). It is important that these categories are distinguished between, as they represent very different contexts of animal involvement (one being the pre-existing relationship between a patient and their pet; one being the deliberate introduction of animals into the delivery of care).

The literature suggests that animals in palliative care provided a range of benefits, through a number of different mechanisms. However, the picture may be more complicated than one where animals will always offer benefits to patients at the end of life. Nurses must be aware of the importance of planning and implementing animal interventions carefully and with the individual needs of patients in mind.

For example, in the context of companion animals, it is possible that the presence of a pet or pets may *add* to the psychological distress of patients. Geisler (2004) recognises that enormous stress may be experienced at the end of life and that one stressor may be the impending separation from a loved companion animal. She argues that it is important to conceptualize and recognise the importance an animal has in the life of a patient as this will, in turn, impact on the needs of patients. Nurses should recognise that palliative patients

may need reassurance that their pet will continue to be looked after when they become too unwell to do so themselves, or after they have died. Conversely, a long-standing companion animal may also provide great comfort and support to a patient and this should not be overlooked in the planning of patient care. Geisler (2004) argues that patients should be routinely asked whether they currently live with an animal and whether they would like that animal (or another animal) to visit them if they require hospital or hospice care.

The potential impacts of AEC described within this review are also dependent on a number of factors. The benefits identified by Kumasaka *et al* (2012) and Engelman (2013) - improving well-being in patients within palliative care units – suggest that when incorporated into practice appropriately, animals can enhance the delivery of care. Certainly, the transient nature of AEC interventions mean that patients will not be subject to anxiety about the ongoing care of a companion animal. However, their work suggests that the benefits of AEC could be optimised by ensuring that interventions are frequent and/or lengthy enough to allow a level of bonding to take place.

Implications for research

The limited amount of research literature identified within this review may be symptomatic of the difficulties in carrying out studies in this area. Palliative care can be an emotionally, ethically and methodologically difficult environment to carry out primary research. Blinding research participants is impossible (though analysis could be blinded) and companion or therapy animals are often used in environments with a range of complex and difficult-to-control variables. These challenges are exacerbated by additional complexities linked to the involvement of animals, such as ensuring animal welfare and controlling any risks (e.g. animal contact for immunocompromised patients).

The studies included within this review highlight a number of these methodological challenges. Some were apparent within the primary research studies: for example, the work of Engelman (2013) has a number of methodological limitations, such as the lack of any

clear sampling strategy or analytical framework. Though the work by Kumasaka *et al* (2012) used a validated measurement tool, it again demonstrated some important methodological limitations, such as the lack of a control group and a number of uncontrolled variables. By taking a purely quantitative approach, the study was also unable to explore any potential mechanisms by which animals improved the moods of patients.

The previous reviews of current knowledge also highlighted a number of broad methodological challenges and limitations associated with the evidence base. These challenges appeared to be responsible – at least in part – for the lack of high-quality research in this area of care. Both advocated a drive to complete quantitative work on potential clinical and social benefits, and qualitative work to identify some of the relationships and mechanisms that might explain the roles of animals in palliative care. (Chur-Hansen *et al*, 2010; Chur-Hansen *et al*, 2013). The later review also began to identify some of the potential methodological problems that might be faced by researchers in this area, such as the ethics of using animals and the impossibility of blinding participants to interventions (Chur-Hansen *et al*, 2013).

To try and address the gaps identified in the evidence base, overcome methodological challenges and clarify the role of animals in palliative care, three potential areas of future study are advocated. Firstly, there is the role and impact of existing companion animals in patients who are receiving palliative care. Greater understanding is required of how the presence of a companion animal will influence patient need at different parts of their journey and how nurses can be cognisant of these needs when providing care.

In the field of AEC, there are two areas of intervention to consider. Firstly, there is the use of AEC in longer-term care, allowing patients to build up therapeutic relationships with animals, without the responsibilities and potential challenges of ownership. Secondly, nurses need to gain a greater understanding of whether there is a role for short-term AEC, providing patients with immediate benefits from the more sensory elements of human-

animal interaction. If there is, then there needs to be a greater understanding of how care environments can accommodate AEC and which patients are most likely to gain benefit.

Each of these areas will require researchers to adopt different methods and approaches. Exploring the clinical benefits may require the use of quantitative methods, ideally adhering to the rigorous standards associated with the evaluation of more traditional healthcare interventions. To understand the mechanisms by which animals affect the wellbeing of people receiving palliative care, qualitative methods must be employed to allow exploration of perceptions, experiences and relationships.

CONCLUSION

Animals play an important and ongoing part in our lives. Whether it is the companionship of a pet, the pleasure of horse riding, or the excitement of a trip to the zoo, humans have an emotional attachment to animals through all stages of life. What this literature review demonstrates is that we have very little understanding of how we can use this attachment to enhance the care of people moving towards the end of their life.

Researching this area is not easy, but it will be rewarding. If nurses can develop a greater awareness of the role played by animals in supporting people with palliative care needs, then they can seek out innovative ways to enhance the care they deliver.

RELEVANCE TO CLINICAL PRACTICE

Nurses providing palliative care to patients need to recognise the impact that companion animals may have on health and well-being. Though companion animals may be a source of comfort, they may also increase patient anxiety due to concerns about what will happen to the pet after the owner's death. As part of their individualised patient assessment, nurses must ensure that they consider any specific needs related to a companion animal.

In some settings – such as hospice care – it may also be useful for palliative care nurses to

explore the possibility of developing and delivering animal enhanced care interventions. However, more research on the impact and effectiveness of these interventions is required.

CONFLICTS OF INTEREST AND FUNDING.

The authors have not received any funding or benefits from anywhere to conduct this study.

REFERENCES

Allen JM, Hammon Kellegrew DH, Jaffe D (2000) The experience of pet ownership as a meaningful occupation. *The Canadian Journal of Occupational Therapy* 67; 4.

Aveyard H (2011) *Doing a literature review in health and social care. A practical guide.* 3rd ed. Maidenhead, Open University Press

Branch L (2008) Women over 50 and Companion Animals: The role of pets in women's later life development. *Dissertation Abstracts International Section A: Humanities and Social Sciences* 69 1-A: 405.

Brodie SJ Biley FC (1999) An exploration of the potential benefit of pet facilitated therapy. *Journal of Clinical Nursing* 8:327-329.

Chur-Hansen A, Stern C, Winefield H (2010) Gaps in the evidence about companion animals and human health: some suggestions for progress. *International Journal of Evidence Based Health* 8: 140-146.

Chur-Hansen A, Zambrano SC, Crawford GB (2013) Furry and Feathered Family Members –

A Critical Review of Their Role in Palliative care. *American Journal of Hospice and Palliative Medicine*. 00(0) 1-6.

Engelmann SR (2013) Palliative care and use of animal-assisted therapy *Omega*, 67 (1-2); 63-67.

Geisler AM Companion animals in palliative care: Stories from the bedside. *American Journal of Hospital Palliative care* 21(4):285-288.

Hopewell S, McDonald S, Clarke M, Egger M (2007) Grey Literature in Meta analyses of randomised trials of health care interventions. *Cochrane Data Systematic Review* 18(2):MR000010.

Johnson RA, Meadows RL, Haubner JS, Sevedge K (2003) Human-Animal Interaction A complementary/alternative Medical (CAM) Intervention for Cancer Patients. *The American Behavioural Scientist* 47; 1.

Kumasaka T, Masu H, Kataoka M, Numao A (2012) Changes in Patient Mood through Animal-Assisted Activities in a Palliative Care Unit. *International Medical Journal* 19(4): 373-377.

McAuley I, Pham B, Tugwell P, Moher D (2000) Does the inclusion of grey literature influence estimates of intervention effectiveness reported in meta analyses? *Lancet* 356 (9237):1228-31.

Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009) Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Medicine* 6(6): e1000097. doi:10.1371/journal.pmed1000097

- Muschel JJ. (1984) Pet therapy with terminal cancer patients. *Social Casework*. 10 (8):451-458.
- Nightingale, F. (1859) *Notes on nursing: What it is, and what it is not*. London, Harrison
- Paschano N A, Massavelli BM, Robledo- Gomez (2011) A development psychological perspective on the human animal bond in Blazinac et al (Eds.). *The psychology of the human-animal bond*. DOI 10.1007/ 978-4419 0761-69.
- Sable P (1995) Pets, attachment, and well- being across the life cycle. *Social Work* 40 (3), 334-341.
- Shaw R (2010) Conducting Literature Reviews in Forrester MA (Ed) *Doing qualitative research in Psychology- A Practical Guide* p39-55. London, Sage.
- Tanneberger S, Köhler U (2013) Companion animals in palliative care: a hidden quality option? *Advances in Gerontology* 26(1), 195-7.
- Wells (2009) The effects of animals on human health and wellbeing. *Journal of Social Issues* 65(3): 523-543.
- Weiss R S (1974) The provisions of social relationships in Z Rubin (Ed) *Doing Unto Others* pp. 17-26 Englewood Cliffs New York; Basic Books.
- Wollrab T I (1998) Human-Animal Bond issues. *Journal of American Veterinary Medical Association* 212(11): 1675.

Summary of the literature included in the review

Author and Date	Focus of Study and Research Question. (Context)	Methodological approach. (How)	Sample (Population)	Results (Issues)	Limitations of study
<p>Engelman SR (2013)</p> <p>Palliative care and use of animal assisted therapy.</p>	<p>The work sought to ascertain the effectiveness of animal assisted therapy (AAT) in the management of palliative care patient's pain.</p>	<p>A therapy dog, accompanied by the researcher, visited patients who were receiving palliative care for pain.</p> <p>The dog spent time with patients, allowing them to stroke her and talk to her. The effectiveness of the intervention was evaluated based on data from written records and reports from patients and staff. No empirical measures were used.</p> <p>The work also included the construction of specific clinical vignettes, one of which was included in the article.</p>	<p>20 patients receiving palliative care input to control pain were approached. 19 of these agreed to receive AAT and be part of the study.</p>	<p>Feedback from the 19 patients involved in the study was extremely positive. Comments related to enhanced well-being and a feeling of relaxation.</p> <p>In five cases, use of the therapy dog was linked to a reported reduction in pain symptoms. The author framed this as being a 'hypnoanalgesia'-like phenomenon.</p> <p>In addition, staff members also reacted very positively to the presence of the therapy dog, with some reports of reduced stress levels.</p>	<p>This was an anecdotal report of patient and staff feedback, accompanied by a detailed case study.</p> <p>The study had no clear research philosophy or method and did not describe sampling techniques in detail.</p> <p>There was no analytical process utilised and no themes were generated from the qualitative data.</p> <p>The work was completed and written by the psychologist and her own therapy dog, potentially introducing bias.</p>

Author and Date	Focus of Study and Research Question. (Context)	Methodological approach. (How)	Sample (Population)	Results (Issues)	Limitations of study
<p>Chur-Hansen A, Zambrano SC Crawford GB (2013)</p> <p>Furry and Feathered Family Members-a critical review of their role in palliative care.</p>	<p>To report on the current evidence related to the role of companion animals for people at the end of life.</p> <p>Though not written as formal review questions, the paper suggested an interest in certain specific areas, such as the types of patients in whom animals might be most beneficial and whether some species of animal were more effective than others.</p>	<p>The authors completed a literature search with a particular focus on animals within hospice care. The search was carried out through PubMed,,PsycINFO, Medline, Scopus and Google Scholar.</p>	<p>Not applicable</p>	<p>Six studies were identified that provided empirical, primary data on the role of animals in hospice care. Only five of these were accessible (one was an unpublished dissertation). Additional literature was in the form of case studies and opinion pieces.</p> <p>The authors concluded that research into this aspect of care was scant and lacking in methodological rigour. They posited that some of this was due to a range of methodological difficulties linked to using animals in palliative care research.</p> <p>Robust and valid quantitative and qualitative research in this area was advocated.</p>	<p>Though the work lists the search databases utilised, there is no detail provided on search terms. Equally, there were no specific inclusion or exclusion criteria for articles outlined.</p> <p>No information was provided on the numbers of articles found that were not suitable for inclusion, nor their reasons for exclusion.</p> <p>The consideration of literature provides a descriptive, rather than thematic overview.</p>

Author and Date	Focus of Study and Research Question. (Context)	Methodological approach. (How)	Sample (Population)	Results (Issues)	Limitations of study
<p>Chur-Hansen A, Stern C, Winefield H. (2010)</p> <p>Gaps in the evidence about companion animals and human health: Some suggestions for progress.</p>	<p>Commentary which reviews some of the claims made by researchers regarding the benefits of companion animals for human physical and mental health.</p> <p>To identify gaps in the evidence base and ascertain why understanding of the role of companion animals is not complete.</p>	<p>Provided a synthesis of knowledge, rather than carrying out a systematic literature review.</p> <p>For the purposes of the review, the work defined companion animals as any animal that shares its life with any human caregiver. This was categorised as being distinct from animal assisted interventions (AAs), which are specific therapies or activities in which animals are deliberately used to support the delivery of healthcare.</p> <p>The work utilised the care of the elderly in residential homes as a specific case study.</p>	<p>Not applicable</p>	<p>The research that existed in relation to companion animals was often inconclusive and contradictory. Two key methodological weaknesses with the evidence base were identified;</p> <p>1: Weak research design. The evidence base is dominated by cross-sectional and descriptive research. Not only is there a dearth of high-quality quantitative research, but the evidence base also lacks robust qualitative work to explore mechanisms and relationships.</p> <p>2) Failure to control for other influences. The authors highlighted the difficulty in applying any causality to the presence or use of animals and health outcomes. Suggestions for future work included greater control of variables using through the use of standardised measures and refined psychometric scales.</p> <p>The authors concluded that due to methodological limitations in the evidence, it was difficult to draw conclusions about the benefits of animals in healthcare – or the mechanisms of action behind any possible benefits. A push for high-quality research in this area of care was advocated.</p>	<p>Though the work provided an overview of some key works, it was not (nor did it claim to be) a systematic or comprehensive review of the evidence base.</p> <p>As a result, there was no detail provided on search terms or methodology; no inclusion or exclusion criteria were offered.</p>

Author and Date	Focus of Study and Research Question. (Context)	Methodological approach. (How)	Sample (Population)	Results (Issues)	Limitations of study
<p>Kumasaka T, Masu H, Kataoka M, Numao A (2012)</p> <p>Changes in Patient Mood Through Animal Assisted Activities in A Palliative Care Unit</p>	<p>To assess objectively the effect of animal assisted activity on the mood and quality of life of hospital inpatients receiving palliative care.</p>	<p>Patients receiving palliative care (all related to cancer) interacted with animals (dogs, cats and rabbits) brought to the hospital by a local veterinary society.</p> <p>Patients interacted with the animals for approximately 30 minutes. The impact of the interaction on mood was established through completion of a standardised and validated tool (the Loris Face Scale). The Scale was completed before and after the intervention and mean scores compared.</p> <p>Prior to the intervention, specific attributes of the participants were gathered, such as gender, age and illness. Views on animals and history of pet ownership were also established to allow for some sub-set analysis.</p>	<p>20 patients with terminal cancer who were hospitalised in the palliative care unit of a Japanese General Hospital between July 2006 and July 2008.</p> <p>Participants had no fear of, or allergies to, animals, and symptoms were relatively well controlled.</p> <p>Overall, 9 men and 11 women, with an average age of 69, were recruited.</p>	<p>In all subjects, the face scale scores were lower after the interaction with animals than they were before – suggesting an improvement in mood. The mean score for all 20 patients before the interaction was 8.1(±3.48) and 2.66(±1.99) after, demonstrating a significant decrease (p<0.01).</p> <p>The scale of decrease in face scale scores (i.e. the positive impact on mood) appeared to be greater in those participants who expressed a previously-held fondness for, or interest in animals. The effect also appeared slightly greater in those participants with a history of dog ownership as opposed another or no pet.</p> <p>The study suggested that interaction with animals in a hospital palliative care setting can be beneficial for the mood of patients. It also suggested that some patients – i.e. those who have an existing predisposition to animals – may benefit more than others.</p>	<p>Though the study utilised a validated scale to assess changes in mood, the conclusions must still be treated with some caution.</p> <p>The before-and-after approach does not allow for any control group to be utilised. It was therefore impossible to control any variables or to draw a conclusive line between the interaction and the change in mood.</p> <p>The study was also unable – due to the methodology used – to identify any mechanisms of benefit from the animal interaction.</p>

Table 1: Summary of included papers

Figure 1: Literature search flowchart

